Exxon Mobil Corporation Baytown Chemical Plant
TPDES Permit No. WQ0001215000 Application 2018

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Reference Key

AR1.0	Administrative Report 1.0
AR1.1	Administrative Report 1.1
TR	Technical Report
SPIF	Supplemental Permit Information Form

INDUSTRIAL ADMINISTRATIVE REPORT 1.0

The following information **is required** for **all** applications—renewals, new, and amendments.

1. TYPE OF APPLICATION AND FEES (Instructions, Page 21)

Permit No.: WQ0001215000

EPA ID No.: TX0007013

- ☐ New TPDES permit
- ☒ Major Amendment with Renewal
- ☐ Renewal of existing permit
- ☐ Minor Amendment to permit
- ☐ New TLAP permit
- ☐ Major Amendment without Renewal
- ☐ Stormwater only discharge
- ☐ Minor modification to permit

If applying for an **amendment** or modification of a permit, please describe the request in detail.

(1) Add Outfall 007. (2) Remove Outfalls 103 and 203. (3) Increase the daily average limit for TSS for Outfall 003 to 198 mg/L. (4) Modify the reporting of the daily average for all pollutants for Outfall 003 that are sampled once a year. (5) Authorize additional wastewaters for Outfall 003. (6) Modify the description of emergency firefighting wastewaters in the list of allowable non-storm water flows.

Please indicate by a check mark the amount submitted for the application fee:

EPA Classification	New	Major Amendment (With or Without Renewal)	Renewal Only	Minor Amendment/ Minor Modification
Minor facility not subject to EPA categorical effluent guidelines (*40 CFR Parts 400-471*)	☐ $350	☐ $350	☐ $315	☐ $150
Minor facility subject to EPA categorical effluent guidelines (*40 CFR Parts 400-471*)	☐ $1,250	☒ $1,250	☐ $1,215	☐ $150
Major facility	N/A*	☐ $2,050	☐ $2,015	☐ $450

* All facilities are designated as minors until formally classified as a major by EPA.

Payment Information:

Mailed — Check or Money Order Number: 6204

Check or Money Order Amount: $1,350.00

Named Printed on Check or Money Order: Tischler/Kocurek

EPAY — Voucher Number:

Copy of Voucher Enclosed? ☐ Yes

Attachment: A-1 Copy of Application Fee Payment. Fee of $1,350 includes an additional $100 for public notice mailing because there are more than 100 adjacent landowners.

5. BILLING CONTACT INFORMATION (Instructions, Page 22)

The permittee is responsible for paying the annual fee. The annual fee will be assessed to permits **in effect on September 1 of each year.** *The TCEQ will send a bill to the address provided in this section. The permittee is responsible for terminating the permit when it is no longer needed (using form TCEQ-20029).*

First/Last Name: Snigdha Joshi Rege Credential:

Organization Name: ExxonMobil Baytown Chemical Plant Title: Environmental Coordinator

Mailing Address: P.O. Box 4004, W-118

City: Baytown State: TX ZIP Code: 77522-4004

Phone No.: 346-259-5146 Ext.: Fax No.: 281-834-5788

E-mail Address: snigdha.n.joshi@exxonmobil.com

6. DMR/MER CONTACT INFORMATION (Instructions, Pages 22-23)

Provide the name and complete mailing address of the person delegated to receive and submit Discharge Monitoring Reports (EPA 3320-1) or Monthly Effluent Reports.

First/Last Name: Robert Catudal Credential:

Organization Name: ExxonMobil Baytown Chemical Plant Title: BTCP Site Manager

Mailing Address: P.O. Box 4004, W-431

City: Baytown State: TX ZIP Code: 77522-4004

Phone No.: 832-625-4090 Ext.: Fax No.: 281-834-2292

E-mail Address: robert.s.catudal@exxonmobil.com

You can submit DMR data on the TCEQ website at https://www.tceq.texas.gov/field/netdmr/netdmr.html. Establish an electronic reporting account with the permit number.

7. NOTICE INFORMATION (Instructions, Pages 23-24)

a. Individual Publishing the Notices

First/Last Name: Snigdha Joshi Rege Credential:

Organization Name: ExxonMobil Baytown Chemical Plant Title: Environmental Coordinator

Mailing Address: P.O. Box 4004, W-118

City: Baytown State: TX ZIP Code: 77522

Phone No.: 346-259-5146 Ext.: Fax No.: 281-834-5788

E-mail Address: snigdha.n.joshi@exxonmobil.com

b. Method for Receiving Notice of Receipt and Intent to Obtain a Water Quality Permit Package

Indicate by a check mark the preferred method for receiving the first notice and instructions:

☒ E-mail Address: snigdha.n.joshi@exxonmobil.com

☐ Fax No.:

☐ Regular Mail:

Mailing Address:

City: State: ZIP Code:

Phone No.: 346-259-5146 Ext.: Fax: 281-834-5788

c. Contact in the Notice

First/Last Name: Snigdha Joshi Rege Credential:

Organization Name: ExxonMobil Baytown Chemical Plant Title: Environmental Coordinator

Phone No.: 346-259-5146 Ext.: E-mail: snigdha.n.joshi@exxonmobil.com

d. Public Place Information

If the facility or outfall is located in more than one county, a public viewing place for each county must be provided.

Public building name: Sterling Municipal Library

Location within the building:

Physical Address of Building: 1 Mary Elizabeth Wilbanks Avenue

City: Baytown County: Harris

Contact Name:

Phone No.: 281-427-7331 Ext.: N/A

e. Bilingual Notice Requirements:

This information **is required** for **new, major amendment, and renewal applications**. It is not required for minor amendment or minor modification applications.

This section of the application is only used to determine if alternative language notices will be needed. Complete instructions on publishing the alternative language notices will be in your public notice package.

Please call the bilingual/ESL coordinator at the nearest elementary and middle schools and obtain the following information to determine whether an alternative language notices are required.

1. Is a bilingual education program required by the Texas Education Code at the elementary or middle school nearest to the facility or proposed facility?

   ☒ Yes ☐ No

   If **no**, publication of an alternative language notice is not required; **skip to** Item 8 (REGULATED ENTITY AND PERMITTED SITE INFORMATION.)

2. Are the students who attend either the elementary school or the middle school enrolled in a bilingual education program at that school?

☒ Yes ☐ No

3. Do the students at these schools attend a bilingual education program at another location?

☐ Yes ☒ No

4. Would the school be required to provide a bilingual education program but the school has waived out of this requirement under 19 TAC §89.1205(g)?

☐ Yes ☒ No

5. If the answer is yes to question 1, 2, 3, or 4, public notices in an alternative language are required. Which language is required by the bilingual program? Spanish

8. REGULATED ENTITY AND PERMITTED SITE INFORMATION (Instructions Pages 24 - 26)

If the site of your business is part of a larger business site, a Regulated Entity Number (RN) may already be assigned for the larger site. Use the RN assigned for the larger site. Search the TCEQ's Central Registry at http://www15.tceq.texas.gov/crpub/index.cfm?fuseaction=regent.RNSearch to determine the RN or to see if the larger site may already be registered as a regulated site:

If the site is found, provide the assigned Regulated Entity Number and provide the information for the site to be authorized through this application below. The site information for this authorization may vary from the larger site information.

TCEQ issued Regulated Entity Number (RN): RN 102574803

a. State/TPDES Permit No.: WQ0001215000 Expiration Date: August 1, 2018

EPA Identification No. (TPDES Permits only): TX 0007013

b. Name of project or site (the name known by the community where located): ExxonMobil Baytown Chemical Plant

c. Is the location address of the facility in the existing permit the same?

☒ Yes ☐ No

d. If the facility is located in Bexar, Comal, Hays, Kinney, Medina, Travis, Uvalde, or Williamson County, additional information concerning protection of the Edwards Aquifer may be required.

e. Owner of treatment facility: Exxon Mobil Corporation

Ownership of Facility: ☐ Public ☒ Private ☐ Both ☐ Federal

f. Owner of land where treatment facility is or will be:

First/Last Name: Exxon Mobil Corporation

Mailing Address: P.O. Box 4004

City: Baytown State: TX ZIP Code: 77522

Phone No.: 346-259-5146 E-mail Address: N/A

If not the same as the facility owner, there must be a long-term lease agreement in effect for at least six years. In some cases, a lease may not suffice - see instructions.

Attachment: N/A

g. Owner of effluent disposal site:

First/Last Name: N/A

Mailing Address:

City: State: ZIP Code:

Phone No.: E-mail Address:

If not the same as the facility owner, there must be a long-term lease agreement in effect for at least six years.

Attachment: N/A

h. Owner of sewage sludge disposal site:

First/Last Name: N/A

Mailing Address:

City: State: ZIP Code:

Phone No.: E-mail Address:

If not the same as the facility owner, there must be a long-term lease agreement in effect for at least six years.

Attachment: N/A

(This information is required only if authorization is sought in the permit for sludge disposal on property owned or controlled by the applicant.)

9. DISCHARGE/ DISPOSAL INFORMATION (Instructions, Pages 26-28)

a. Is the facility located on or does the treated effluent cross American Indian Land?

☐ Yes ☒ No

b. Provide an **original** full size USGS Topographic Map with all required information. Indicate by a check mark that the following information is provided.

- ☒ Applicant's property boundary
- ☒ Treatment facility boundaries
- ☒ Labeled point(s) of discharge and highlighted discharge route(s)
- ☐ Sewage sludge disposal site
- ☐ Effluent disposal site boundaries
- ☒ New and future construction
- ☒ One-mile radius and three-miles downstream information
- ☒ All ponds

c. Is the location of the sewage sludge disposal site in the existing permit accurate?

☐ Yes ☐ No

If **no, or a new permit application**, please give an accurate description:

N/A

d. Are the point(s) of discharge and the discharge route(s) in the existing permit correct?

☐ Yes ☒ No

If **no, or a new or amendment permit application,** provide an accurate description:

This application includes an amendment request to add Outfall 007. See Attachment T-1 Facility Description and T-3 Amendment Requests for a description of the outfall, and Worksheet 4 for a description of the receiving water and discharge route.

e. City nearest the outfall(s): Baytown

f. County in which the outfalls(s) is/are located: Harris

g. Outfall Latitude: Multiple outfalls. See Technical Report, pg. 6. Longitude:

h. Is or will the treated wastewater discharge to a city, county, or state highway right-of-way, or a flood control district drainage ditch?

☒ Yes ☐ No

If **yes**, indicate by a check mark if:

☐ Authorization granted ☒ Authorization pending

For **new and amendment** applications, provide copies of letters that show proof of contact and the approval letter upon receipt.

Attachment: A-7 Outfall 007 NOI Letters to City and County

i. For all applications involving an average daily discharge of 5 MGD or more, provide the names of all counties located within 100 statute miles downstream of the point(s) of discharge.

N/A

j. For TLAPs, is the location of the effluent disposal site in the existing permit accurate?

☒ Yes ☐ No

If **no, or a new or amendment permit application**, provide an accurate description:

N/A

k. City nearest the disposal site: N/A

l. County in which the disposal site is located: N/A

m. Disposal Site Latitude: N/A Longitude: N/A

n. For **TLAPs**, describe the routing of effluent from the treatment facility to the disposal site:

N/A

o. For **TLAPs**, please identify the nearest watercourse to the disposal site to which rainfall runoff might flow if not contained:

N/A

10. MISCELLANEOUS INFORMATION (Instructions, Pages 28-29)

a. Did any person formerly employed by the TCEQ represent your company and gert paid for service regarding this application?

☐ Yes ☒ No

List each person formerly employed by the TCEQ who represented your company and was paid for service regarding the application:

None

b. Do you owe any fees to the TCEQ?

☐ Yes ☒ No

If **yes**, provide the following information:

Account number: Amount past due:

c. Do you owe any penalties to the TCEQ?

☐ Yes ☒ No

If **yes**, please provide the following information:

Enforcement order number: Amount past due:

11. SIGNATURE PAGE (Instructions, Page29)

Permit Number: WQ0001215000

Applicant: Exxon Mobil Corporation

Certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

I further certify that I am authorized under 30 Texas Administrative Code §305.44 to sign and submit this document, and can provide documentation in proof of such authorization upon request.

Signatory name (typed or printed): Robert Catudal

Signatory title: BTCP Site Manager

Signature: Robert A Catudal Date: January 18, 2018

(Use blue ink)

Subscribed and Sworn to before me by the said Robert Catudal

on this 18th day of January, 2018.

My commission expires on the 16th day of December, 2019.

Diana Hessler

Notary Public [SEAL]

Harris

County, Texas

DIANA K. HESSLER
Notary Public, State of Texas
Comm. Expires 12-06-2020
Notary ID 129225765

If co-applicants are necessary, each entity must submit an original, separate signature page.

INDUSTRIAL ADMINISTRATIVE REPORT 1.1

The following information is required for new and amendment applications.

1. AFFECTED LANDOWNER INFORMATION (Instructions, Pages 30-32)

a. Indicate by a check mark that the landowners map or drawing, with scale, includes the following information, as applicable.

- ☒ The applicant's property boundaries
- ☒ The facility site boundaries within the applicant's property boundaries
- ☐ The distance the buffer zone falls into adjacent properties and the property boundaries of the landowners located within the buffer zone
- ☒ The property boundaries of all landowners surrounding the applicant's property (Note: if the application is a major amendment for a lignite mine, the map must include the property boundaries of all landowners adjacent to the new facility (ponds).)
- ☒ The point(s) of discharge and highlighted discharge route(s) clearly shown for one mile downstream
- ☒ The property boundaries of the landowners located on both sides of the discharge route for one full stream mile downstream of the point of discharge
- ☒ The property boundaries of the landowners along the watercourse for a one-half mile radius from the point of discharge if the point of discharge is into a lake, bay, estuary, or affected by tides
- ☐ The boundaries of the effluent disposal site (for example, irrigation area or subsurface drainfield site) and all evaporation/holding ponds within the applicant's property
- ☐ The property boundaries of all landowners surrounding the applicant's property boundaries where the effluent disposal site is located
- ☐ The boundaries of the sludge land application site (for land application of sewage sludge for beneficial use) and the property boundaries of landowners surrounding the applicant's property boundaries where the sewage sludge land application site is located
- ☐ The property boundaries of landowners within one-half mile in all directions from the applicant's property boundaries where the sewage sludge disposal site (for example, sludge surface disposal site or sludge monofill) is located

b. Indicate by a check mark in which format the landowners list is submitted:

☒ Readable/Writeable CD ☐ Four sets of labels

c. ☒ Indicate by a check mark that a separate list with the landowners' names and mailing addresses cross-referenced to the landowners map has been provided.

d. Provide the source of the landowners' names and mailing addresses: Harris County Appraisal District

e. As required by *Texas Water Code § 5.115*, is any permanent school fund land affected by this application?

☐ Yes ☒ No

f. If **yes**, provide the location and foreseeable impacts and effects this application has on the land(s):

N/A

2. ORIGINAL PHOTOGRAPHS (Instructions, Page 32)

Provide original ground level photographs. Indicate with checkmarks that the following information is provided.

- ☒ At least one original photograph of the new or expanded treatment unit location
- ☒ At least two photographs of the existing/proposed point of discharge and as much area downstream (photo 1) and upstream (photo 2) as can be captured. If the discharge is to an open water body (e.g., lake, bay), the point of discharge should be in the right or left edge of each photograph showing the open water and with as much area on each respective side of the discharge as can be captured.
- ☒ At least one photograph of the existing/proposed effluent disposal site
- ☒ A plot plan or map showing the location and direction of each photograph

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

SUPPLEMENTAL PERMIT INFORMATION FORM (SPIF)

FOR AGENCIES REVIEWING INDUSTRIAL TPDES WASTEWATER PERMIT APPLICATIONS

TCEQ USE ONLY:

Application type: ___Renewal ____Major Amendment ____Minor Amendment _____New

County: _____ Segment Number: _____

Admin Complete Date:_____

Agency Receiving SPIF:

_____ Texas Historical Commission _____ U.S. Fish and Wildlife

_____ Texas Parks and Wildlife Department _____ U.S. Army Corps of Engineers

This form applies to TPDES permit applications only. (Instructions, Page 33)

The SPIF must be completed as a separate document. The TCEQ will mail a copy of the SPIF to each agency as required by the TCEQ agreement with EPA. If any of the items are not completely addressed or further information is needed, you will be contacted to provide the information before the permit is issued. Each item must be completely addressed.

Do not refer to a response of any item in the permit application form. Each attachment must be provided with this form separately from the administrative report of the application. The application will not be declared administratively complete without this form being completed in its entirety including all attachments.

The following applies to all applications:

1. Permittee: Exxon Mobil Corporation
2. Permit No. WQ00 01215000 EPA ID No. TX TX0007013
3. Address of the project (location description that includes street/highway, city/vicinity, and county):
   At the intersection of Bayway Drive and Wooster Cedar Bayou County Road in the City of Baytown, Harris County, Texas 77520
4. Provide the name, address, phone and fax number of an individual that can be contacted to answer specific questions about the property.

   First/Last Name: Snigdha Joshi Rege Credential:

   Organization Name: ExxonMobil Baytown Chemical Plant Title: Environmental Coordinator

   Mailing Address: P.O. Box 4004, W-118

   City: Baytown State: TX ZIP Code: 77522-4004

   Phone: 346-259-5146 Fax: 281-834-5788 E-mail Address:

snigdha.n.joshi@exxonmobil.com

5. List the county in which the facility is located: Harris

6. If the property is publicly owned and the owner is different than the permittee/applicant, please list the owner of the property.

N/A

7. Provide a description of the effluent discharge route. The discharge route must follow the flow of effluent from the point of discharge to the nearest major watercourse (from the point of discharge to a classified segment as defined in *30 TAC Chapter 307*). If known, please identify the classified segment number.

From Outfall 003 to an unnamed tidal inlet, thence to Scott Bay in Segment No. 2429 of the Bays and Estuaries. From Outfall 007 to an unnamed ditch, thence to West Fork Goose Creek, thence to Goose Creek, thence to Tabbs Bay in Segment No. 2426 of the Bays and Estuaries.

8. Please provide a separate 7.5-minute USGS quadrangle map with the project boundaries plotted and a general location map showing the project area. Please highlight the discharge route from the point of discharge for a distance of one mile downstream. (This map is required in addition to the map in the administrative report).

9. Provide original photographs of any structures 50 years or older on the property.

10. Does your project involve any of the following? Check all that apply.

- ☐ Proposed access roads, utility lines, construction easements
- ☐ Visual effects that could damage or detract from a historic property's integrity
- ☐ Vibration effects during construction or as a result of project design
- ☒ Additional phases of development that are planned for the future
- ☐ Sealing caves, fractures, sinkholes, other karst features
- ☐ Disturbance of vegetation or wetlands

11. List proposed construction impact (surface acres to be impacted, depth of excavation, sealing of caves, or other karst features):

Private access roads, located within the ExxonMobil property, will be constructed to facilitate access to the work site. Heavy machinery that may produce vibration effects will be utilized during construction.

12. Describe existing disturbances, vegetation, and land use:

Heavily industrialized area

THE FOLLOWING ITEMS APPLY ONLY TO APPLICATIONS FOR NEW TPDES PERMITS AND MAJOR AMENDMENTS TO TPDES PERMITS

13. List construction dates of all buildings and structures on the property:

The site has been used for chemical manufacturing since World War II, when butyl production began as part of a government project. New production units and expansion projects have been constructed periodically since then. With regard to Item 9 above, there is some process equipment that is older than 50 years; photos are not included in the application.

14. Provide a brief history of the property, and name of the architect/builder, if known.

The site has been used for chemical manufacturing since World War II.

TECHNICAL REPORT 1.0
INDUSTRIAL

This application form is for an industrial wastewater discharge authorization only. Your facility may need additional authorizations from the TCEQ Waste Permitting Division or the TCEQ Air Permitting Division.

The following information is required for **all TPDES** and **TLAP** renewal, new, and amendment applications.

1. FACILITY/SITE INFORMATION (Instructions, Pages 35-36)

a. Describe the type of activity and general nature of your business.

See Attachment T-1 Facility Description.

b. Describe the wastewater-generating processes.

See Attachment T-1 Facility Description.

c. Provide a list of raw materials, major intermediates, and products handled at your facility.

Materials List

Raw Materials	Intermediate Products	Final Products
See Attachment T-1 Facility Description, Table 1 Raw Materials, Major Intermediates, and Final Products.		

d. Attach a facility map (drawn to scale) with the following information:

- Production areas, maintenance areas, materials-handling areas, and waste-disposal areas
- The location of each unit of the wastewater treatment plant including the location of wastewater collection sumps, impoundments, and outfalls (also include locations of sampling points if significantly different from outfall locations)

Attachment: T-2 BTCP Stormwater Site Drainage Plan

e. Is this a new permit application for an existing facility?

☐ Yes ☒ No

If **yes**, provide background discussion below.

N/A

f. Is the treatment facility/disposal site located above the 100-year frequency flood level?

☒ Yes ☐ No

List source(s) used to determine 100-year frequency flood plain:

FEMA FIRM Map No. 48201C0935J

If **no**, provide the elevation of the 100-year frequency flood plain and describe what protective measures are in use or planned to be used to prevent flooding of the treatment facility/disposal area.

N/A

g. For new or amendment permit applications, will any construction operations result in a discharge of fill material into a water in the state?

☐ Yes ☒ No

If **no**, proceed to Item 2.

h. If **yes** to the above question, has the applicant applied for a U.S. Army Corps of Engineers 404 Dredge and Fill permit?

☐ Yes ☐ No

If **yes**, provide the permit number: N/A

If **no**, provide the approximate date you anticipate submitting your application to the Corps: N/A

2. TREATMENT SYSTEM (Instructions, Page 36)

a. List any physical, chemical, or biological treatment process that you use for the treatment of wastewater at your facility. Include a description of each treatment process, starting with initial treatment and finishing with the outfall/point of disposal.

See Attachment T-1 Facility Description.

b. Attach a flow schematic with a water balance showing each treatment unit and all sources of water and wastewater flow into the treatment plant and to each outfall/point of disposal.

Attachment: T-1 Facility Description, Figure 1 Wastewater Flow Diagram. A water balance is not provided because the flows from the outfalls are intermittent and variable.

3. IMPOUNDMENTS (Instructions, Pages 36-39)

Do you use or plan to use any wastewater lagoons, ponds, or impoundments?

☒ Yes ☐ No

If **yes**, complete **Item 3.a** for **existing** impoundments and **Items 3.a-3.h** for **new or proposed** impoundments. If **no**, proceed to Item 4.

Please note: Surface impoundments may also require additional authorizations from the TCEQ Waste Permit Division.

a. Provide the following information in the table provided:

Use Designation: Indicate the appropriate use designation for each pond: Treatment **(T)**, Disposal **(D)**, Containment **(C)**, or Evaporation **(E)**.

Associated Outfall Number: If a discharge occurs from the impoundments, designate the outfall associated with the impoundment.

Liner Type: If the impoundments are lined to comply with specifications outlined for 1) a compacted clay liner (C), 2) an in-situ clay liner (I), or 3) a synthetic/plastic/rubber liner (S), indicate the liner type with the appropriate letter designation **(see instructions for further detail on liner specifications)**. If not, provide a reference to the attachment that provides a description of the alternate liner and any additional technical information necessary for an evaluation.

Dimensions: Provide the dimensions, freeboard, surface area, and storage capacity of the impoundments. For impoundments with irregular shapes, submit surface area (instead of length and width), the average depth, and the maximum depth below natural ground level.

Impoundment Information

Parameter	Pond #1 Stormwater Retention Pond (Butyl Polymers Area)	Pond#2 Stormwater Retention Pond (Northwest Chemicals Area)	Pond #3 Stormwater Retention Pond (Outfall 007)	Pond#
Use Designation: (T) (D) (C) or (E)	C	C	C	
Associated Outfall Number	N/A	N/A	007	
Liner Type (C) (I) or (S)	C	C		
Alt. Liner Attachment Reference	N/A	N/A	N/A	
Length (ft)	146.5	N/A	N/A	
Width (ft)	146.5	N/A	N/A	
Depth from Water Surface (ft)	11.5	8.5		
Avg Depth from Nat. Ground Level (ft)	13.5	12.0	3	
Max Depth from Nat. Ground Level (ft)	N/A	N/A	4	
Freeboard (ft)	2.5	3.5		
Surface Area (acres)	0.49	1.01	2.55	
Storage Capacity (gallons)	1,900,000	2,500,000	2,300,000	
Compliance with *40 CFR Chapter 257, Subpart D* is required.	☐ Yes ☒ No	☐ Yes ☒ No	☐ Yes ☒ No	☐ Yes ☐ No

Impoundment Information

Parameter	Pond#	Pond#	Pond#	Pond#
Use Designation: (T) (D) (C) or (E)				
Associated Outfall Number				
Liner Type (C) (I) or (S)				
Alt. Liner Attachment Reference				
Length (ft)				
Width (ft)				
Depth from Water Surface (ft)				
Avg Depth from Nat. Ground Level (ft)				
Max Depth from Nat. Ground Level (ft)				
Freeboard (ft)				
Surface Area (acres)				
Storage Capacity (gallons)				
Compliance with *40 CFR Chapter 257, Subpart D* is required.	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No

The following information (b - h) is required only for **new or proposed** impoundments.

b. Indicate if any of the following data was provided with the application:

- ☐ Compacted clay liner data
- ☐ Synthetic/plastic/rubber liner data
- ☒ In-situ clay liner data

Attachment: The storm water retention pond for Outfall 007 will be reconstructed to accommodate the construction of two new production units. After design of the new pond is completed, specifications and any other necessary information on the pond can be provided to the TCEQ upon request.

c. Are there any leak detection systems or groundwater monitoring wells in place or planned?

☐ Yes ☐ No

If **yes**, attach information on the leak detection system for each pond and groundwater monitoring well data.

Attachment: See note above.

d. Is the bottom of the pond above the seasonal high water table in the shallowest waste-bearing zone?

☐ Yes ☐ No

If **no**, attach additional information describing the depth of the seasonal high water table in the shallowest waste-bearing zone in relation to the depth of the bottom of the new or proposed impoundment and how this may or may not impact groundwater.

Attachment: See note above.

e. Attach a USGS quadrangle map or a color copy of original quality and scale which accurately locates and identifies water supply wells and monitor wells within ½ mile radius of the impoundments

Attachment: See note above.

f. Attach copies of State Water Well Reports (driller's logs, completion data), and data on depths to groundwater for water supply wells including a description of how the depths to groundwater were obtained

Attachment: See note above.

g. For TLAP permit applications: Are new or proposed impoundment(s) and the land application disposal area are located in the same general area?

☒ Yes ☐ No

If **yes**, provide information for this item in Worksheet 3.0 (Item 5).

h. Attach information pertaining to the groundwater, soils, geology, etc. used to assess the potential for migration of wastes from the impoundments or the potential for contamination of groundwater or surface water.

Attachment: See note above.

4. OUTFALL/DISPOSAL METHOD INFORMATION (Instructions, Pages 39-42)

Complete the following tables to describe the location and wastewater discharge or disposal operations for each outfall for discharge operations and for each point of disposal for TLAP operations.

For TLAP permit applications: Indicate the disposal method and each individual irrigation area (I), evaporation pond (E), or subsurface drainage system (S) by providing the appropriate letter designation for the disposal method followed by a numerical designation for each disposal area in the space provided for "Outfall" designation (e.g. "E1" for evaporation pond 1, "I2" for irrigation area No. 2, etc.).

Outfall **Latitude and Longitude**

Outfall Number	Latitude-degrees	Latitude-minutes	Latitude-seconds	Longitude-degrees	Longitude-minutes	Longitude-seconds
003	29	44	31.45	95	01	38.15
103	29	44	43.80 -	95	01	35.91
203	29	44	55.32	95	01	32.73
007	29	45	44.78	95	01	9.30

Outfall **Location Description**

Outfall Number	Location Description
003	At the commingled flow in collection box no. 1
103	At the 30-inch discharge pipe from the Butyl Plant pump station, downstream of the oil/water separator
203	At the 24-inch pipe from the Northwest Chemicals Area pump station, downstream of the oil/water separator
007	At the discharge from the PPU and MPF Storm Water Retention Pond

Description of Sampling Points (if different from Outfall location)

Outfall Number	Description of Sampling Point
003	Same as outfall location
103	Same as outfall location
203	Same as outfall location
007	Same as outfall location

Outfall Flow Information – Permitted and Proposed

Outfall Number	Permitted Daily Avg Flow (MGD)	Permitted Daily Max Flow (MGD)	Proposed Daily Avg Flow (MGD)	Proposed Daily Max Flow (MGD)
003	Intermittent and variable	Intermittent and variable	Intermittent and variable	Intermittent and variable
103	Intermittent and variable	Intermittent and variable	Intermittent and variable	Intermittent and variable
203	Intermittent and variable	Intermittent and variable	Intermittent and variable	Intermittent and variable
007	Intermittent and variable	Intermittent and variable	Intermittent and variable	Intermittent and variable

Outfall Discharge – Method and Measurement

Outfall Number	Pumped Discharge? Y/N	Gravity Discharge? Y/N	Type of Flow Measurement Device Used
003	N	Y	Estimate
103	N	Y	Estimate
203	N	Y	Estimate
007	N	Y	Estimate

Outfall Discharge – Flow Characteristics

Outfall Number	Intermittent Discharge? Y/N	Seasonal Discharge? Y/N	Continuous Discharge? Y/N	Discharge Duration (hours/ day)	Discharge Duration (days/ month)	Discharge Duration (months/ year)
003	Y	N	N	Variable	Variable	Variable
103	Y	N	N	Variable	Variable	Variable
203	Y	N	N	Variable	Variable	Variable
007	Y	N	N	Variable	Variable	Variable

Wastestream Contributions

Outfall No.: 003

Contributing Wastestreams	Volume (MGD)	% of Total Flow
Storm water	Intermittent and variable	N/A
Outfalls 103 and 203	Intermittent and variable	N/A
Other wastewaters, see Attachment T-1 Facility Description, Table 2 Outfall 003 Wastewaters	Intermittent and variable	N/A

Outfall No.: 103 and 203

Contributing Wastestreams	Volume (MGD)	% of Total Flow
Storm water	Intermittent and variable	N/A
De minimis quantities of other facility wastewaters	Intermittent and variable	N/A

Outfall No.: 007

Contributing Wastestreams	Volume (MGD)	% of Total Flow
Storm water	Intermittent and variable	N/A
Other wastewaters, see Attachment T-1 Facility Description, Table 3 Outfall 007 Wastewaters	Intermittent and variable	N/A

Additional Outfall wastestream contributions included as **Attachment:** N/A

5. BLOWDOWN AND ONCE-THROUGH COOLING WATER DISCHARGES (Instructions, Pages 40-41)

a. Does your facility use any cooling towers or boilers that discharge blowdown or other wastestreams to the outfall(s)?

☒ Yes ☐ No

b. Does your facility discharge once-through cooling water to the outfall(s)?

☐ Yes ☒ No

c. If **yes** to either Item a **or** b, attach the appropriate SDS with the following information for each chemical additive.

- Manufacturers Product Identification Number
- Product use (e.g., biocide, fungicide, corrosion inhibitor, etc.)
- Chemical composition including CASRN for each ingredient
- Classify product as non-persistent, persistent, or bioaccumulative
- Product or active ingredient half-life
- Frequency of product use (e.g., 2 hours/day once every two weeks)
- Product toxicity data specific to fish and aquatic invertebrate organisms
- Concentration of whole product in wastestream (if above item is for whole product)
- Concentration of active ingredient in wastestream (if above item is for active ingredient)

Please provide a summary attachment of this information in addition to the submittal of the SDS for each specific wastestream and the associated chemical additives and specify which outfalls are affected.

Attachment: T-4 Treatment Chemicals and SDSs

d. Cooling Towers and Boilers

Cooling Towers and Boilers

Type of Unit	Number of Units	Dly Avg Blowdown (gallons/day)	Dly Max Blowdown (gallons/day)
Cooling Towers	6	Intermittent and variable*	Intermittent and variable*
Boilers	2	Intermittent and variable*	Intermittent and variable*
*Normally routed off-site to the BTRF wastewater system and discharged under TPDES Permit No. WQ0000592000.			

6. STORMWATER MANAGEMENT (Instructions, Page 41)

Are there any existing or proposed outfalls which discharge stormwater runoff commingled with other wastestreams?

☒ Yes ☐ No

If **no**, proceed to Item 7.

If yes, briefly describe the industrial processes and activities that occur outdoors or in some manner that may result in exposure of the materials to precipitation or runoff in areas where runoff is generated.

7. DOMESTIC SEWAGE, SEWAGE SLUDGE, AND SEPTAGE MANAGEMENT AND DISPOSAL (Instructions, Pages 41-42)

a. Please check the appropriate method(s) of domestic sewage and domestic sewage sludge treatment/disposal and complete Worksheet 5.0 or Item 7.b if directed to do so.

- ☒ Facility is connected to a wastewater treatment plant permitted to receive domestic sewage, or the domestic sewage is transported off-site to a permitted facility for treatment, disposal, or both. COMPLETE ITEM 7.b BELOW.
- ☐ Domestic sewage is disposed of by an on-site septic tank and drainfield system. COMPLETE ITEM 7.bBELOW.
- ☐ Both domestic and industrial treatment sludge ARE commingled prior to use or disposal.
- ☐ Industrial wastewater and domestic sewage are treated separately, and the respective sludge IS NOT commingled prior to sludge use or disposal. COMPLETE WORKSHEET 5.0 OF THIS APPLICATION.
- ☐ Facility is a POTW. COMPLETE WORKSHEET 5.0 OF THIS APPLICATION.
- ☒ Domestic sewage is not generated on-site.
- ☒ Other (e.g., portable toilets): Please provide a detailed description:

Domestic sewage is collected in holding tanks and transported by truck to the BTRF sanitary treatment plant or nearby municipal treatment plant.

b. Provide the name and TCEQ, NPDES, or TPDES Permit No. of the waste-disposal facility which receives the domestic sewage/septage. If hauled by motorized vehicle, provide the name and TCEQ Registration No. of the hauler.

Domestic Sewage Plant/Hauler Name

Plant/Hauler Name	Permit/Registration No.
ExxonMobil Baytown Refinery	WQ0000592000
Texas Outhouse	22739
Sprint Waste Services	23833
Port-a-San	23062
AAA Flexible Pipe Cleaning	20010

8. IMPROVEMENTS OR COMPLIANCE/ENFORCEMENT REQUIREMENTS (Instructions, Page 42)

Is the permittee currently required to meet any implementation schedule for compliance or enforcement?

☐ Yes ☒ No

If yes, provide a brief summary of the requirements and a status update.

N/A

9. TOXICITY TESTING (Instructions, Pages 42-43)

Have any biological tests for acute or chronic toxicity been made on any of your discharges or on a receiving water in relation to your discharge within the last three years?

☐ Yes ☒ No

If **yes**, identify the tests and describe their purposes below. Please attach a copy of all tests performed that have not been previously sent to the TCEQ or the EPA.

Attachment: N/A

10. OFF-SITE/THIRD PARTY WASTES (Instructions, Page 43)

Do you receive wastes from off-site sources for any or all of the following: treatment in your facility, disposal on-site via land application, or discharge via a permitted outfall?

☐ Yes ☒ No

If **no**, proceed to Item 11.

If **yes**, provide responses to Items a, b, and c below.

a. Attach the following information to the application:

- List of wastes received
- Characterization of wastes received
- Volumes of each waste received
- Information on compatibility with on-site wastes
- Identified sources of wastes received
- Name and addresses of generators
- Description of the relationship of waste source(s) with your facility's activities

Attachment: N/A

b. Is wastewater from a TCEQ, NPDES, or TPDES permitted facility commingled with your wastewater after your final treatment and prior to discharge via your final outfall/point of disposal?

☐ Yes ☐ No

If **yes**, provide the name, address, and TCEQ, NPDES, or TPDES permit number of the contributing facility and a copy of any agreements or contracts relating to this activity.

Attachment:

c. Is your facility a Publicly Owned Treatment Works (POTW) that accepts process wastewater from any Significant Industrial User (SIU) and has or is required to have an approved pretreatment program under the NPDES/TPDES program?

☐ Yes ☐ No

If **yes**, complete **Worksheet 6.0** of this application.

11. RADIOACTIVE MATERIALS (Instructions, Page 44)

a. Are radioactive materials mined, used, stored, or processed at this facility?

☐ Yes ☒ No

If yes, use the following table to provide the results of one analysis of your effluent for all radioactive materials that may be present. Provide results in picocuries per liter (pCi/L).

Radioactive Materials Mined, Used, Stored, or Processed

Radioactive Material	Concentration (pCi/L)

b. Do you have any knowledge or reason to believe that radioactive materials may be present in the discharge, including naturally occurring radioactive materials in the source waters or on the facility property?

☐ Yes ☒ No

If yes, use the following table to provide the results of one analysis of your effluent for all radioactive materials that may be present. Provide results in picocuries per liter (pCi/L). Do not include information provided in response to Item 11.a.

Radioactive Materials Present in the Discharge

Radioactive Material	Concentration (pCi/L)

12. COOLING WATER INTAKE STRUCTURES (Instructions, Pages 44-46)

a. The facility uses or proposes to use a cooling water intake structure to obtain water for cooling purposes?

☒ Yes ☐ No

If **yes**, complete this item (12. Cooling Water Intake Structures); otherwise, stop here.

b. Cooling Water Supplier

1. Complete the following table with information regarding the Cooling Water Intake Structure(s) owner(s), operator(s), and location

Cooling Water Intake Structure(s) Owner(s), Operator(s), and Location

CWISID	S1013456A – Intake 1 Lake Houston (from TCEQ PWS database)		
Owner	N/A		
Operator	San Jacinto River Authority Highlands Division		
Latitude	29.9243		
Longitude	-95.1253		

2. Cooling water is obtained from a Public Water Supplier (PWS)

☒ Yes ☐ No

If **yes**, provide the Public Water Supplier Registration No. for the entity providing cooling water in the space provided, and stop here.

- PWS Registration Number: TX1013456 (San Jacinto River Authority Highlands)

3. Cooling water is obtained from an Independent Supplier

☐ Yes ☐ No

If **no**, proceed to section c; otherwise, if **yes** provide the following:

- Independent Supplier's TPDES permit number:

  If the Independent Supplier holds a TPDES Industrial Wastewater Permit, provide the permit number in the space provided. Otherwise enter N/A and continue.

- Independent Supplier's CWIS AIF (in MGD):

  Enter the Independent Supplier's CWIS actual intake flow (AIF) in million gallons per day in the space provided, and continue.

- The facility uses or proposes to use less than 25% of the Independent Supplier's CWIS AIF for cooling purposes?

  ☐ Yes ☐ No

  If **yes**, stop here. If **no**, proceed to section c.

c. 316(b) General Criteria

Compete all questions in this section unless otherwise directed.

1. The CWIS(s) have or will have a design intake flow of 2 MGD or greater

☐ Yes ☐ No

2. At least 25% of the total water withdrawn by the CWIS is used or will be used exclusively for cooling purposes on an annual average basis

☐ Yes ☐ No

3. The facility withdraws or proposes to withdraw water for cooling purposes from surface waters that meet the definition of Waters of the United States in *40 CFR § 122.2*

☐ Yes ☐ No

If **no**, provide an explanation of how the waterbody does not meet the definition of Waters of the United States in *40 CFR § 122.2* in the space provided. If additional space is needed for the explanation, include the information as an attachment to the application and provide the attachment number in the space instead.

Explanation:

If **yes** to all three questions in section c above, proceed to section d. If **no** to any of the questions in section c above the facility does not meet the minimum criteria to be subject to the full requirements of 316(b). Complete Worksheet 11.0, items 1(a), 1(b)(i-iii) and (vi), 2(b)(i), and 3(a) to allow for a determination based upon best professional judgement (BPJ).

d. Phase I vs Phase II Facilities

1. Existing facility (Phase II)

☐ Yes ☐ No

If **yes**, complete Worksheets 11.0 through 11.3, as applicable. Otherwise, continue.

2. New Facility – (Phase I)

☐ Yes ☐ No

If **yes**, continue.

3. Compliance track selection (For Phase I only; must choose one of the following)

☐ Track I - AIF greater than 2 MGD, but less than 10 MGD

If selected, include information required under *40 CFR §§ 125.86(b)(2)-(4)* as an attachment and complete Worksheet 11.0, items 2 and 3, and Worksheet 11.2.

☐ Track I - AIF greater than 10 MGD

If selected, include information required under *40 CFR § 125.86(b)* as an attachment and complete Worksheet 11.0, items 2 and 3, and Worksheet 11.2.

☒ TrackII

If selected, include information required under *40 CFR § 125.86(c)* as an attachment and complete Worksheet 11.0, items 2 and 3, and Worksheet 11.2.

Attachment:

Note: Items 12, 13, and 14 are required only for **existing permitted** facilities.

13. MAJOR AMENDMENT REQUESTS (Instructions, Page 46)

Are you requesting a major amendment of an existing permit?

☒ Yes ☐ No

If yes, list each specific request and provide discussion on the scope of any requested permit changes. If necessary, provide supplemental information or additional data that will support the request.

(1) Add Outfall 007. (2) Remove Outfalls 103 and 203. (3) Increase the daily average limit for TSS for Outfall 003 to 198 mg/L. (4) Modify the reporting of the daily average for all pollutants for Outfall 003 that are sampled once a year. (5) Authorize additional wastewaters for Outfall 003. (6) Modify the description of emergency firefighting wastewaters in the list of allowable non-storm water flows. See Attachment T-3 Amendment Requests for additional information.

14. MINOR MODIFICATION REQUESTS (Instructions, Page 47)

Are you requesting any minor modifications to the permit? Note: see the instructions for an exclusive list of changes considered as minor modifications.

☐ Yes ☒ No

If yes, list and discuss the requested changes.

N/A

15. MINOR AMENDMENT REQUESTS (Instructions, Page 47)

Are you requesting any minor amendments to the permit?

☐ Yes ☒ No

If yes, list and discuss the requested changes.

N/A

WORKSHEET 2.0
POLLUTANT ANALYSES REQUIREMENTS

Worksheet 2.0 is **required** for applications submitted for a TPDES permit.

Worksheet 2.0 is **not required** for applications for a permit to dispose of all wastewater by land disposal or for discharges solely of stormwater runoff.

1. LABORATORY ACCREDITATION (Instructions, Page 52)

Effective July 1, 2008, all laboratory tests performed must meet the requirements of *30 TAC Chapter 25, Environmental Testing Laboratory Accreditation and Certification* with the following general exemptions:

a. The laboratory is an in-house laboratory and is:

   1. periodically inspected by the TCEQ; or
   2. located in another state and is accredited or inspected by that state; or
   3. performing work for another company with a unit located in the same site; or
   4. performing pro bono work for a governmental agency or charitable organization.

b. The laboratory is accredited under federal law.

c. The data are needed for emergency-response activities, and a laboratory accredited under the Texas Laboratory Accreditation Program is not available.

d. The laboratory supplies data for which the TCEQ does not offer accreditation.

The applicant should review *30 TAC Chapter 25* for specific requirements. The following certification statement shall be signed and submitted with every application. See Instructions, Page 32, for a list of designated representatives who may sign the certification.

I, _____, certify that all laboratory tests submitted with this application meet the requirements of *30 TAC Chapter 25*, Environmental Testing Laboratory Accreditation and Certification.
Note: Any exceptions are noted in the worksheet tables.

2. GENERAL TESTING REQUIREMENTS (Instructions, Pages 52-54)

Please read the general testing requirements in the instructions for important information about sampling, test methods, MALs, and averaging sample results.

3. SPECIFIC TESTING REQUIREMENTS (Instructions, Pages 54-66)

Table 1 and Table 2 (Instructions, Page 54)

Completion of Tables 1 and 2 is required for all external outfalls for new, renewal, and amendment applications.

Table 1 for Outfall No.: 001

Samples are (check one): ☐ **Composites** ☒ **Grabs**

Pollutant	Sample 1 (mg/L)	Sample2 (mg/L)	Sample 3 (mg/L)	Sample 4 (mg/L)	Average (mg/L)
BOD (5-day)	6.74	2.39	11.7	8.67	7.38
CBOD (5-day)	6.23	2.3	10.3	7.74	6.64
Chemical oxygen demand	29	25	87	63	51
Total organic carbon	5	4.3	9.2	7.5	6.5
Dissolved oxygen	9.15*	8.38*	9.3*	7.63*	8.62*
Ammonia nitrogen	0.0419	0.078	0.2147	0.1846	0.13
Total suspended solids	68.5	54.3	175.4	145.6	111
Nitrate nitrogen	-	0.345	1.57	0.551	0.82
Total organic nitrogen	<0.5	<0.5	0.9	0.6	0.5
Total phosphorus	0.06	0.16	0.32	0.2125	0.19
Oil and grease	<1.11	<1.16	<1.15	<1.15	<1.14
Total residual chlorine	<0.02*	0.08*	<0.02*	<0.02*	0.03*
Total dissolved solids	258	308	1090	272	482
Sulfate	160	141	2955	104	840
Chloride	10.6	8.87	482	20.4	130
Fluoride	0.49	0.423	1.53	<0.5	0.67
Total alkalinity (mg/Las $CaCO_3$)	55	86	88	104	83
Temperature (°F)	76	78	76	64	74
pH (standard units)	7.5	9.2	7.5	7.2	7.8

*The facility was not able to analyze dissolved oxygen, total residual chlorine, and sulfite on-site within the required 15 minutes of sample collection. Analyses of these parameters were measured instead in the laboratory outside of the holding time to provide an estimate of effluent quality.

Table 2 for Outfall No.: 001

Samples are (check one): ☐ **Composites** ☒ **Grabs**

Pollutant	Sample1 (µg/L)	Sample2 (µg/L)	Sample3 (µg/L)	Sample4 (µg/L)	Average (µg/L)	MAL(µg/L)
Aluminum, total	1420	1240	1600	3440	1925	2.5
Antimony, total	2.24	4.71	3.24	4.84	3.76	5
Arsenic, total	4.16	3.8	4.72	5.84	4.63	0.5
Barium, total	46.77	41.08	102.56	92.5	70.73	3
Beryllium, total	0.71	1.08	0.59	1.49	0.97	0.5
Cadmium, total	<0.1	<0.1	0.17	0.16	0.11	1
Chromium, total	3.59	4.02	5.85	8.49	5.49	3
Chromium, hexavalent	1	2	<0.5	<0.5	0.88	3
Chromium, trivalent	2.6	2	5.8	8.5	4.73	N/A
Copper, total	10.65	7.81	14.11	18.43	12.75	2
Cyanide, available	<6	<6	<6	<6	<6	2/10
Lead, total	4.96	5.32	11.65	14.48	9.10	0.5
Mercury, total	0.00916	0.00584	0.0514	0.035	0.0254	0.005/0.0005
Nickel, total	3.09	3.31	4.41	6.48	4.32	2
Selenium, total	0.73	<0.7	0.93	0.94	0.74	5
Silver, total	<0.1	<0.1	<0.1	0.23	0.10	0.5

Pollutant	Sample 1 (µg/L)	Sample2 (µg/L)	Sample3 (µg/L)	Sample4 (µg/L)	Average (µg/L)	MAL(µg/L)
Thallium, total	<0.1	<0.1	<0.1	<0.1	<0.1	0.5
Zinc, total	54.27	105.69	215.6	210.45	146.5	5.0

TABLE 3 (Instructions, Page 54).

Completion of Table 3 is required for all external outfalls which discharge process wastewater.

Partial completion of Table 3 is required for all external outfalls with non-process wastewater discharges.

For discharges of stormwater runoff commingled with other wastestreams, complete Table 3 as instructed

Table 3 for Outfall No.: 003

Samples are (check one): ☐ **Composites** ☒ **Grabs**

Pollutant	Samp.1 (µg/L)*	Samp. 2 (µg/L)*	Samp.3 -(µg/L)*	Samp.4 (µg/L)*	Avg. (µg/L)*	MAL (µg/L)*
Acrylonitrile	<3	<3	<3	<3	<3	50
Anthracene	<2	<2	<2	<2	<2	10
Benzene	<1	<1	<1	<1	<1	10
Benzidine	<13	<13	<13	<13	<13	50
Benzo(a)anthracene	<2	<2	<2	<2	<2	5
Benzo(a)pyrene	<2	<2	<2	<2	<2	5
Bis(2-chloroethyl)ether	<1	<1	<1	<1	<1	10
Bis(2-ethylhexyl)phthalate	<2	<2	<2	<2	<2	10
Bromodichloromethane [Dichlorobromomethane]	<1	<1	<1	<1	<1	10
Bromoform	4.8	113	<1	<1	29.7	10
Carbon tetrachloride	<1	<1	<1	<1	<1	2
Chlorobenzene	<1	<1	<1	<1	<1	10
Chlorodibromomethane [Dibromochloromethane]	<1	<1	<1	<1	<1	10
Chloroform	<1	<1	<1	1	0.6	10
Chrysene	<2	<2	<2	<2	<2	5
m-Cresol [3-Methylphenol]	<5	<5	<5	<5	<5	10
o-Cresol [2-Methylphenol]	<2	<2	<2	<2	<2	10
p-Cresol [4-Methylphenol]	<5	<5	<5	<5	<5	10
1,2-Dibromoethane	<1	<1	<1	<1	<1	10
m-Dichlorobenzene [1,3-Dichlorobenzene]	<1	<1	<1	<1	<1	10
o-Dichlorobenzene [1,2-Dichlorobenzene]	<1	<1	<1	<1	<1	10
p-Dichlorobenzene [1,4-Dichlorobenzene]	<1	<1	<1	<1	<1	10
3,3'-Dichlorobenzidine	<5	<5	<5	<5	<5	5
1,2-Dichloroethane	<1	<1	<1	<1	<1	10
1,1-Dichloroethene [1,1-Dichloroethylene]	<1	<1	<1	<1	<1	10

Pollutant	Samp.1 (µg/L)*	Samp. 2 (µg/L)*	Samp.3 (µg/L)*	Samp.4 (µg/L)*	Avg. (µg/L)*	MAL (µg/L)*
Dichloromethane [Methylene chloride]	<1	<1	<1	<1	<1	20
1,2-Dichloropropane	<1	<1	<1	<1	<1	10
1,3-Dichloropropene [1,3-Dichloropropylene]	<1	<1	<1	<1	<1	10
2,4-Dimethylphenol	<4	<4	<4	<4	<4	10
Di-n-Butyl phthalate	<2	<2	2.9	<2	1.5	10
Ethylbenzene	<1	<1	<1	<1	<1	10
Fluoride	490	423	1530	<500	673	500
Hexachlorobenzene	<2	<2	<2	<2	<2	5
Hexachlorobutadiene	<3	<3	<3	<3	<3	10
Hexachlorocyclopentadiene	<2	<2	<2	<2	<2	10
Hexachloroethane	<2	<2	<2	<2	<2	20
Methylethylketone	<1	<1	<1	<1	<1	50
Nitrobenzene	<2	<2	<2	<2	<2	10
N-Nitrosodiethylamine	<3	<3	<3	<3	<3	20
N-Nitroso-di-n-butylamine	<20	<20	<20	<20	<20	20
Nonylphenol	<5	<2.5	<2.5	<2.5	<3.1	333
Pentachlorobenzene	<3	<3	<3	<3	<3	20
Pentachlorophenol	<2	<2	<2	<2	<2	5
Phenanthrene	<2	<2	<2	<2	<2	10
Polychlorinated biphenyls (PCBs) (**)	<0.175	<0.175	<0.175	<0.0094	<0.1	0.2
Pyridine	<10	<10	<10	<10	<10	20
1,2,4,5-Tetrachlorobenzene	<3	<3	<3	<3	<3	20
1,1,2,2-Tetrachloroethane	<1	<1	<1	<1	<1	10
Tetrachloroethene [Tetrachloroethylene]	<1	<1	<1	<1	<1	10
Toluene	<1	2.5	<1	<1	1.0	10
1,1,1-Trichloroethane	<1	<1	<1	<1	<1	10
1,1,2-Trichloroethane	<1	<1	<1	<1	<1	10
Trichloroethene [Trichloroethylene]	<1	<1	<1	<1	<1	10
2,4,5-Trichlorophenol	<3	<3	<3	<3	<3	50
TTHM (Total trihalomethanes)	4.8	113	<2	<2	30	10
Vinyl chloride	<1	<1	<1	<1	<1	10

(*) Indicate units if different from µg/L.

(**) Total of detects for PCB-1242, PCB-1254, PCB-1221, PCB-1232, PCB-1248, PCB-1260, and PCB-1016. If all non-detects, enter the highest non-detect preceded by a "<".

TABLE 4 (Instructions, Page 55

Partial completion of Table 4 (only those pollutants which are required by the conditions specified below) **is required** for each external outfall.

Completion of Table 4 **is not required** for internal outfalls.

a. *Tributyltin*

Is your facility an industrial/commercial facility which directly disposes of wastewater from the types of operations listed below or a domestic facility which receives wastewater from the types of industrial/commercial operations listed below?

☐ Yes ☒ No

If **yes**, indicate all of the following criteria which apply and provide the appropriate testing results in the table below.

☐ Manufacturers and formulators of tributyltin or related compounds

☐ Painting of ships, boats and marine structures

☐ Ship and boat building and repairing

☐ Ship and boat cleaning, salvage, wrecking and scaling

☐ Operation and maintenance of marine cargo handling facilities and marinas

☐ Facilities engaged in wood preserving

☐ Any other industrial/commercial facility for which tributyltin is known to be present, or for which there is any reason to believe that tributyltin may be present in the effluent.

b. *Enterococci*

Does or will your facility discharge **directly** into **saltwater** receiving waters **and**:

Enterococci bacteria are expected to be present in the discharge based on facility processes?

☐ Yes ☒ No

Domestic wastewater is or will be discharged?

☐ Yes ☒ No

If **yes** to either question, provide the appropriate testing results in Table 4 below.

c. *E.coli*

Does or will your facility discharge **directly** into **freshwater** receiving waters **and**:

E. coli bacteria are expected to be present in the discharge based on facility processes?

☐ Yes ☒ No

Domestic wastewater is or will be discharged?

☐ Yes ☒ No

If **yes** to either question, provide the appropriate testing results in Table 4 below.

Table 4 for Outfall No.: N/A

Samples are (check one): ☐ **Composites** ☐ **Grabs**

Pollutant	Sample1	Sample2	Sample 3	Sample 4	Average	MAL
Tributyltin (µg/L)						0.010
Enterococci (cfu or MPN/100 mL)						N/A
E.coli (cfu or MPN/100 mL)						N/A

TABLE 5 (Instructions, Page 56)

Completion of Table5 **is required** for all external outfalls which discharge process wastewater or other wastewaters which may contain pesticides or herbicides from a facility which manufactures or formulates pesticides or herbicides. Completion of Table5 **is not required** for internal outfalls.

Does your facility manufacture or formulate pesticides or herbicides?

☐ Yes ☒ No

If **yes**, provide the appropriate testing results in Table 5.

Table 5 for Outfall No.: N/A

Samples are (check one): ☐ **Composites** ☐ **Grabs**

Pollutant	Sample1 (µg/L)*	Sample2 (µg/L)*	Sample3 (µg/L)*	Sample4 (µg/L)*	Average (µg/L)*	MAL (µg/L)*
Aldrin						0.01
Carbaryl						5
Chlordane						0.2
Chlorpyrifos						0.05
4,4'-DDD						0.1
4,4'-DDE						0.1
4,4'-DDT						0.02
2,4-D						0.7
Danitol [Fenpropathrin]						---
Demeton						0.20
Diazinon						0.5/0.1
Dicofol [Kelthane]						1
Dieldrin						0.02
Diuron						0.090
Endosulfan I (*alpha*)						0.01
Endosulfan II (*beta*)						0.02
Endosulfan sulfate						0.1
Endrin						0.02
Guthion [Azinphos methyl]						0.1
Heptachlor						0.01
Heptachlor epoxide						0.01
Hexachlorocyclohexane (*alpha*)						0.05
Hexachlorocyclobexane (*beta*)						0.05
Hexachlorocyclohexane (*gamma*) [Lindane]						0.05
Hexachlorophene						10
Malathion						0.1
Methoxychlor						2.0
Mirex						0.02
Parathion (ethyl)						0.1
Toxaphene						0.3
2,4,5-TP [Silvex]						0.3

* Indicate units if different from µg/L.

TABLE 6 (Instructions, Page 56)

Completion of Table 6 is required for all external outfalls but is not required for internal outfalls.

Table 6 for Outfall No.: 003

Samples are (check one): ☐ **Composites** ☒ **Grabs**

Pollutants	Believed Present	Believed Absent	Average Concentration (mg/L)	Maximum Concentration (mg/L)	No.of Samples	MAL (µg/L)*
Bromide	☒	☐	-	0.996	1	400
Color (PCU)	☒	☐	-	20	1	--
Nitrate-Nitrite (as N)	☒	☐	-	0.4	1	--
Sulfide (as S)	☐	☒	-	<0.03	1	--
Sulfite (as SO_3)	☐	☒	-	<2	1	--
Surfactants	☐	☒	-	<0.1	1	--
Boron, total	☒	☐	-	0.024	1	20
Cobalt, total	☒	☐	-	0.00057	1	0.3
Iron, total	☒	☐	-	1.1	1	7
Magnesium, total	☒	☐	-	2.13	1	20
Manganese, total	☒	☐	-	0.03385	1	0.5
Molybdenum, total	☒	☐	-	0.00555	1	1
Tin, total	☐	☒	-	<0.005	1	5
Titanium, total	☒	☐	-	0.021	1	30

* Indicate units if different from µg/L.

TABLE 7 (Instructions, Page 56)

Indicate any of the industrial categories applicable to your facility; otherwise, check the "N/A" box below. If GC/MS testing is required, indicate with an 'x' in the box provided that the testing results for the appropriate parameters are provided with the application.

☐ N/A

Table 7 for Applicable Industrial Categories

Industrial Category	40CFR Part	Volatiles Table 8	Acids Table9	Bases/Neutrals Table 10	Pesticides Table 11
☐ Adhesives and Sealants		☐ Yes	☐ Yes	☐ Yes	No
☐ Aluminum Forming	467	☐ Yes	☐ Yes	☐ Yes	No
☐ Auto and Other Laundries		☐ Yes	☐ Yes	☐ Yes	☐ Yes
☐ Battery Manufacturing	461	☐ Yes	No	☐ Yes	No
☐ Coal Mining	434	No	No	No	No
☐ Coil Coating	465	☐ Yes	☐ Yes	☐ Yes	No
☐ Copper Forming	468	☐ Yes	☐ Yes	☐ Yes	No
☐ Electric and Electronic Components	469	☐ Yes	☐ Yes	☐ Yes	☐ Yes
☐ Electroplating	413	☐ Yes	☐ Yes	☐ Yes	No
☐ Explosives Manufacturing	457	No	☐ Yes	☐ Yes	No
☐ Foundries		☐ Yes	☐ Yes	☐ Yes	No
☐ Gum and Wood Chemicals - Subparts A,B,C,E	454	☐ Yes	☐ Yes	No	No
☐ Gum and Wood Chemicals- Subparts D,F	454	☐ Yes	☐ Yes	☐ Yes	No
☐ Inorganic Chemicals Manufacturing	415	☐ Yes	☐ Yes	☐ Yes	No
☐ Iron and Steel Manufacturing	420	☐ Yes	☐ Yes	☐ Yes	No
☐ Leather Tanning and Finishing	425	☐ Yes	☐ Yes	☐ Yes	No
☐ Mechanical Products Manufacturing		☐ Yes	☐ Yes	☐ Yes	No
☐ Nonferrous Metals Manufacturing	421,471	☐ Yes	☐ Yes	☐ Yes	☐ Yes
☐ Ore Mining- Subpart B	440	No	☐ Yes	No	No
☒ Organic Chemicals Manufacturing	414	☒ Yes	☒ Yes	☒ Yes	☒ Yes
☐ Paint and Ink Formulation	446,447	☐ Yes	☐ Yes	☐ Yes	No
☐ Pesticides	455	☐ Yes	☐ Yes	☐ Yes	☐ Yes
☐ Petroleum Refining	419	☐ Yes	No	No	No
☐ Pharmaceutical Preparations	439	☐ Yes	☐ Yes	☐ Yes	No
☐ Photographic Equipment and Supplies	459	☐ Yes	☐ Yes	☐ Yes	No
☒ Plastic and Synthetic Materials Manufacturing	414	☒ Yes	☒ Yes	☒ Yes	☒ Yes
☐ Plastic Processing	463	☐ Yes	No	No	No
☐ Porcelain Enameling	466	No	No	No	No
☐ Printing and Publishing		☐ Yes	☐ Yes	☐ Yes	☐ Yes
☐ Pulp and Paperboard Mills-Subpart C	430	☐ *	☐ Yes	☐ *	☐ Yes
☐ Pulp and Paperboard Mills- Subparts F, K	430	☐ *	☐ Yes	☐ *	☐ *
☐ Pulp and Paperboard Mills - Subparts A, B, D, G, H	430	☐ Yes	☐ Yes	☐ *	☐ *
☐ Pulp and Paperboard Mills- Subparts I, J, L	430	☐ Yes	☐ Yes	☐ *	☐ Yes
☐ Pulp and Paperboard Mills-Subpart E	430	☐ Yes	☐ Yes	☐ Yes	☐ *
☐ Rubber Processing	428	☐ Yes	☐ Yes	☐ Yes	No
☐ Soap and Detergent Manufacturing	417	☐ Yes	☐ Yes	☐ Yes	No
☐ Steam Electric Power Plants	423	☐ Yes	☐ Yes	No	No
☐ Textile Mills (Not Subpart C)	410	☐ Yes	☐ Yes	☐ Yes	No
☐ Timber Products Processing	429	☐ Yes	☐ Yes	☐ Yes	☐ Yes

* Test if believed present.

TABLES 8, 9, 10, and 11 (Instructions, Pages 56-57)

Completion of Tables 8, 9, 10, and 11 **is required** as specified in Table 7 for all external outfalls that contain process wastewater.

Completion of Tables 8, 9, 10, and 11 **is not required** for internal outfalls.

Completion of Tables 8, 9, 10, and 11 **may be required** for types of industry not specified in Table 7 for specific parameters that are believed to be present in the wastewater.

Table 8 for Outfall No.: 003: Volatile Compounds
Samples are (check one): ☐ **Composites** ☒ **Grabs**

Pollutant	Average (µg/L)*	Maximum (µg/L)*	No. of Samples	MAL (µg/L)
Acrolein	<6	<6	4	50
Acrylonitrile	<3	<3	4	50
Benzene	<1	<1	4	10
Bromoform	29.7	113	4	10
Carbon tetrachloride	<1	<1	4	2
Chlorobenzene	<1	<1	4	10
Chlorodibromomethane	<1	<1	4	10
Chloroethane	<1	<1	4	50
2-Chloroethylvinyl ether	<6	<6	4	10
Chloroform	0.6	1	4	10
Dichlorobromomethane [Bromodichloromethane]	<1	<1	4	10
1,1-Dichloroethane	<1	<1	4	10
1,2-Dichloroethane	<1	<1	4	10
1,1-Dichloroethylene [1,1-Dichloroethene]	<1	<1	4	10
1,2-Dichloropropane	<1	<1	4	10
1,3-Dichloropropylene [1,3-Dichloropropene]	<1	<1	4	10
Ethylbenzene	<1	<1	4	10
Methyl bromide [Bromomethane]	<2	<2	4	50
Methyl chloride [Chloromethane]	<1	<1	4	50
Methylene chloride [Dichloromethane]	<1	<1	4	20
1,1,2,2-Tetrachloroethane	<1	<1	4	10
Tetrachloroethylene [Tetrachloroethene]	<1	<1	4	10
Toluene	1.0	2.5	4	10
1,2-Trans-dichloroethylene [1, 2-Trans-dichloroethene]	<1	<1	4	10
1,1,1-Trichloroethane	<1	<1	4	10
1,1,2-Trichloroethane	<1	<1	4	10
Trichloroethylene [Trichloroethene]	<1	<1	4	10
Vinyl chloride	<1	<1	4	10

Table 9 for Outfall No.: 003: Acid Compounds
Samples are (check one): ☐ **Composites** ☒ **Grabs**

Pollutant	Average (µg/L)*	Maximum (µg/L)*	No.of Samples	MAL (µg/L)
2-Chlorophenol	<1	<1	4	10
2,4-Dichlorophenol	<2	<2	4	10
2,4-Dimethylphenol	<4	<4	4	10
4,6-Dinitro-o-cresol	<2	<2	4	50
2,4-Dinitrophenol	<2	<2	4	50
2-Nitrophenol	<2	<2	4	20
4-Nitrophenol	<2	<2	4	50
p-Chloro-m-cresol	<1	<1	4	10
Pentachlorophenol	<2	<2	4	5
Phenol	<3	<3	4	10
2,4,6-Trichlorophenol	<2	<2	4	10

Table 10 for Outfall No.: 003: Base/Neutral Compounds
Samples are (check one): ☐ **Composites** ☒ **Grabs**

Pollutant	Average (µg/L)*	Maximum (µg/L)*	No.of Samples	MAL (µg/L)
Acenaphthene	<3	<3	4	10
Acenaphthylene	<3	<3	4	10
Anthracene	<2	<2	4	10
Benzidine	<13	<13	4	50
Benzo(a)anthracene	<2	<2	4	5
Benzo(a)pyrene	<2	<2	4	5
3,4-Benzofluoranthene [Benzo(b)fluoranthene]	<3	<3	4	10
Benzo(ghi)perylene	<3	<3	4	20
Benzo(k)fluoranthene	<2	<2	4	5
Bis(2-chloroethoxy)methane	<2	<2	4	10
Bis(2-chloroethyl)ether	<1	<1	4	10
Bis(2-chloroisopropyl)ether	<1	<1	4	10
Bis(2-ethylhexyl)phthalate	<2	<2	4	10
4-Bromophenyl phenyl ether	<2	<2	4	10
Butylbenzyl phthalate	<2	<2	4	10
2-Chloronaphthalene	<3	<3	4	10
4-Chlorophenyl phenyl ether	<2	<2	4	10
Chrysene	<2	<2	4	5
Dibenzo(a,h)anthracene	<2	<2	4	5
1,2-Dichlorobenzene [o-Dichlorobenzene]	<1	<1	4	10
1,3-Dichlorobenzene [m-Dichlorobenzene]	<1	<1	4	10
1,4-Dichlorobenzene [p-Dichlorobenzene]	<1	<1	4	10

Pollutant	Average (µg/L)*	Maximum (µg/L)*	No.of Samples	MAL (µg/L)
3,3'-Dichlorobenzidine	<5	<5	4	5
Diethyl phthalate	<2	<2	4	10
Dimethyl phthalate	<2	<2	4	10
Di-n-butyl phthalate	1.5	2.9	4	10
2,4-Dinitrotoluene	<2	<2	4	10
2,6-Dinitrotoluene	<2	<2	4	10
Di-n-octyl phthalate	<2	<2	4	10
1,2-Diphenylhydrazine (as Azobenzene)	<2	<2	4	20
Fluoranthene	<2	<2	4	10
Fluorene	<3	<3	4	10
Hexachlorobenzene	<2	<2	4	5
Hexachlorobutadiene	<3	<3	4	10
Hexachlorocyclopentadiene	<2	<2	4	10
Hexachloroethane	<2	<2	4	20
Indeno(1,2,3-cd)pyrene	<2	<2	4	5
Isophorone	<2	<2	4	10
Naphthalene	<3	<3	4	10
Nitrobenzene	<2	<2	4	10
N-Nitrosodimethylamine	<1	<1	4	50
N-Nitrosodi-n-propylamine	<1	<1	4	20
N-Nitrosodiphenylamine	<2	<2	4	20
Phenanthrene	<2	<2	4	10
Pyrene	<2	<2	4	10
1,2,4-Trichlorobenzene	<2	<2	4	10

Table 11 for Outfall No.: 003: Pesticides

Samples are (check one): ☐ **Composites** ☒ **Grabs**

Pollutant	Average (µg/L)*	Maximum (µg/L)*	No.of Samples	MAL (µg/L)
Aldrin	-	<0.003	1	0.01
alpha-BHC [alpha-Hexachlorocyclohexane]	-	<0.003	1	0.05
beta-BHC [beta-Hexachlorocyclohexane]	-	<0.004	1	0.05
gamma-BHC [gamma-Hexachlorocyclohexane]	-	<0.003	1	0.05
delta-BHC [delta-Hexachlorocyclohexane]	-	<0.003	1	0.05
Chlordane	-	<0.1	1	0.2
4,4'-DDT	-	<0.003	1	0.02
4,4'-DDE	-	<0.004	1	0.1
4,4'-DDD	-	<0.004	1	0.1
Dieldrin	-	<0.003	1	0.02
Endosulfan I (alpha)	-	<0.003	1	0.01
Endosulfan II (beta)	-	<0.003	1	0.02

Pollutant	Average (µg/L)*	Maximum (µg/L)*	No.of Samples	MAL (µg/L)
Endosulfan sulfate	-	<0.004	1	0.1
Endrin	-	<0.004	1	0.02
Endrin aldehyde	-	<0.004	1	0.1
Heptachlof	-	<0.004	1	0.01
Heptachlof epoxide	-	<0.004	1	0.01
PCB 1242	<0.066	<0.085	4	0.2
PCB 1254	<0.066	<0.085	4	0.2
PCB 1221	<0.066	<0.085	4	0.2
PCB 1232	<0.066	<0.085	4	0.2
PCB 1248	<0.066	<0.085	4	0.2
PCB 1260	<0.134	<0.175	4	0.2
PCB 1016	<0.096	<0.125	4	0.2
Toxaphene	-	<0.1	1	0.3

* Indicate units if different from µg/L

TABLE 12 (DIOXINS/FURAN COMPOUNDS)

Complete Table 12 as directed. Table 12 is not required for internal outfalls. (Instructions, Pages 57-58)

a. Are any of the following compounds manufactured or used in a process at the facility?

☐ Yes ☒ No

If **yes**, indicate which compound(s) are manufactured or used at the facility and provide a brief description of the conditions of its/their presence at the facility.

☐	2,4,5-trichlorophenoxy acetic acid	(2,4,5-T)	CASRN 93-76-5
☐	2-(2,4,5-trichlorophenoxy) propanoic acid	(Silvex, 2,4,5-TP)	CASRN 93-72-1
☐	2-(2,4,5-trichlorophenoxy) ethyl 2,2-dichloropropionate	(Erbon)	CASRN 136-25-4
☐	0,0-dimethyl 0-(2,4,5-trichlorophenyl) phosphorothioate	(Ronnel)	CASRN 299-84-3
☐	2,4,5-trichlorophenol	(TCP)	CASRN 95-95-4
☐	hexachlorophene	(HCP)	CASRN 70-30-4

Description:

b. Do you know or have any reason to believe that 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) or any congeners of TCDD may be present in your effluent?

☐ Yes ☒ No

If yes, provide a brief description of the conditions for its presence.

c. If you responded **yes** to either Item a **or** b, complete Table 12 as instructed.

Table 12 for Outfall No.: N/A
Samples are (check one): ☐ **Composites** ☐ **Grabs**

Compound	Toxicity Equivalent Factors	Wastewater Concentration (ppq)	Wastewater Toxicity Equivalents (ppq)	Sludge Concentration (ppt)	Sludge Toxicity Equivalents (ppt)	MAL (ppq)
2,3,7,8-TCDD	1					10
1,2,3,7,8-PeCDD	0.5					50
2,3,7,8-HxCDDs	0.1					50
1,2,3,4,6,7,8-HpCDD	0.01					50
2,3,7,8-TCDF	0.1					10
1,2,3,7,8-PeCDF	0.05					50
2,3,4,7,8-PeCDF	0.5					50
2,3,7,8-HxCDFs	0.1					50
2,3,4,7,8-HpCDFs	0.01					50
OCDD	0.0003					100
OCDF	0.0003					100
PCB77	0.0001					500
PCB 81	0.0003					500
PCB 126	0.1					500
PCB 169	0.03					500
Total						

TABLE 13 (HAZARDOUS SUBSTANCES)

Complete Table 13 as directed. Not required for internal outfalls. (Instructions, Pages 58-59)

a. Are there any pollutants listed in the instructions (page 60) believed present in the discharge?

☒ Yes ☐ No

b. Are there pollutants listed in Item 1.d. on page 1 of this technical report which are believed present in the discharge and have not been analytically quantified elsewhere in this application?

☒ Yes ☐ No

If you responded **yes** to **either** Item a **or** b, complete Table 13 as instructed.

Table 13 for Outfall No.: 003

Samples are (check one): ☐ **Composites** ☒ **Grabs**

Pollutant	CASRN	Average (µg/L)	Maximum (µg/L)	No.of Samples	Analytical Method
Xylenes	1330-20-7	-	<2	1	EPA624

WORKSHEET 4.0
RECEIVING WATERS

This worksheet **is required** for all renewal, amendment, and new TPDES permit applications.

1. DOMESTIC DRINKING WATER SUPPLY (Instructions, Page 78)

Is there a surface water intake for domestic drinking water supply located within 5 (five) miles downstream from the point/proposed point of discharge?

☐ Yes ☒ No

If **yes**, identify owner of the drinking water supply, the distance and direction to the intake, and locate and identify the intake on the USGS map.

☐ Indicate with an 'x' in the box that the requested information is provided.

2. DISCHARGE INTO TIDALLY INFLUENCED WATERS (Instructions, Page 78)

a. Width of the receiving water at the outfall? At tidal inlet, 30 feet

b. Are there oyster reefs in the vicinity of the discharge?

☐ Yes ☒ No

If **yes**, indicate approximate distance and direction from outfall(s):

N/A

c. Are there any sea grasses within the vicinity of the point of discharge?

☐ Yes ☒ No

If **yes**, provide the distance and direction to the grasses:

N/A

3. CLASSIFIED SEGMENT (Instructions, Page 78)

Is the discharge directly into (or within 300 feet of) a classified segment?

☒ Yes ☐ No

If **yes, stop here.** It is not necessary to complete Items 4 and 5, and it is not necessary to complete Worksheet 4.1.

If **no**, complete Items 4 and 5.

WORKSHEET 4.0
RECEIVING WATERS

This worksheet **is required** for all renewal, amendment, and newTPDES permit applications.

1. DOMESTIC DRINKING WATER SUPPLY(Instructions, Page 78)

Is there a surface water intake for domestic drinking water supply located within 5 (five) miles downstream from the point/proposed point of discharge?

☐ Yes ☒ No

If **yes,** identify owner of the drinking water supply, the distance and direction to the intake, and locate and identify the intake on the USGS map.

☐ Indicate with an 'x' in the box that the requested information is provided.

2. DISCHARGE INTO TIDALLY INFLUENCED WATERS (Instructions, Page78)

a. Width of the receiving water at the outfall? N/A feet

b. Are there oyster reefs in the vicinity of the discharge?

☐ Yes ☐ No

If yes, indicate approximate distance and direction from outfall(s):

N/A

c. Are there any sea grasses within the vicinity of the point of discharge?

☐ Yes ☐ No

If yes, provide the distance and direction to the grasses:

N/A

3. CLASSIFIED SEGMENT (Instructions, Page 78)

Is the discharge directly into (or within 300 feet of) a classified segment?

☐ Yes ☒ No

If **yes, stop here.** It is not necessary to complete Items 4 and 5, and it is not necessary to complete Worksheet 4.1.

If **no,** complete Items 4 and 5.

4. DESCRIPTION OF IMMEDIATE RECEIVING WATERS (Instructions, Page 79)

Name of the immediate receiving waters: Unnnamed ditch

a. Check the appropriate description of the receiving waters

- ☐ Lake or Pond
  - Surface area (acres):
  - Average depth of the entire water body (feet):
  - Average depth of water body within a 500-foot radius of the discharge point (feet):
- ☒ Man-made Channel or Ditch
- ☐ Stream or Creek
- ☐ Freshwater Swamp or Marsh
- ☐ Tidal Stream, Bayou, or Marsh
- ☐ OpenBay
- ☐ Other:

If you checked "man-made channel or ditch" or "stream or creek" above, provide responses to items b - e below:

b. For existing discharges, check the description below that best characterizes the area upstream of the discharge.

For new discharges, check the description below that best characterizes the area downstream of the discharge.

- ☒ Intermittent (dry for at least one week during most years)
- ☐ Intermittent with Perennial Pools (enduring pools containing habitat to maintain aquatic life uses)
- ☐ Perennial (normally flowing)

Check the source(s) of the information used to characterize the area upstream (existing discharge) or downstream (new discharge):

- ☐ USGS flow records
- ☒ personal observation
- ☐ historical observation by adjacent landowner(s)
- ☐ others, specify:

c. List the names of all perennial streams that join the receiving water within three miles downstream of the discharge point:

West Fork Goose Creek, thence to Goose Creek, thence to Tabbs Bay

d. Do the receiving water characteristics change within three miles downstream of the discharge? (e.g., natural or man-made dams, ponds, reservoirs, etc.)

☒ Yes ☐ No

If yes, discuss how:

The stream channel changes from a man-made ditch to a natural streambed and the flow conditions change from intermittent to perennial. The natural streambed becomes wider downstream towards the tidally influenced portion of Goose Creek.

e. Provide general observations of the water body during normal dry weather conditions:

Man-made channel. Upstream of discharge is lined with bull rock to mitigate soil erosion. In addition, the surrounding area is naturally vegetated. The channel connects to a concrete channel before progressing off-site.

Date and time of observation: 11/17/2017 9:00 AM

Was water body influenced by stormwater runoff during observations?

☐ Yes ☒ No

5. GENERAL CHARACTERISTICS OFWATER BODY (Instructions, Page 79)

a. Is the receiving water upstream of the existing discharge or proposed discharge site influenced by (check as appropriate):

- ☒ oil field activities
- ☒ agricultural runoff
- ☒ upstream discharges
- ☐ urban runoff
- ☐ septic tanks
- ☐ others, specify:

b. Uses of water body observed or evidence of such uses (check as appropriate):

- ☒ livestock watering
- ☐ non-contact recreation
- ☒ domestic water supply
- ☐ contact recreation
- ☐ fishing
- ☒ industrial water supply
- ☐ irrigation withdrawal
- ☐ navigation
- ☐ picnic park activities
- ☒ others, specify: Storm water drainage

c. Check the description (only one) that best describes the aesthetics of the receiving water and the surrounding area:

- ☐ Wilderness: outstanding natural beauty; usually wooded or unpastured area: water clarity exceptional
- ☐ Natural Area: trees or native vegetation common; some development evident (from fields, pastures, dwellings); water clarity discolored
- ☒ Common Setting: not offensive, developed but uncluttered; water may be colored or turbid
- ☐ Offensive: stream does not enhance aesthetics; cluttered; highly developed; dumping areas; water discolored

WORKSHEET 7.0
STORMWATER RUNOFF

This worksheet is required for all TPDES permit applications requesting individual permit coverage for discharges of stormwater runoff.

1. APPLICABILITY (Instructions, Page 87)

Do discharges from any of the proposed or existing outfalls consist of stormwater runoff only or stormwater runoff and any of the listed non-stormwater discharges on page 88 of the Instructions?

☒ Yes ☐ No

If **yes**, proceed as directed.

If **no**, stop here.

2. STORMWATER OUTFALL COVERAGE (Instructions, Page 88)

Indicate which type of authorization covers or is proposed to cover discharges from each stormwater outfall.

Authorization coverage

Outfall	Authorized Under MSGP	Authorized Under Individual Permit
004	☒	☐
005	☒	☐
006	☒	☐
007*	☒	☒
008	☒	☐
009	☒	☐
	☐	☐
	☐	☐
	☐	☐
	☐	☐

***Outfall 007 is currently authorized under the MSGP. This application includes an amendment request to transfer the outfall to TPDES Permit No. WQ0 01215000.**

If you have indicated that **all** existing or proposed stormwater outfalls are authorized under the MSGP, **stop here.**

If you have indicated that you are seeking authorization for any stormwater outfall under an individual permit, **proceed as directed.**

The following information **is required** for each outfall that discharges stormwater for which you are seeking individual authorization **under** this permit application.

3. SITE MAP (Instructions, Page 88)

Attach a site map or maps (drawn to scale) of the entire facility with the following information.

Attachment: T-2 BTCP Stormwater Site Drainage Plan

- the location of each stormwater outfall to be covered by the permit
- an outline of the drainage area that is within the facility's boundary and that contributes stormwater to each outfall to be covered by the permit
- connections or discharge points to municipal separate storm sewer systems
- locations of all structures (e.g. buildings, garages, storage tanks)
- structural control devices that are designed to reduce pollution in stormwater runoff
- process wastewater treatment units (including ponds)
- bag house and other air treatment units exposed to precipitation or runoff
- landfills; scrapyards; surface water bodies (including wetlands)
- vehicle and equipment maintenance areas
- physical features of the site that may influence stormwater runoff or contribute a dry weather flow
- locations where spills or leaks of reportable quality (as defined in *30 TAC§ 327.4*) have occurred during the three years before this application was submitted to obtain coverage under an individual permit
- processing areas, storage areas, material loading/unloading areas, and other locations where significant materials are exposed to precipitation or runoff

☐ Indicate with an 'x' in the box that all the above information was provided on the facility site map(s).

4. FACILITY/SITE INFORMATION (Instructions, Pages 88-89)

a. Provide the area of impervious surface and the total area drained by each outfall that discharges stormwater for which you are seeking individual authorization under this permit application.

Impervious Surfaces

Outfall	Area of Impervious Surface (include units)	Total Area Drained (include units)
007 (including drainage areas of MSGP Outfalls 008 and 009)	71 acres	139 acres

b. Provide the following local area rainfall information and the source of the information.

Wettest month: June [1]

Average rainfall for wettest month (total inches): 5.84 [1]

25-year, 24-hour rainfall (inches): 10 [2]

Source: [1] Climatography of the United States No. 81, Supplement No. 1; [2] Technical Paper No. 40 Rainfall Frequency Atlas of the United States

c. Provide an inventory, or list, of materials currently handled at the facility that may be exposed to precipitation.

See Attachment T-1 Facility Description; Table 1 Raw Materials, Major Intermediates, and Final Products.

d. Provide narrative descriptions of the industrial processes and activities involving the materials in the above-listed inventory that occur outdoors or in some manner that may result in exposure of the materials to precipitation or runoff.

See Attachment T-1, Facility Description.

e. Describe any best management practices and controls that you are using to prevent or effectively reduce pollution in stormwater discharges from the facility.

See Attachment T-1, Facility Description.

5. POLLUTANTANALYSIS (Instructions, Pages 89-91)

a. Complete Table 17 as directed on page 90 of the Instructions.

Table 17 Pollutant Analysis for Outfall No.: Outfall samples were not collected for the application because conditions in the drainage area for the outfall will likely change after two new process units are constructed.

Pollutant	Grab Sample* Maximum (mg/L)	Composite Sample** Maximum (mg/L)	Grab Sample* Average (mg/L)	Composite Sample** Average (mg/L)	Number of Storm Events Sampled	MAL (mg/L)
pH (standard units)	(max)	—	(min)	—		—
Total suspended solids						—
Chemical oxygen demand						—
Total organic carbon						—
Oil and grease						—
Arsenic, total						0.0005
Barium, total						0.003
Cadmium, total						0.001
Chromium, total						0.003
Chromium, trivalent						—
Chromium, hexavalent						0.003
Copper, total						0.002
Lead, total						0.0005
Mercury, total						0.000005
Nickel, total						0.002
Selenium, total						0.005
Silver, total						0.0005
Zinc, total						0.005

* Taken during first 30 minutes of storm event
** Flow-weighted composite sample

b. Complete Table 18 as directed on pages 90-92 of the Instructions.

Table 18 Pollutant Analysis for Outfall No.: N/A

Pollutant	Grab Sample* Maximum (mg/L)	Composite Sample** Maximum (mg/L)	Grab Sample* Average (mg/L)	Composite Sample** Average (mg/L)	Number of Storm Events Sampled

* Taken during first 30 minutes of storm event
** Flow-weighted composite sample

6. STORM EVENT DATA (Instructions, Page 91)

Provide the following data for the storm event(s) which resulted in the maximum values for the analytical data submitted:

Date of storm event: N/A

Duration of storm event (minutes):

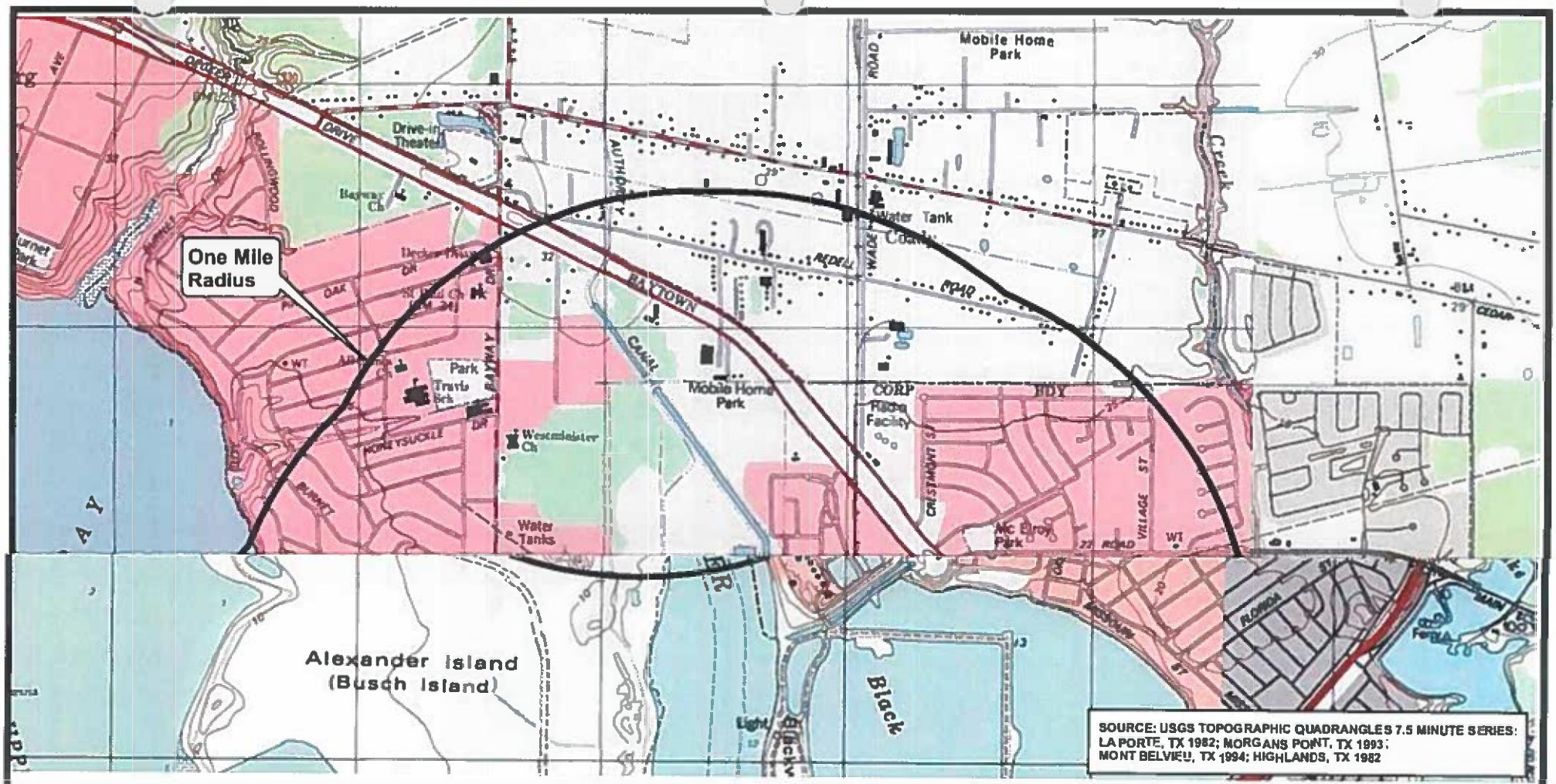
Total rainfall during storm event (inches):

Number of hours between beginning of storm measured and end of previous measurable rain event (hours):

Maximum flow rate during rain event (gallons/minute):

Total stormwater flow from rain event (gallons):

Provide a description of the method of flow measurement or estimate:



Legend

- Baytown Chemical Plant
- Areas of New Construction
- Outfalls
- Discharge Route
- One Mile Radius

N

0 1,000 2,000 FEET

1" = 2,000'
1:24,000

EXXON MOBIL CORPORATION
BAYTOWN CHEMICAL PLANT

ATTACHMENT SPIF-1
USGS MAP

DRAWN BY: L WILSON	SCALE: AS NOTED	PROJ NO:	TPDES 2017
CHECKED BY: O KOCUREK		FILE NO:	USGS Map.mxd
APPROVED BY: D KOCUREK	DATE PRINTED: 12/10/2017		
DATE: December, 2017			

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PrintedBy: Scottie Wilson on 12/10/2017, 1:58 PM

ATTACHMENT A-2

TCEQ Core Data Form

TCEQ Use Only

For detailed instructions regarding completion of this form, please read the Core Data Form Instructions or call 512-239-5175.

SECTION I: General Information

1. Reason for Submission (If other is checked please describe in space provided.)

☐ New Permit, Registration or Authorization (Core Data Form should be submitted with the program application.)

☒ Renewal (Core Data Form should be submitted with the renewal form) ☐ Other

2. Customer Reference Number (if issued)	Follow this link to search for CN or RN numbers in Central Registry**	3. Regulated Entity Reference Number (if issued)
CN 600123939		RN 102574803

SECTION II: Customer Information

4. General Customer Information	5. Effective Date for Customer Information Updates (mm/dd/yyyy)
	12/07/2017

☐ New Customer ☒ Update to Customer Information ☐ Change in Regulated Entity Ownership

☒ Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)

The Customer Name submitted here may be updated automatically based on what is current and active with the Texas Secretary of State (SOS) or Texas Comptroller of Public Accounts (CPA).

6. Customer Legal Name (If an individual, print last name first: e.g.: Doe, John)	If new Customer, enter previous Customer below:
Exxon Mobil Corporation	

7. TX SOS/CPA Filing Number	8. TX State Tax ID (11 digits)	9. Federal Tax ID (9 digits)	10. DUNS Number (if applicable)
0003352806	11354090059	135409005	001213214

11. Type of Customer: ☒ Corporation ☐ Individual Partnership: ☐ General ☒ Limited

Government: ☐ City ☒ County ☐ Federal ☐ State ☐ Other ☐ Sole Proprietorship ☐ Other:

12. Number of Employees ☐ 0-20 ☐ 21-100 ☐ 101-250 ☐ 251-500 ☒ 501 and higher

13. Independently Owned and Operated? ☒ Yes ☐ No

14. Customer Role (Proposed or Actual) - as it relates to the Regulated Entity listed on this form. Please check one of the following:

☐ Owner ☐ Operator ☒ Owner & Operator
☐ Occupational Licensee ☐ Responsible Party ☐ Voluntary Cleanup Applicant ☐ Other:

15. Mailing Address:	5959 Las Colinas Boulevard						
	City	Irving	State	TX	ZIP	750 39	ZIP + 4	2298

16. Country Mailing Information (if outside USA)	17. E-Mail Address (if applicable)

18. Telephone Number	19. Extension or Code	20. Fax Number (if applicable)
( ) -		( ) -

SECTION III: Regulated Entity Information

21. General Regulated Entity Information (If "New Regulated Entity" is selected below this form should be accompanied by a permit application)

☐ New Regulated Entity ☐ Update to Regulated Entity Name ☒ Update to Regulated Entity Information

The Regulated Entity Name submitted may be updated in order to meet TCEQ Agency Data Standards (removal of organizational endings such as Inc, LP, or LLC).

22. Regulated Entity Name (Enter name of the site where the regulated action is taking place.)

ExxonMobil Baytown Chemical Plant

23. Street Address of the Regulated Entity: (No PO Boxes)	5000 Bayway Drive							
	City	Baytown	State	TX	ZIP	77520	ZIP + 4	2123
24. County	Harris							

Enter Physical Location Description if no street address is provided.

25. Description to Physical Location:	

26. Nearest City	State	Nearest ZIP Code
Baytown	TX	77520

27. Latitude (N) In Decimal:	29.740556		28. Longitude (W) In Decimal:	95.025278	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
29	44	26.00	95	01	31.00

29. Primary SIC Code (4 digits)	30. Secondary SIC Code (4 digits)	31. Primary NAICS Code (5 or 6 digits)	32. Secondary NAICS Code (5 or 6 digits)
2869	2822	325110	325212

33. What is the Primary Business of this entity? (Do not repeat the SIC or NAICS description.)

Manufacture of elastomers, organic chemicals, plastics, synthetic gas, and lubricating oil

34. Mailing Address:	P.O. Box 4004							
	City	Baytown	State	TX	ZIP	77522	ZIP + 4	4004
35. E-Mail Address:								

36. Telephone Number	37. Extension or Code	38. Fax Number (if applicable)
( ) -		( ) -

39. TCEQ Programs and ID Numbers Check all Programs and write in the permits/registration numbers that will be affected by the updates submitted on this form. See the Core Data Form instructions for additional guidance.

☐ Dam Safety	☐ Districts	☐ Edwards Aquifer	☐ Emissions Inventory Air	☐ Industrial Hazardous Waste
☐ Municipal Solid Waste	☐ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
☐ Sludge	☐ Storm Water	☐ Title V Air	☐ Tires	☐ Used Oil
☐ Voluntary Cleanup	☒ Waste Water	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:
	WQ0001216000			

SECTION IV: Preparer Information

40. Name:		41. Title:	
Snigdha Joshi Rege		Environmental Coordinator	
42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(346) 259 - 5148		(281) 834 - 5788	snigdha.n.joshi@exxonmobil.com

SECTION V: Authorized Signature

46. By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 6 and/or as required for the updates to the ID numbers identified in field 39.

Company:	Exxon Mobil Corporation	Job Title:	BTCP Site Manager
Name(In Print):	Robert Capucha	Phone:	(832) 625-4090
Signature:		Date:	January 18, 2019

ATTACHMENT A-3
Delegation of Authority

INCUMBENT POWER OF ATTORNEY - ENVIRONMENTAL PERMITS (EXXON MOBIL CORPORATION CHEMICAL FACILITIES)

KNOW ALL PERSONS BY THESE PRESENTS That **EXXON MOBIL CORPORATION, (formerly called Exxon Corporation)**, a New Jersey corporation, having an office in Spring, Texas, acting by and through B. H. March, Senior Vice President, Global Operations, ExxonMobil Chemical Company, does hereby nominate, constitute, and appoint each incumbent of the following positions in ExxonMobil Chemical Company (hereinafter called "Company" or "EMCC"), a division of Exxon Mobil Corporation:

Site	Position
Baton Rouge Chemical Plant ("BRCP")	BRCP Site Manager
Baton Rouge Resin Finishing Plant ("BRFP")	BRPP Plant Manager
Baton Rouge Plastics Plant ("BRPP")	BRPP Plant Manager
Baton Rouge Polyolefins Plant ("BRPO")	BRPO Plant Manager
Baytown Chemical Plant ("BTCP")	BTCP Site Manager
Baytown Olefins Plant	Baytown Olefins Plant Manager
Baytown Technology & Engineering Complex ("BTEC")	BTEC Operations Manager
Mont Belvieu Plastics Plant	Mont Belvieu Plastics Plant Manager

as Agent and Attorney-in-Fact of Exxon Mobil Corporation for purposes of executing and delivering instruments and documents as more particularly described below, and does hereby grant, delegate, and invest each of said incumbents with power and authority to execute and deliver in the name and on behalf of Exxon Mobil Corporation, and in connection with the business and affairs of said Company, instruments and documents of the following types:

> All permit applications, reports, instruments, and documents of a similar nature, and all other information required or requested by a regulatory agency within the jurisdiction of the United States, whether federal, state, or promulgated by local government, to the extent execution of such document by said incumbents is otherwise authorized or allowed by applicable law or regulation.

Each incumbent of said position in said Company may exercise the power and authority herein granted, delegated, and invested, in any particular and appropriate transaction or matter, as an Agent and Attorney-in-Fact of Exxon Mobil Corporation. Any action taken as authorized under this Incumbent Power of Attorney shall be an act of Exxon Mobil Corporation and binding upon it. Each incumbent shall observe the procedures set forth in the attached "Signatories to Environmental Permit Applications and Reports" document.

Certificates of incumbency confirming that, on the dates set out therein, the individual named therein was an incumbent of said position may be issued by the Secretary or any Assistant Secretary of Exxon Mobil Corporation and may be relied upon by third parties dealing with Exxon Mobil Corporation or said Company.

In the event there is a subsequent change in the names or descriptions of the above positions and/or sites, the preceding authority shall continue in full force and effect except that the same shall be deemed to refer to the above positions and/or sites as so changed in name or description.

This Incumbent Power of Attorney hereby ratifies and confirms actions as described above taken by the incumbents of the above positions, including any such actions taken by the incumbents prior to the date of this Incumbent Power of Attorney.

One Mile Radius

Areas of New Construction

BAYTOWN CHEMICAL PLANT

Outfall 007

Outfall 203

Outfall 103

Outfall 003

NWC Retention Pond

Butyl Retention Pond

Discharge to Goose Creek

SOURCE: USGS TOPOGRAPHIC QUADRANGLES 7.5 MINUTE SERIES:
LA PORTE, TX 1982; MORGANS POINT, TX 1993;
MONT BELVIEU, TX 1994; HIGHLANDS, TX 1982

Legend

- Baytown Chemical Plant
- Areas of New Construction
- Outfalls
- Discharge Route
- One Mile Radius

N

0 1,000 2,000 FEET

1 " = 2,000 '
1:24,000

EXXON MOBIL CORPORATION
BAYTOWN CHEMICAL PLANT

ATTACHMENT A-4
USGS MAP

DRAWN BY: L WILSON	SCALE: AS NOTED	PROJ. NO.	TPDES 2017
CHECKED BY: D KOCUREK		FILE NO.	USGS Map.mxd
APPROVED BY: D KOCUREK	DATE PRINTED: 12/10/2017		
DATE: December, 2017			

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Printed By: Scottie Wilson on 12/10/2017, 19:58 PM

BAYTOWN CHEMICAL PLANT

Outfall 007
Outfall 203
Outfall 103
Outfall 003

1/2 MILE RADIUS

N

0 500 1,000 2,000
FEET

Legend

- Baytown Chemical Plant
- Other ExxonMobil Property
- 7 — Adjacent Landowners
- Outfall Location
- Discharge Route
- Half Mile Radius

Parcel Source: Harris County Appraisal District, October 2017

J:\Prj\ExxonMobil BTCP\2017 TPDES\Adjacent Landowner Map.mxd
Printed By: lauri on 12/10/2017, 21:23 PM

EXXON MOBIL CORPORATION
BAYTOWN CHEMICAL PLANT

ADJACENT LANDOWNER MAP

DRAWN BY: L WILSON	SCALE: AS NOTED	PROJ. NO. EXXONMOBIL/BTCP	
CHECKED BY: D KOCUREK		Adjacent Landowner Map.mxd	
APPROVED BY:	DATE PRINTED:		
DATE: December 2017			

ATTACHMENT A-5-2
Landowner List
ExxonMobil Baytown Chemical Plant
TPDES Permit No. WQ0001215000

MAP ID	OWNER	ADDRESS	CITY	STATE	ZIP CODE
1	146 ENTERPRISES INC	1108 MAXI CIR	FRIENDSWOOD	TX	77546
2	3400 SHADY HILL LP	3400 SHADY HILL DR	BAYTOWN	TX	77520
3	ADAME VALERIE	6920 BAYWAY DR	BAYTOWN	TX	77520
4	ADVANCED AROMATICS LLC	5501 W BAKER RD	BAYTOWN	TX	77520
5	AGUILERA JAVIER & DORA E	206 NORTH ST	BAYTOWN	TX	77520
6	AGUILERA JOSE DEJESUS & MARGARITA	103 ARBOR ST	BAYTOWN	TX	77520
7	AMADOR ANTONIO V & MARY E	6102 BAYWAY DR	BAYTOWN	TX	77520
8	AMERICAN PIONEER INV INC	3312 DECKER DR	BAYTOWN	TX	77520
9	ANDRADE AUGUSTIN & JUANITA	3421 MARKET ST	BAYTOWN	TX	77520
10	APTCS LLC	3120 DECKER DR	BAYTOWN	TX	77521
11	ARENAS NOHEMI & JOSE F	401 AVENUE J	BAYTOWN	TX	77520
12	ATHARI REAL ESTATE LTD	PO BOX 540243	HOUSTON	TX	77254
13	AUBREY JAMES R & LINDA G	1807 MISSOURI ST	BAYTOWN	TX	77520
14	AVELLANEDA FRANCISCO	500 N AIRHART DR	BAYTOWN	TX	77520
15	BAGUIO CORSINA JR & MYRTLE	6330 BAYWAY DR	BAYTOWN	TX	77520
16	BAILEY SARA A & RUSSELL N	5401 BAYWAY DR	BAYTOWN	TX	77520
17	BARAGAN MA DALILA	211 ARBOR ST	BAYTOWN	TX	77520
18	BARNETT MARTH F & WILLIAM	8 BAYVILLA ST	BAYTOWN	TX	77520
19	BARRIENTES RICHARD & SYLIA	2206 DORRIS ST	BAYTOWN	TX	77520
20	BARTLETT COCKE GENERAL CONTRACTORS	315 S HIGHWAY 146	BAYTOWN	TX	77520
21	BAY AREA HOMELESS SERVICES	3601 MARKET ST	BAYTOWN	TX	77520
22	BENAVIDES JAVIER & PORFIRIA	3307 MICHIGAN ST	BAYTOWN	TX	77520
23	BENAVIDES JUAN	1306 HARBOR ST	BAYTOWN	TX	77520
24	BENOIT JOHN LARRY	5001 GLENHAVEN DR	BAYTOWN	TX	77521
25	BFG EQUIPMENT LLC	6220 BAYWAY DR	BAYTOWN	TX	77520
26	BOC GROUP INC	100 S AIRHART DR	BAYTOWN	TX	77520
27	BRC FAMILY LIMITED PARTNERSHIP	313 S HIGHWAY 146	BAYTOWN	TX	77520
28	BROWN HOWARD G	5707 BAYWAY DR	BAYTOWN	TX	77520
29	BUCHANAN TRUDY T	411 SCARLETT ST	BAYTOWN	TX	77520
30	BURNETT CECIL THERESE	301 ARBOR ST	BAYTOWN	TX	77520
31	CALVERY BAPTIST CHURCH	501 S ATLANTIC ST	BAYTOWN	TX	77520
32	CAPETILLO THOMAS & KAREN	5713 BAYWAY DR	BAYTOWN	TX	77520
33	CARDENAS HECTOR & BELLA	225 FORTNER ST	BAYTOWN	TX	77520
34	CARDENAS HECTOR III	113 FORTNER ST	BAYTOWN	TX	77520
35	CARGILL RICHARD N & TANYA DAWN	1721 MISSOURI ST	BAYTOWN	TX	77520
36	CARRASCO ADAM JR & MARICELA	201 E HUMBLE ST	BAYTOWN	TX	77520
37	CARROLL OUIDA E	110 ARBOR ST	BAYTOWN	TX	77520
38	CASTILLO DANNY ET AL	1208 HARBOR ST	BAYTOWN	TX	77520
39	CASTRO NICANORA	3315 MICHIGAN ST	BAYTOWN	TX	77520
40	CASTRO NORA L	3313 MICHIGAN ST	BAYTOWN	TX	77520
41	CENTERPOINT ENERGY HOU ELE	PO BOX 1475	HOUSTON	TX	77251
42	CERINO ELEAZAR	3317 MICHIGAN ST	BAYTOWN	TX	77520
43	CHAPA JORGE	2205 DORRIS ST	BAYTOWN	TX	77520
44	CHAPA MARY E	318 N HIGHWAY 146	BAYTOWN	TX	77520
45	CHAVEZ CARMELA	3607 MARKET ST	BAYTOWN	TX	77520
46	CHAVIRA J J & MARIA CAZARES	3311 MICHIGAN ST	BAYTOWN	TX	77520
47	CHUKWUOCHA MOTORS INC	1316 HARBOR ST	BAYTOWN	TX	77520
48	CIRELLI JOSEPH J	5419 BAYWAY DR	BAYTOWN	TX	77520
49	CIRELLI MARIA M	1226 HARBOR ST	BAYTOWN	TX	77520
50	CITY OF BAYTOWN	PO BOX 2805	BAYTOWN	TX	77522

MAP ID	OWNER	ADDRESS	CITY	STATE	ZIP CODE
51	COASTAL SERENDIPITY LLC	2501 MISSOURI ST	BAYTOWN	TX	77520
52	COOK MARGARET M	112 E SHRECK ST	BAYTOWN	TX	77520
53	CORTES ABEL	204 NORTH ST	BAYTOWN	TX	77520
54	COUNTRY CLUB PROFESSIONAL PARK INC	3700 EMMETT HUTTO BLVD	BAYTOWN	TX	77521
55	COX ROGER W	5315 BAYWAY DR	BAYTOWN	TX	77520
56	CREDIT SHELTER TRUST	3230 OHIO ST	BAYTOWN	TX	77520
57	CUEVAS JOSE M & ANGELITA	6524 BAYWAY DR	BAYTOWN	TX	77520
58	CURRIE MARTHA E	11 BAYVILLA ST	BAYTOWN	TX	77520
59	D R HORTON TEXAS LTD	4807 COUNTRY CLUB DR	BAYTOWN	TX	77521
60	DECKER DRIVE LLC	3718 DECKER DR	BAYTOWN	TX	77520
61	DEHARGROVE NORMA H	3321 MICHIGAN ST	BAYTOWN	TX	77520
62	DEL TORO JESUS & SIMONA O	321 GRANVILLE ST	BAYTOWN	TX	77520
63	DELGADO MARY E	316 SCARLETT ST	BAYTOWN	TX	77520
64	DENNY TOM R & DONNA MARIE	1805 MISSOURI ST	BAYTOWN	TX	77520
65	DISABATINO FRANK E JR	3710 DECKER DR	BAYTOWN	TX	77520
66	DOMINGUEZ SANDRA	6823 BAYWAY DR	BAYTOWN	TX	77520
67	DONATO JEROME N	2318 HODGES ST	BAYTOWN	TX	77521
68	DOT CONSTRUCTION CO INC	PO BOX 223	FREDERICKSBURG	TX	78624
69	DREHER JAMES & MILDRED E	242 JOHN A ST	BAYTOWN	TX	77520
70	DREVER WATERCOLOR PROPERTY LLC ET AL	1700 ROLLINGBROOK DR	BAYTOWN	TX	77521
71	ECO SERVICES OPERATIONS LLC	3439 PARK ST	BAYTOWN	TX	77520
72	EGW ROLLINGBROOK INVESTMENTS LP	3717 EMMETT HUTTO DR	BAYTOWN	TX	77521
73	ELBAR INVESTMENTS INC	12520 WESTHEIMER RD STE A1	HOUSTON	TX	77077
74	ELLIS DAVID L & MARSHA A	14 BAYVILLA ST	BAYTOWN	TX	77520
75	ENTERPRISE LOGISTICS SERVICES LLC	4515 W BAKER RD	BAYTOWN	TX	77520
76	EQUISTAR CHEMICALS LP	PO BOX 3646	HOUSTON	TX	77253
77	ESTRADA FRANCIS S	208 FORTINBERRY ST	BAYTOWN	TX	77520
78	ETC NGL TRANSPORT LLC	711 LOUISIANA ST STE 900	HOUSTON	TX	77002
79	EVANS HARVEY JOHN	6214 BAYWAY DR	BAYTOWN	TX	77520
80	EXXON BAYTOWN CREDIT UNION	2900 DECKER DR	BAYTOWN	TX	77520
81	FARRIS KENNETH W & PENNY	220 ARBOR ST	BAYTOWN	TX	77520
82	FARRIS MATTHEW	426 SCARLETT ST	BAYTOWN	TX	77520
83	FIRST CASTLE HOMES LP	6212 BAYWAY DR	BAYTOWN	TX	77520
84	FLANDERS EMMANUEL E ESTATE OF	1118 HARBOR ST	BAYTOWN	TX	77520
85	FLORES TROY	6416 BAYWAY DR	BAYTOWN	TX	77520
86	FOREMAN MURRAY L & JANNIE	6526 BAYWAY DR	BAYTOWN	TX	77520
87	FOUBISTER LIEN &	3200 DECKER DR	BAYTOWN	TX	77520
88	FRALEY MARGARET	247 ARBOR ST	BAYTOWN	TX	77520
89	FRINK LILLIAN	12 BAYVILLA ST	BAYTOWN	TX	77520
90	G5 INVESTORS LLC	3419 ILLINOIS ST	BAYTOWN	TX	77520
91	GALLARDO RODOLFO G J R	407 SCARLETT ST	BAYTOWN	TX	77520
92	GARCIA EVERARDO P	3228 IOWA ST	BAYTOWN	TX	77520
93	GARCIA JOSE LUIS & SAN JUANA	300 FORTINBERRY ST	BAYTOWN	TX	77520
94	GARCIA LESDY	5918 BAYWAY DR	BAYTOWN	TX	77520
95	GARCIA ROXANA	3415 ROLLINGCREEK DR	BAYTOWN	TX	77521
96	GIRON ROSA E	3411 MARKET ST	BAYTOWN	TX	77520
97	GOLD FINANCIAL SVC INC	3600 DECKER DR	BAYTOWN	TX	77520
98	GONZALES JESSE J	237 ARBOR ST	BAYTOWN	TX	77520
99	GONZALES JOHNNY	241 ARBOR ST	BAYTOWN	TX	77520
100	GONZALES JOSE & SANDRA	406 ARBOR ST	BAYTOWN	TX	77520

MAP ID	OWNER	ADDRESS	CITY	STATE	ZIP CODE
101	GONZALEZ ARNULFO	302 SCARLETT ST	BAYTOWN	TX	77520
102	GONZALEZ MARIA	301 SCARLETT ST	BAYTOWN	TX	77520
103	GONZALEZ MARIA DE LA LUZ	412 ARBOR ST	BAYTOWN	TX	77520
104	GONZALEZ ROGELIO	302 N HIGHWAY 146	BAYTOWN	TX	77520
105	GONZALEZ TEODORO & MARIA	3309 MICHIGAN ST	BAYTOWN	TX	77520
106	GOOSE CREEK ISD	208 NORTH ST	BAYTOWN	TX	77520
107	GRUVER DANIEL & MARY	412 BARNES ST	BAYTOWN	TX	77520
108	GUERRA AMANDA	3419 MARKET ST	BAYTOWN	TX	77520
109	GUILLEN JAIME	5003 GLENHAVEN DR	BAYTOWN	TX	77521
110	GUYNES DANNY A & CHIVAS R	5721 BAYWAY DR	BAYTOWN	TX	77520
111	HALL FRED & KIM	5011 GLENHAVEN DR	BAYTOWN	TX	77521
112	HARGRAVES NORMAN R	5305 BAYWAY DR	BAYTOWN	TX	77520
113	HART CARL L	147 ASHBY ST	BAYTOWN	TX	77520
114	HARTRICK WILLIAM G	404 SCARLETT ST	BAYTOWN	TX	77520
115	HARVEST TEMPLE MINISTRIES	3105 ROLLINGCREEK DR	BAYTOWN	TX	77521
116	HENDERSON JOSEPH S JR	213 E SHRECK ST	BAYTOWN	TX	77520
117	HENSLEY GUY SHERWOOD	238 WOOSTER ST	BAYTOWN	TX	77520
118	HERNANDEZ OSCAR G	320 SCARLETT ST	BAYTOWN	TX	77520
119	HFI WYNDHAM PARK APTS LP	2700 ROLLINGBROOK DR	BAYTOWN	TX	77521
120	HIGGINS CHARLES	11707 TRI CITY BEACH ROAD	BAYTOWN	TX	77523
121	HILL R G & MARY	3419 MICHIGAN ST	BAYTOWN	TX	77520
122	HINOJOSA ADOLFO	424 SCARLETT ST	BAYTOWN	TX	77520
123	HINOJOSA DIANA M	317 SCARLETT ST	BAYTOWN	TX	77520
124	HSC PIPELINE PARTNERSHIP LLC	5521 BAYWAY DR	BAYTOWN	TX	77520
125	ICB REALTY INVESTMENT LLC	1251 S KIRKWOOD RD	HOUSTON	TX	77077
126	INDUSTRIAL SAFETY TRAINING COUNCIL	3166 DECKER DR	BAYTOWN	TX	77521
127	JACKSON JANICE L	1314 HARBOR ST	BAYTOWN	TX	77520
128	JACKSON JOEL H	4900 GOOSE CREEK DR	BAYTOWN	TX	77521
129	JOHN P GANNON INC	525 PARK GROVE LN	KATY	TX	77450
130	JOHNSON ROBERT A	2405 MISSOURI ST	BAYTOWN	TX	77520
131	JUAN VAZQUEZ	118 GRAHAM ST	BAYTOWN	TX	77520
132	JUSTIN & BRANDON NGUYEN INVESTMENT	540 S MAIN ST	HIGHLANDS	TX	77562
133	KEA SERVICES LLC	6711 BAYWAY DR	BAYTOWN	TX	77520
134	KELEASE PROPERTIES 1 LTD	6604 BAYWAY DR	BAYTOWN	TX	77520
135	KENNINGTON WILLIAM MORRIS	236 ARBOR ST	BAYTOWN	TX	77520
136	KINARD IRA NEAL III	6300 BAYWAY DR	BAYTOWN	TX	77520
137	KM HOLDINGS LP	5901 BAYWAY DR	BAYTOWN	TX	77520
138	KRIZAK DANIEL J & LOIS M	2001 MISSOURI ST	BAYTOWN	TX	77520
139	KRIZAK KIM S & ZOE	2401 MISSOURI ST	BAYTOWN	TX	77520
140	KRIZAK TIMOTHY E & CHERYL J	2417 MISSOURI ST	BAYTOWN	TX	77520
141	KURBAD ANTHONY D	6518 BAYWAY DR	BAYTOWN	TX	77520
142	L & J FINAL EDITION LTD	5044 TIMBER CREEK DR	HOUSTON	TX	77017
143	LA VILLITA PROPIEDADES LLC	3227 MISSOURI ST	BAYTOWN	TX	77520
144	LAZARO RAMIRO & MARIA I	404 ARBOR ST	BAYTOWN	TX	77520
145	LCY ELASTOMERS LP	4803 DECKER DR	BAYTOWN	TX	77520
146	LINARES JOAN	5013 GLENHAVEN DR	BAYTOWN	TX	77521
147	LINDSEY DANNY C	6202 BAYWAY DR	BAYTOWN	TX	77520
148	LOPEZ JESUS	3500 MCKINNEY RD TRLR 151	BAYTOWN	TX	77521
149	LUNDY FRANK J JR & FRANCES	2415 MISSOURI ST	BAYTOWN	TX	77520
150	M & T REALTY INVESTMENTS LLC	209 ARBOR ST	BAYTOWN	TX	77520

MAP ID	OWNER	ADDRESS	CITY	STATE	ZIP CODE
151	M A M ENTERPRISE	1318 HARBOR ST	BAYTOWN	TX	77520
152	M N ENTERPRISES	3007 N ALEXANDER DR	BAYTOWN	TX	77520
153	MANZO DAVID & ADELINA	6516 BAYWAY DR	BAYTOWN	TX	77520
154	MARTINEZ DANIEL	4623 BARKALOO RD	BAYTOWN	TX	77521
155	MARTINEZ JUAN C & SYLVIA E	3409 MICHIGAN ST	BAYTOWN	TX	77520
156	MATTHEWS EUGENE E & HAZEL	5411 BAYWAY DR	BAYTOWN	TX	77520
157	MATTHEWS RUFUS F	5701 BAYWAY DR	BAYTOWN	TX	77520
158	MC CONNELL WILLIAM K	192 BASTILLE LN STE 200	RUSTON	LA	71270
159	MC DOWELL OLIN R JR	243 ARBOR ST	BAYTOWN	TX	77520
160	MCCARTNEY BEVERLEY N ESTATE OF	223 ASHBY ST	BAYTOWN	TX	77520
161	MCCLENDON ROBERT L	2105 MISSOURI ST	BAYTOWN	TX	77520
162	MELENDEZ MARI	235 ARBOR ST	BAYTOWN	TX	77520
163	MENORAH LLC	PO BOX 25433	LOS ANGELES	CA	90025
164	MILLER S L ESTATE OF	6812 BAYWAY DR	BAYTOWN	TX	77520
165	MISSOURI PACIFIC RAILROAD COMPANY	1400 DOUGLAS ST STOP 1640	OMAHA	NE	68179
166	MITCHAN JOSEPH W & VIRGINIA	3419 ROLLINGCREEK DR	BAYTOWN	TX	77521
167	MONUMENT CHEMICAL BAYTOWN LLC	5501 W BAKER RD	BAYTOWN	TX	77520
168	MORELOCK MICHAEL M	6819 BAYWAY DR	BAYTOWN	TX	77520
169	MORENO ANTONIO	105 FORTNER ST	BAYTOWN	TX	77520
170	MORGAN SHIRLEY	428 SCARLETT ST	BAYTOWN	TX	77520
171	MUNGLE KENNETH R & MYNA G	5907 BAYWAY DR	BAYTOWN	TX	77520
172	NAVARRO CATHERINE M	2109 MISSOURI ST	BAYTOWN	TX	77520
173	NEGRETE JUAN J	3225 INDIANA ST	BAYTOWN	TX	77520
174	NUNEZ MANUEL A	3420 MICHIGAN ST	BAYTOWN	TX	77520
175	NUNEZ MANUEL N	3232 MISSOURI ST	BAYTOWN	TX	77520
176	OCCIDENTAL CHEMICAL CORP	PO BOX 27570	HOUSTON	TX	77227
177	OLVERA MARIA E	3303 MICHIGAN ST	BAYTOWN	TX	77520
178	OMNINET SOUTHEAST LP RAINTREE LLC	3300 ROLLINGBROOK ST	BAYTOWN	TX	77521
179	ORION CONSTRUCTION LP ET AL	2705 S HIGHWAY 146	BAYTOWN	TX	77520
180	ORTIZ JUAN A & ALMA L	3228 INDIANA ST	BAYTOWN	TX	77520
181	ORTIZ PEGGY SUE	105 ARBOR ST	BAYTOWN	TX	77520
182	PARK HOSPITALITY LTD	2301 DECKER DR	BAYTOWN	TX	77520
183	PEDROZA JUAN	101 ARBOR ST	BAYTOWN	TX	77520
184	PEOPLE OF GOD INC	3405 MARKET ST	BAYTOWN	TX	77520
185	PEQUENO JOSE & FELIPA	1704 OKLAHOMA ST	BAYTOWN	TX	77520
186	PEREZ AMOS G JR & LILLY	15 BAYVILLA ST	BAYTOWN	TX	77520
187	PHAM TUAN D & SILVIA V	6100 BAYWAY DR	BAYTOWN	TX	77520
188	POHLER BILL	2110 HUGGINS ST	BAYTOWN	TX	77520
189	POHLER WILLIAM J	2110 HUGGINS ST	BAYTOWN	TX	77520
190	PONCE RODOLFO	307 SCARLETT ST	BAYTOWN	TX	77520
191	POND LARRY G	2203 MISSOURI ST	BAYTOWN	TX	77520
192	PORT OF HOUSTON AUTHORITY	111 EAST LOOP N	HOUSTON	TX	77029
193	PRADO HECTOR & SANDRA	3229 NEBRASKA ST	BAYTOWN	TX	77520
194	RAMBARRAN ALISON	225 ARBOR ST	BAYTOWN	TX	77520
195	RAMBARRAN OSCAR & ALISON	417 SCARLETT ST	BAYTOWN	TX	77520
196	RAMIREZ ADELA GONZALEZ	6712 BAYWAY DR	BAYTOWN	TX	77520
197	RAMIREZ APOLINAR	320 FORTINBERRY ST	BAYTOWN	TX	77520
198	RAMIREZ CARLOS	6800 BAYWAY DR	BAYTOWN	TX	77520
199	RAMIREZ ROSEMARY	220 FORTINBERRY ST	BAYTOWN	TX	77520
200	RAMON ALBERT	3230 NEBRASKA ST	BAYTOWN	TX	77520

MAP ID	OWNER	ADDRESS	CITY	STATE	ZIP CODE
201	RAMON ARMANDO M & FREDA	201 ARBOR ST	BAYTOWN	TX	77520
202	RAMOS JOSE A	2308 DORRIS ST	BAYTOWN	TX	77520
203	RAMOS ROMUALDO & DEINORA	5407 BAYWAY DR	BAYTOWN	TX	77520
204	RAZO SILVERIO	401 SCARLETT ST	BAYTOWN	TX	77520
205	REITER JOHN F JR	5715 BAYWAY DR	BAYTOWN	TX	77520
206	RENDON JOSE H & ELSA	3413 MICHIGAN ST	BAYTOWN	TX	77520
207	RENDON LUIS R	6512 BAYWAY DR	BAYTOWN	TX	77520
208	REYNOLDS GARY A	407 ARBOR ST	BAYTOWN	TX	77520
209	RIFFLE KIMBERLY	1905 MISSOURI ST	BAYTOWN	TX	77520
210	RIOS JOHNNY & ESTHER T	2111 MISSOURI ST	BAYTOWN	TX	77520
211	RIOS JOSE C	402 ARBOR ST	BAYTOWN	TX	77520
212	RIOS MAGDALENS &	6314 BAYWAY DR	BAYTOWN	TX	77520
213	ROBBINS TIMOTHY S	5900 BAYWAY DR	BAYTOWN	TX	77520
214	RODRIGUEZ DAVID	425 SCARLETT ST	BAYTOWN	TX	77520
215	RODRIGUEZ GUSTAVO A	6410 BAYWAY DR	BAYTOWN	TX	77520
216	RODRIGUEZ JUAN A & DALIA G	415 ARBOR ST	BAYTOWN	TX	77520
217	RODRIGUEZ LEYLA M	427 SCARLETT ST	BAYTOWN	TX	77520
218	RODRIGUEZ MARC D & DEBRA L	16 BAYVILLA ST	BAYTOWN	TX	77520
219	RODRIGUEZ RANULFO	414 SCARLETT ST	BAYTOWN	TX	77520
220	RODRIGUEZ RENE & SANDRA	3229 IOWA ST	BAYTOWN	TX	77520
221	RODRIGUEZ SALVADOR & GRACIELA	420 SCARLETT ST	BAYTOWN	TX	77520
222	RODRIQUEZ JESUS M & LENORA	3401 MICHIGAN ST	BAYTOWN	TX	77520
223	ROMAN JOE D & NATALIA	6016 BAYWAY DR	BAYTOWN	TX	77520
224	ROMERO EVA	3229 MICHIGAN ST	BAYTOWN	TX	77520
225	ROUX DON	3416 WISCONSIN ST	BAYTOWN	TX	77520
226	ROUX DONALD L	1901 MISSOURI ST	BAYTOWN	TX	77520
227	SALAZAR ANTONIO MRS ESTATE OF	121 GRANVILLE ST	BAYTOWN	TX	77520
228	SALAZAR OSCAR A & PATRICIA	3407 MICHIGAN ST	BAYTOWN	TX	77520
229	SALINAS ELBERT	244 ARBOR ST	BAYTOWN	TX	77520
230	SALINAS NOLBERTO & SANJUANA	416 ARBOR ST	BAYTOWN	TX	77520
231	SALO DENNIS G & MARLA S	5910 BAYWAY DR	BAYTOWN	TX	77520
232	SANCHEZ NOE	3411 MICHIGAN ST	BAYTOWN	TX	77520
233	SAPP SHARON	3415 MICHIGAN ST	BAYTOWN	TX	77520
234	SCHNEE OLGA	6809 BAYWAY DR	BAYTOWN	TX	77520
235	SCROGGINS TRENA J	315 ARBOR ST	BAYTOWN	TX	77520
236	SEPULVEDA MIGUEL	5009 GLENHAVEN DR	BAYTOWN	TX	77521
237	SEV STAFFING INC	3700 EMMETT HUTTO BLVD	BAYTOWN	TX	77521
238	SHELTON DEANNA L	5311 BAYWAY DR	BAYTOWN	TX	77520
239	SHEPPARD CLETUS & BARBARA	2409 MISSOURI ST	BAYTOWN	TX	77520
240	SI GROUP INC	2750 BALLTOWN RD	SCHENECTADY	NY	12309
241	SIARKOWSKI-BROWN REBECCA L	3228 ARKANSAS ST	BAYTOWN	TX	77520
242	SKY APARTMENT HOMES LLC	3500 DECKER DR	BAYTOWN	TX	77520
243	SMITH JERRY D	13 BAYVILLA ST	BAYTOWN	TX	77520
244	SMITH JIMMY D & LOLA J	5007 GLENHAVEN DR	BAYTOWN	TX	77521
245	SOUTHERN PACIFIC RAILROAD COMPANY	1400 DOUGLAS ST STOP 1640	OMAHA	NE	68179
246	SPIRITUAL IMPACT MINISTRIES INC	3423 ROLLINGCREEK DR	BAYTOWN	TX	77521
247	SPOTO VIRGINIA	421 SCARLETT ST	BAYTOWN	TX	77520
248	STAMPER CHRISTOPHER A	10832 BARBADOS ISLE DR	TAMPA	FL	33647
249	STANLEY JOE D	6820 BAYWAY DR	BAYTOWN	TX	77520
250	STORAGE LOTS LLC	6106 BAYWAY DR	BAYTOWN	TX	77520

MAP ID	OWNER	ADDRESS	CITY	STATE	ZIP CODE
251	SWALES PETER	115 ARBOR ST	BAYTOWN	TX	77520
252	SWEET DOUGLAS H	3415 MARKET ST	BAYTOWN	TX	77520
253	TAZZ PROPERTIES LLC	3400 ROLLINGBROOK DR	BAYTOWN	TX	77521
254	TEXAS EASTERN PRODUCTS PIPELINE CO LLC	4227 DECKER DR	BAYTOWN	TX	77520
255	THOMAS NERV ET UX	3310 DECKER DR	BAYTOWN	TX	77520
256	THOMAS RONNIE JR	915 AMARYLLIS RD	BAYTOWN	TX	77521
257	TIJERINA FILBERTO A JR	221 ARBOR ST	BAYTOWN	TX	77520
258	TORRES RAYMUNDO	3422 ILLINOIS ST	BAYTOWN	TX	77520
259	TOWNSEND DAVID E & ANN L	116 E SHRECK ST	BAYTOWN	TX	77520
260	TRANZ PROPERTIES LLC	1600 S HIGHWAY 146	BAYTOWN	TX	77520
261	U S POST OFFICE	3508 MINNESOTA ST	BAYTOWN	TX	77520
262	UNITED STEELWORKERS	311 S HIGHWAY 146	BAYTOWN	TX	77520
263	UPCHURCH NANCY	10501 SKYREACH RD	HIGHLANDS RANCH	CO	80126
264	VAN HOUTEN WILLIAM	6817 BAYWAY DR	BAYTOWN	TX	77520
265	VARA DANNY L	3417 WISCONSIN ST	BAYTOWN	TX	77520
266	VENABLE J R	5518 BAYWAY DR	BAYTOWN	TX	77520
267	VILLA MARIANA	3405 MICHIGAN ST	BAYTOWN	TX	77520
268	WALDO JESUS A & MARCELINA	3403 MICHIGAN ST	BAYTOWN	TX	77520
269	WALKER CHARLES R JR ET AL	220 NORTH ST	BAYTOWN	TX	77520
270	WALSTEAD WILLIAM J JR	6813 BAYWAY DR	BAYTOWN	TX	77520
271	WILLIAMS ARTHUR	5005 GLENHAVEN DR	BAYTOWN	TX	77521
272	WILSON WILLIAM E JR	317 S HIGHWAY 146	BAYTOWN	TX	77520
273	WINDHAM ROBERT	6400 BAYWAY DR	BAYTOWN	TX	77520
274	WOOD MELVIN C	3229 OHIO ST	BAYTOWN	TX	77520
275	WOODWARD BARRY & ANTOINETTE	6508 BAYWAY DR	BAYTOWN	TX	77520
276	YBARRA VICTOR	3523 MARKET ST	BAYTOWN	TX	77520
277	ZRY COMPANY LLC	6805 BAYWAY DR	BAYTOWN	TX	77520
278	CURRENT OWNER	5505 BAYWAY DR	BAYTOWN	TX	77520
279	FUENTES JUAN ORTEGA	1211 CHERRY ST	BAYTOWN	TX	77520
280	HAWKINS ROCIO	1305 CHERRY ST	BAYTOWN	TX	77520
281	HILL RONNIE & MARY	1215 CHERRY ST	BAYTOWN	TX	77520
282	LOPEZ JOSE & ROSA	1219 CHERRY ST	BAYTOWN	TX	77520
283	MORENO CYNTHIA	1245 CHERRY ST	BAYTOWN	TX	77520

Attachment A-6
Outfall Photos

Photo 1. Long view of Outfall 003 into Scott Bay

Photo 2. Closeup view of Outfall 003 into Scott Bay

Photo 3. Lift station in Butyl Polymers Area (Outfall 103)

Photo 4. Northwest Chemical SEP101
and Lift Station 181 facing south (Outfall 203)

Photo 5. Upstream of Outfall 007

Photo 6. Downstream of Outfall 007, where flow commingles
with MSGP Outfalls 008 and 009

Attachment A-6
Outfall Photos

Aerial Showing Location of Outfall Photos

ATTACHMENT A-7
Outfall 007 NOI Letters to City and County

ExxonMobil Chemical Company
5000 Bayway Drive
P.O. Box 4004
Baytown, Texas 77522-4004

ExxonMobil
Chemical

CERTIFIED MAIL

November 4, 2016

Bob Allen, Director
Harris County Pollution Control Services
101 South Richey, Suite H
Pasadena, TX 77506

Re: ExxonMobil Baytown Chemical Plant
MSGP NOI TXR05N668

Dear Mr. Allen,

Attached please find a copy of the MSGP NOI for the ExxonMobil Baytown Chemical Plant submitted to TCEQ. We are submitting this document under the August 2016 MSGP TXR050000 Part II Section C 9 reference. This NOI was submitted to TCEQ to continue an active authorization under the reissued general permit.

If you have any questions, please contact me at (281) 834-5146 or at snigdha.n.joshi@exxonmobil.com.

Sincerely,

Snigdha Joshi
Environmental Coordinator

ExxonMobil Chemical Company
5000 Bayway Drive
P.O Box 4004
Baytown, Texas 77522-4004

ExxonMobil
Chemical

CERTIFIED MAIL

November 4, 2016

City of Baytown
Health Department – Storm Water Division
P.O. Box 424
Baytown, TX 77522

Re: ExxonMobil Baytown Chemical Plant
MSGP NOI TXR05N668

City of Baytown,

Attached please find a copy of the MSGP NOI for the ExxonMobil Baytown Chemical Plant submitted to TCEQ. We are submitting this document under the August 2016 MSGP TXR050000 Part II Section C 9 reference. This NOI was submitted to TCEQ to continue an active authorization under the reissued general permit.

If you have any questions, please contact me at (281) 834-5146 or at snigdha.n.joshi@exxonmobil.com.

Sincerely,

Snigdha Joshi
Environmental Coordinator

ATTACHMENT T-1
EXXONMOBIL BAYTOWN CHEMICAL PLANT
FACILITY DESCRIPTION

EXXONMOBIL BAYTOWN CHEMICAL PLANT
FACILITY DESCRIPTION

This document has been prepared as a part of the 2018 TPDES Permit No. WQ0001215000 renewal application and contains a description of ExxonMobil Baytown Chemical Plant in relation to its wastewater discharge, including, outfall locations, discharges through the outfalls, wastewater and storm water management, and applicability of national effluent guidelines.

The ExxonMobil Baytown Chemical Plant (BTCP) is located within the ExxonMobil Baytown Complex adjacent to the ExxonMobil Baytown Refinery (BTRF) and ExxonMobil Baytown Olefins Plant (BOP). Chemical feedstock and products are transferred between facilities, and certain utilities are shared including the water clarification system and the wastewater treatment plant, operated by the BTRF under TPDES Permit No. WQ0000592000.

FACILITY OVERVIEW

The BTCP is divided into three business functions identified as Butyl Polymers (BPB), Polypropylene (BTPP), and Olefins and Aromatics (O&A). The O&A units are operated under the Unicorn (UCO) and Northwest Chemicals (NWC) areas.

The BPB area consists of polymerization and finishing units that produce synthetic rubber. The NWC operating area consists of the Paraxylene Absorption Unit (PAU), Butenes Processing Unit (BPU), Dihydrogenation Unit (DHU), Propylene Concentration Unit (PCU), Synthesis Gas Unit (SGU)), and Metallocene Polyalphaolefin Unit (MPU), along with offsite utilities. The UCO and BTPP areas discharge all process wastewater and storm water to the BTRF wastewater treatment plant.

The BTCP plans to construct and operate two additional processing units, PPU and MPF, which will be co-located. The PPU will combine monomers and generate a pelletized resin. The MPF will be constructed to prepare monomers for use in polymerization. The shared facilities between the two units will include two hot oil heaters, a cooling tower, a thermal oxidizer and steam assisted flare to control vents from routine and maintenance, startup, and shutdown operations.

In addition to the shared facilities, process equipment for the PPU and MPF units will include distillation columns, storage tanks, and equipment for unloading/loading raw materials and products in transport vessels. Other new equipment will include pipe and piping components, valves, exchangers, compressors, pumps, separation equipment, instrumentation and analyzers. The process units will also utilize existing facilities located at the Baytown Complex.

WASTEWATER SOURCES AND OUTFALLS

Figure 1 is a flow diagram of the BTCP wastewater system showing wastewater sources from the existing and future process units, treatment units, and outfalls.

Currently, under the TPDES Permit No. WQ0001215000, BTCP has three outfalls: internal Outfalls 103 and 203, and final Outfall 003. Outfall 103 is associated with BPB and Outfall 203 is associated with NWC. Outfall 003 receives non-process area storm water from the entire BTCP facility, infrequent discharges from internal Outfalls 103 and 203, and infrequent discharge from the SGU area first flush sump. BTCP also has six storm water outfalls (004, 005, 006, 007, 008, 009) authorized under the TCEQ's Multi-Sector General Permit (MSGP). ExxonMobil is requesting in this TPDES application to transfer Outfall 007 from the MSGP to the TPDES Permit No. WQ0001215000. Process wastewater, potentially contaminated storm water, and sanitary wastewater from the BTCP are routed to the BTRF for treatment and discharge under the BTRF's TPDES Permit No. WQ0000592000.

When a storm event generates excessive runoff, de minimis quantities of process and utility wastewaters may commingle with storm water and discharge via existing Outfalls 103 and 203 or the SGU sump to Outfall 003. Once the new PPU and MPF units are operating, due to their proximity, it is anticipated that Outfall 007 will also experience similar de minimis discharges of process and utility wastewaters. The current TPDES permit for the BTCP authorizes discharge of process and utility wastewaters from Outfalls 103, 203, and 003 only following an excessive storm event or succession of events (Other Requirements, Provision 3), which result in runoff volumes that exceed the capabilities of the lift station pumps and exceed the storage capacity of the storm water retention basins (BPB, NWC), or the SGU's first flush sump. The BTCP has to take all reasonable steps to minimize these discharges from Outfall 003, and has to notify the TCEQ each time such discharges occur. ExxonMobil requests that Outfall 007 be incorporated into Provision 3 in the Other Requirements section of the current TPDES permit.

Outfalls 003, 103, 203, and 007 are described in more detail in the following sections.

OUTFALL 103

Under routine conditions, process wastewater from the BPB unit, potentially contaminated storm water, and cooling tower blowdown gravity flow to the BPB oil/water separator, which pumps to the BTRF wastewater treatment plant via lift station.

When rainfall exceeds the pump capacity, the lift station continues to pump to the BTRF, but excess water is diverted to the BPB storm water retention basin. If excess flow threatens the capacity of the retention basin, flow to the retention basin is stopped, and while continuing to discharge to the BTRF, the excess flow is diverted through Outfall 103, discharging to the 9-foot sewer system that ultimately discharges through Outfall 003. Once the rainfall has diminished, thereby reducing the pump system impact, water in the retention basin is pumped back to the BTRF.

OUTFALL 203

Similar to Outfall 103 in the BPB area, Outfall 203 discharges excess storm water commingled with other wastewaters from the NWC area during high runoff events.

Under routine conditions, process wastewater from the PCU, PBU, and PAU, potentially contaminated storm water, and cooling tower blowdown are routed to the NWC oil/water separator. The NWC oil/water separator discharges to a collection box, which also receives wastewater from the DHU and MPU. The collection box discharges to the NWC lift station, which pumps to the BTRF.

When rainfall exceeds the pump capacity, the lift station continues to pump to the BTRF, but excess water is diverted to the NWC storm water retention basin. If excess flow threatens the capacity of the retention basin, flow to the retention basin is stopped, and while continuing to discharge to the BTRF, the excess flow is diverted through Outfall 203, discharging to the 9-foot sewer system that ultimately discharges through Outfall 003. Once the rainfall has diminished, thereby reducing the pump system impact, water in the retention basin is pumped back to the BTRF.

OUTFALL 003

Outfall 003 routinely discharges storm water from non-process and non-industrial areas of the BTCP. During high runoff events, it may also receive discharges from internal Outfalls 103 and 203, and post-first flush storm water from the SGU. Outfall 003 does not receive any type of continuous wastewater flow.

Wastewater discharges from Outfalls 103 and 203 are described in the preceding sections. The SGU wastewater is routed to the process sewer and then to the BTRF for treatment and discharge under TPDES Permit No. WQ0000592000. The SGU first flush sump receives process area storm water with a minimal amount of process wastewater such as filter back flush containing carbon soot and calcium. If heavy rainfall results in runoff flows that exceed the pumping and sump storage capacity, a valve must be opened to route the excess flow into a pipe that gravity drains directly to Outfall 003.

Table 2 summarizes the wastewaters that may be discharged through Outfall 003. The utility and other miscellaneous wastewaters listed in the table (except for those flows directly from Outfalls 103 and 203) may be discharged from various areas within the BTCP facility.

OUTFALL 007

Outfall 007 is currently authorized for storm water discharge under MSGP No. TXR05N668. ExxonMobil is requesting in this application to transfer Outfall 007 from the MSGP to the BTCP's TPDES Permit No. WQ0001215000.

Process wastewater from the new PPU and MPF units, which will include cooling tower blowdown, steam condensate blowdown, neutralized wash water, and other wastewater streams, will flow to a process wastewater sump that discharges to the BTRF for treatment and discharge under TPDES Permit No. WQ0000592000.

Storm water from the new PPU and MPF units will be routed through diversion boxes to a first flush basin that will then discharge to the BTRF. The first flush basin will be designed to receive the first inch of rainfall in paved areas (approximately 380,000 gallons). After the first flush basin is filled to capacity, any additional storm water will be routed to the PPU and MPF storm water retention basin. If excess flow threatens the capacity of the retention basin, flow to the retention basin will be stopped, and the excess flow will be diverted to Outfall 007. The retention pond discharge is manually controlled and regulated with a sluice gate. Once the rainfall has diminished, thereby reducing first flush basin capacity impact, water in the retention basin will be pumped back to the BTRF. In addition to discharges from the PPU and MPF storm water retention basin, Outfall 007 will receive storm water directly from areas north of the PPU and MPF.

Table 3 summarizes the wastewaters that may be discharged through Outfall 007.

Sanitary Wastewater

Sanitary wastewater is routed to the BTRF for treatment and discharge under the BTRF's TPDES Permit No. WQ0000592000. It may also be collected in holding tanks and transported by truck to the BTRF sanitary treatment plant or nearby municipal treatment plant.

Treatment Chemicals

Treatment chemicals are used in the cooling tower, boiler, and water/wastewater treatment systems to maintain water quality. Deicing chemicals may be used for freezing conditions and may be present in wash waters and storm water runoff. A list of treatment chemicals is included in the TPDES application as Attachment T-4.

Effluent Guidelines

National effluent guidelines for the Organic Chemicals, Plastics, and Synthetic Fibers (OCPSF) industry at 40 CFR 414 apply to process wastewaters at the Baytown Chemical Plant. Because all OCPSF process wastewaters and potentially contaminated storm waters are normally routed to the BTRF for treatment and discharge under the BTRF's TPDES Permit No. WQ0000592000, the OCPSF limits are applied to the BTRF permit. However, de minimis quantities of OCPSF process wastewater are allowed in the BTCP's TPDES Permit No. WQ0001215000 (Other Requirements, Provision 3) to be discharged during excessive storm events through the BTCP's Outfall 003. The TCEQ has set concentration limits for de minimis OCPSF wastewater in Outfall 003 discharges based on OCPSF Subpart F (Commodity Organic Chemicals) and Subpart J (Direct Discharge Point Sources That Do Not Use End-of-Pipe Biological Treatment).

Table 1. Raw Materials, Major Intermediates, and Final Products

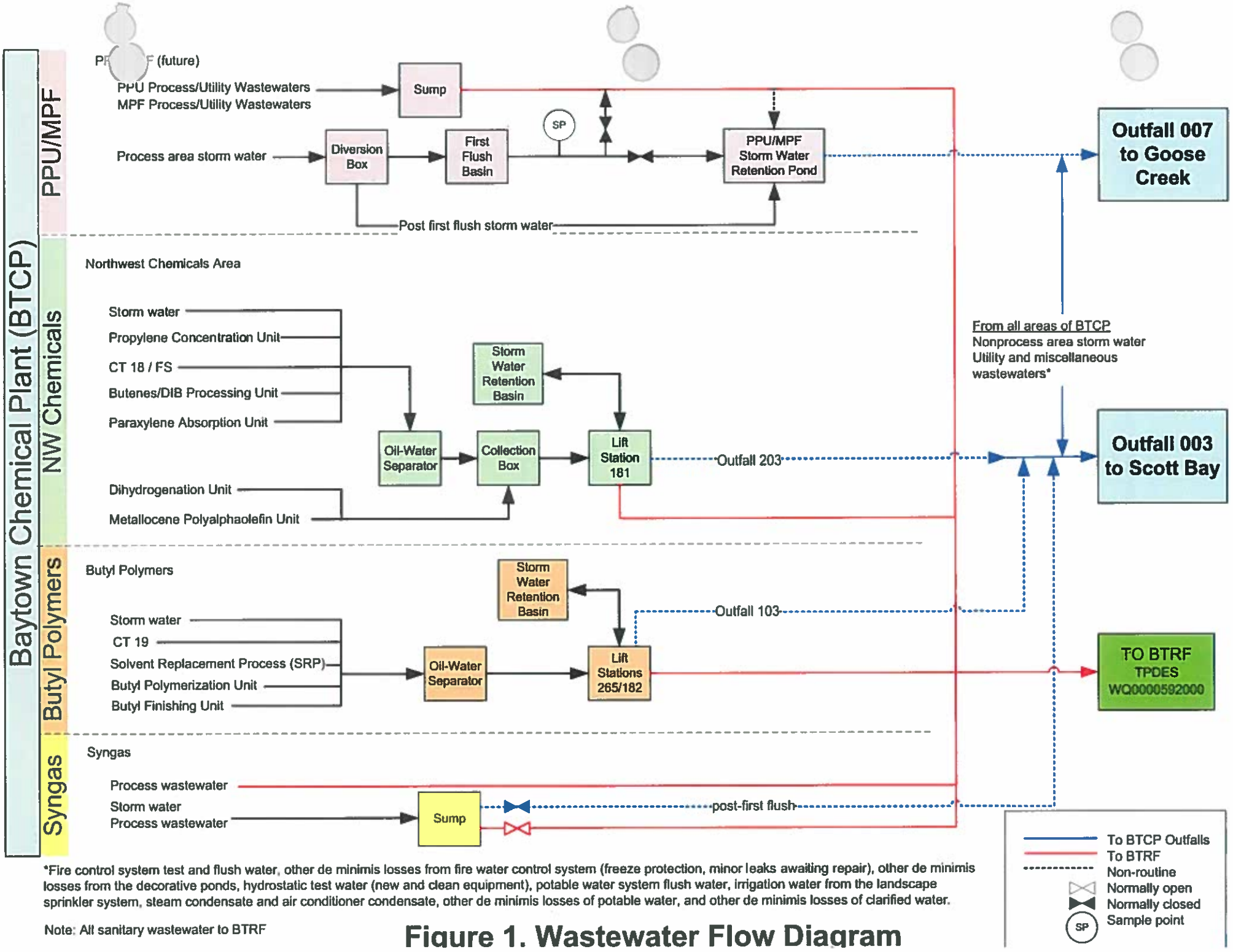
Raw Materials	Major Intermediates	Final Products
1-Decene [872-05-9]	Hydrogen [1333-74-0]	A-100 (Arom, Solvesso) [64742-95-6]
1-Dodecene [112-41-4]	PAO [895164-30-4, 163149-29-9]	A150/200 [Arom, Solvesso], [64742-95-5]
1-Hexene [592-41-6]	Tertiary amyl methyl ether [994-05-08]	Benzene [71-43-2]
1-Octene [111-66-0]		Butenes [106-98-9]
1-Tetradecene [1120-36-1]		Butyl rubber [9010-85-9]
Acid		Chemgrade propylene [115-07-1]
Additives		Exxpro rubber
Ammonia [7664-41-7]		Hydrogen [1333-74-0]
Anti-oxidant		Isoamylene [26760-64-5]
Aqueous ammonia [7664-41-7]		Isobutylene [115-11-7]
BH-40 Cellulosic filter aid [9004-34-6]		Light gases
Bromine [7726-95-6]		Liquid purge
Butene [106-98-9]		Organic products
Butylated hydroxytoluene [128-37-0]		Orthoxylene [95-47-6]
Calcium stearate [1592-23-0]		Polyalphaolefin [895164-30-4, 163149-29-9]
Catalyst		Polygrade propylene [115-07-1]
Caustic [sodium hydroxide] [1310-73-2]		Polymer
Celite 545 [diatomaceous earth] [68855-54-9]		Polypropylene [9003-07-0]
De-asphalter Unit [DAU] Rock		Propane [74-98-6]
Dowtherm [component: diphenyl oxide [101-84-8], biphenyl [92-52-4]]		p-Xylene [106-42-5]
Epoxidized soybean oil [8013-0708]		Raw syngas
Ethylene [74-85-1]		Tertiary amyl methyl ether [994-05-08]
Ethylene glycol [107-21-1]		Toluene [108-88-3]
Hexane [110-54-3]		Xylenes [1330-20-7]
Hydrocarbon feeds		
Hydrogen [1333-74-0]		
Hydrogen peroxide [7722-84-1]		
Irganox L57 [components: benzamine [68411-46-1], n-phenyl diphenylamine [122-39-4]]		
Isobutyl alcohol [78-83-1]		
Isobutylene [115-11-7]		
Isohexane [107-83-5]		
Isoprene [78-79-5]		
Kerosene [8008-20-6]		
Methacrylate [80-62-6]		
Methanol [67-56-1]		
Methyl chloride [74-87-3]		
Naphtha [64741-67-9]		
Natural Gas		
Octene [111-66-0]		
Oxygen [7782-44-7]		
para-Methyl styrene [622-97-9]		
PDEB [105-05-5]		
Propene [115-07-1]		
Propylene glycol [57-55-6]		
Propylene, dilute [115-11-7]		
Raffinates [25167-67-3]		
Steam-cracked naphtha (SCN) [imported] [68606-10-0]		
Sulfolane [126-33-0]		
Tertiary butyl alcohol [75-65-0]		
Thermal cracked gas oil [TGO]		
Toluene [108-88-3]		
Aluminum alkyl [1070-00-4]		
Vazo-52 [4419-11-8]		
Water		

Table 2. Outfall 003 Wastewaters

Storm water (commingled with other wastewaters) (as listed below)
Fire water control system test and flush water*
De minimis losses from fire control system (freeze protection, minor leaks awaiting repair)*
De minimis losses from the decorative ponds*
Hydrostatic test water (new or clean equipment)*
Potable water system flush water*
Irrigation water from the landscape sprinkler system*
Steam condensate and air conditioning condensate*
De minimis losses of potable water*
De minimis losses of clarified water*
Wash water and storm water containing deicing chemicals***
Construction storm water***
Miscellaneous non-storm water flows (MSGP list)*
Previously monitored effluents from Outfalls 103 and 203**
* Under BTCP's TPDES Permit No. WQ0001215000 (Other Requirements, Provision 3), these wastewaters are authorized for discharge through Outfall 003 at any time. ** Under BTCP's TPDES Permit No. WQ0001215000 (Other Requirements, Provision 3), discharges from internal Outfalls 103 and 203 are authorized for discharge through Outfall 003 under certain conditions following an excessive storm event(s). *** Included in amendment request as an additional wastewater for Outfall 003.

Table 3. Outfall 007 Wastewaters

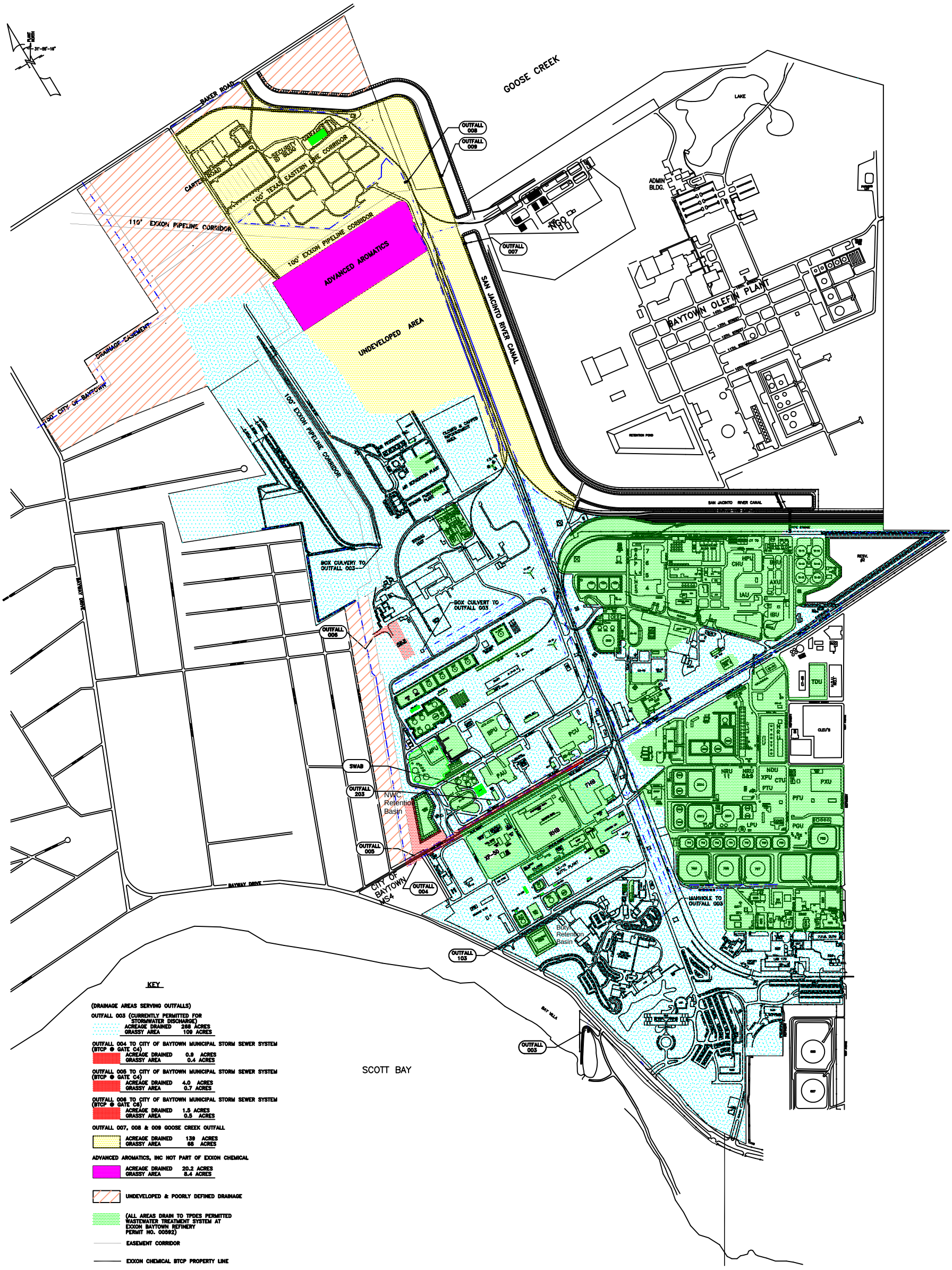
Storm water (commingled with other wastewaters) (as listed below)
Process and utility wastewaters (de minimis quantities during unplanned events or excessive storm events)
Miscellaneous non-storm water flows (MSGP list), including emergency firefighting wastewaters
De minimis losses from fire control system (freeze protection, minor leaks awaiting repair)
Irrigation water from the landscape sprinkler system
Steam condensate and air conditioning condensate
Hydrostatic test water (new or clean equipment)
Potable water system flush water
De minimis losses of potable water
De minimis losses of clarified water
Wash water and storm water containing deicing chemicals
Construction storm water



*Fire control system test and flush water, other de minimis losses from fire water control system (freeze protection, minor leaks awaiting repair), other de minimis losses from the decorative ponds, hydrostatic test water (new and clean equipment), potable water system flush water, irrigation water from the landscape sprinkler system, steam condensate and air conditioner condensate, other de minimis losses of potable water, and other de minimis losses of clarified water.

Note: All sanitary wastewater to BTRF

Figure 1. Wastewater Flow Diagram



ATTACHMENT T-2

PLOT SCALE: 1"=450'

IF ADD. INFO. IS NEEDED, CALL: MARK WELLMAN PH. 4-1537

CLASS.	REV.	APPRN:		PKG.	REV.	APPRN:		PKG.	REV.	APPRN:		PKG.	REV. 1	APPRN:		PKG.
	DRAWN				DRAWN				DRAWN				DRAWN	RDM	12/5/12	ADDED MPU UNIT AND REVISED ABBOTT STREET ROUTING. STORMWATER WAS 271 CHANGED TO 268 ACREAGE DRAINED.
	DFTG. CHKD.				DFTG. CHKD.				DFTG. CHKD.				DFTG. CHKD.			
	PROC.				PROC.				PROC.				PROC.			
	MECH.				MECH.				MECH.				MECH.			
	CIVIL				CIVIL				CIVIL				CIVIL			
	ELECT.				ELECT.				ELECT.				ELECT.			
	INST.				INST.				INST.				INST.			
	PROJ. ENG.				PROJ. ENG.				PROJ. ENG.				PROJ. ENG.			
ORIG.1.2.	APP'D.– RELEASE:			DATE:	APP'D.– RELEASE:			DATE:	APP'D.– RELEASE:			DATE:	APP'D.– RELEASE:			DATE:

EXXON CHEMICAL

THIS DRAWING IS A CRITICAL CONTROLLED DOCUMENT. FOR PERMISSION TO MAKE ANY REVISIONS, CONTACT BTCP CONTROLLED DRAWING DOCUMENTATION COORDINATOR.

RDM	1	12/5/12
OPER.	PASS	DATE

ACAD FILE NAME SSK87009.DWG

APPRN.			
BENCH MK.		EL.	
DRAWN	McKINNEY	10/4/99	
DFTG.CHKD.			
PROC.			
MECH.			
CIVIL			
ELECT.			
INST.			
PROJ. ENG.			
NOTED EXXON			

DESIGN

EXXON CHEMICAL AMERICAS
BAYTOWN PLANT

BTCP STORMWATER SITE DRAINAGE PLAN

LOC.
DATE
NO. 616-140-7009
REV 1

DESIGN REF.

ATTACHMENT T-3
EXXONMOBIL BAYTOWN CHEMICAL PLANT
AMENDMENT REQUESTS

EXXONMOBIL BAYTOWN CHEMICAL PLANT AMENDMENT REQUESTS

Exxon Mobil Corporation (ExxonMobil) requests the following amendments to TPDES Permit No. WQ0001215000 for the ExxonMobil Baytown Chemical Plant (BTCP).

1. Add Outfall 007.
2. Remove internal Outfalls 103 and 203.
3. Increase the daily average limit for total suspended solids (TSS) for Outfall 003 to 198 milligrams per liter (mg/L).
4. Modify the reporting of the daily average for all pollutants for Outfall 003 that are sampled once a year.
5. Authorize additional wastewaters for Outfall 003.
6. Modify the description of emergency firefighting wastewaters in the list of allowable non-storm water flows.

Further discussion of the requested amendments is provided in the following sections.

ADDITION OF OUTFALL 007

ExxonMobil requests the addition of Outfall 007 for the discharge of storm water, construction storm water, and de minimis quantities of other facility wastewaters. Outfall 007 is currently authorized for storm water discharge under the TCEQ's Multi-sector General Permit (MSGP) No. TXR05N668. ExxonMobil requests in this TPDES application to transfer Outfall 007 from the MSGP to the BTCP's TPDES Permit No. WQ0001215000. ExxonMobil also requests that Outfall 007 be incorporated into Provision 3 in the Other Requirements section of the current TPDES permit. This provision allows the discharge of de minimis quantities of process and utility wastewaters during excessive storm events where the capacity of lift stations and storm water retention ponds are exceeded.

Further description of Outfall 007 is provided in Attachment T-1 Facility Description.

REMOVAL OF INTERNAL OUTFALLS 103 AND 203

ExxonMobil requests the removal of internal Outfalls 103 and 203. These outfalls were originally set in the TPDES permit to monitor discharges from two in-plant lift stations to Outfall 003 that occur during high storm water events. The current TPDES permit requires monitoring of these internal outfalls for flow, total organic carbon (TOC), oil and grease (O&G), copper, zinc, and pH. Because all of these parameters can be just as effectively monitored at the final Outfall 003, the internal outfalls do not appear necessary, and monitoring at the final outfall would be a simpler approach. Flow, TOC, O&G, and pH are already monitored at Outfall 003. Monitoring for copper and zinc at the internal outfalls is not predicated by any national effluent guidelines for these discharges, so that if the TCEQ determines that monitoring of these two metals is needed based on

water quality standards for the receiving water, then monitoring at the final Outfall 003 would be an appropriate option.

With respect to TOC, O&G, and pH, limits for these parameters are the same at the final Outfall 003 as they are for internal Outfalls 103 and 203. These limits are TOC (55 mg/L), O&G (15 mg/L), and pH (6 to 9 standard units, SU). Given that these limits are already applied to the final effluent discharge (Outfall 003) to be protective of the receiving water, the same limits on the internal outfalls do not appear necessary.

Removing internal Outfalls 103 and 203 would be compliant with federal anti-backsliding provisions. Limits on TOC, O&G, and pH are not based on requirements for national categorical effluent guidelines, rather they are technology-based limits (TBELs) based on the TCEQ's best professional judgment (BPJ). The current permit requires only monitoring (not limits) of copper and zinc at Outfalls 103 and 203.

As outlined in EPA's permit writer manual,[1] an exception to anti-backsliding for effluent limits based on state standards is allowed under the Clean Water Act (CWA) where water quality standards are being attained (CWA §402(o)(1)/303(d)(4)), where the change will be consistent with antidegradation (CWA §303(d)(4)(B)), and the change will maintain the water quality standard and be consistent with any applicable effluent guideline (there are none) (CWA §402(o)(3)). ExxonMobil believes all of these conditions would be satisfied if the internal outfalls were removed and any necessary monitoring and limits were at the final outfall.

INCREASE DAILY AVERAGE TSS FOR OUTFALL 003

ExxonMobil requests an increase in the daily average limit for TSS at Outfall 003 to 198 milligrams per liter (mg/L). Outfall 003 consists of storm water and utility/miscellaneous wastewaters, and sometimes includes de minimis amounts of process wastewater during high storm water conditions.

The current daily average TSS limit for Outfall 003 is 99 mg/L (grab sample). The permit requires one sample per year to be collected only if there is an overflow from one or more of the following sources: Outfall 103 lift station, Outfall 203 lift station, or the Syngas Unit first flush sump. As described in the TCEQ's Fact Sheet for the current TPDES permit, the TSS limit is based on allocations for storm water, utility water, and de minimis amounts of process wastewater; however, the limit is driven by the storm water component, which makes up nearly 99% of the total allocation (98 mg/L of the 99 mg/L limit).

It is well established that storm water runoff from developed areas (residential, commercial, and industrial) contains relatively high concentrations of TSS. In 1978-1983, the U.S. Environmental Protection Agency (EPA) conducted the National Urban Runoff Program (NURP) to study runoff from commercial, residential, and light industrial sites. The results of the NURP study of 28 watersheds are summarized by EPA in the final Notice for NPDES General Permits for Industrial Activity (Notice) that was published on September 9, 1992 (57 Federal Register 41236). The TSS concentrations from the NURP study are event-averaged values (i.e., composite samples), with an

[1] *U.S. Environmental Protection Agency NPDES Permit Writers' Manual, EPA-833-K-10-001, September 2010, Section 7.2, "Applying Anti-backsliding Requirements."*

average concentration in commercial and residential runoff of 239 mg/L, and a weighted mean concentration of 180 mg/L. In the Notice, the recommended range of TSS in runoff for load estimation is 180 mg/L to 548 mg/L. Thus, an average limit of 198 mg/L is conservatively low, particularly since it would be based on a grab samples that are collected within the first hour that discharge begins, as required by the permit.

MODIFY DAILY AVERAGE REPORTING FOR OUTFALL 003

ExxonMobil requests that the calculation of the daily average for parameters required to be sampled only once a year be reportable only if more than one sample is actually collected in a given month.

The parameters that are required to be sampled only once a year are xylene, and those from the national effluent guidelines at 40 CFR 414 for the Organic Chemicals, Plastics, and Synthetic Fibers industrial category. The OCPSF parameters include biochemical oxygen demand (BOD), total suspended solids (TSS), and toxic organic pollutants (on pp. 2-2b of the TPDES permit, acenaphthene through vinyl chloride). The OCPSF parameters have limits set for Outfall 003 to cover those occasions when de minimis quantities of process wastewater are discharged through Outfall 003 during excessive storm events via internal Outfalls 103 or 203, or the Syngas sump. BOD and TSS are required to be monitored only once a year for Outfall 003 because these occasions are very infrequent and the quantities of process wastewater are very small compared to the storm water volume. For the toxic organic pollutants, the TCEQ typically only requires once a year sampling for discharges containing OCPSF wastewaters, regardless of the volume or frequency of discharge.

Frequently when a discharge is intermittent, the TCEQ will not set a daily average (monthly) limit for non-categorical parameters, and instead will set only a daily maximum limit. However, the TCEQ set both average and maximum limits for Outfall 003 for the OCPSF parameters based on EPA policy and regulations for categorical wastewaters.

Because the TCEQ does not believe that the daily average limits for OCPSF parameters can be omitted in the permit, ExxonMobil is requesting that the calculation of the average only be required to be reported for compliance monitoring when more than one sample is collected in a given month. Permittees have the option to collect more samples than what is required in the permit and any such additional data must be reported in the discharge monitoring reports (DMRs). In the event that only one sample would be collected in the same month, ExxonMobil requests the daily average not be required to be calculated because it is in effect, the same as the daily maximum when only one value is available for the average.

ADDITIONAL WASTEWATERS FOR OUTFALL 003

ExxonMobil requests that construction storm water be authorized for discharge through Outfall 003. ExxonMobil requests that this change be made by adding the term, construction storm water, to Footnote 2 on pp. 2b of the TPDES permit for existing Outfall 003. ExxonMobil also requests the addition of discharges containing deicing chemicals (such as calcium chloride salt) to Outfall 003. These chemicals may be used to prevent slipping and other safety issues with ice/snow during freezing conditions. The deicing chemicals may be transported to Outfall 003 through subsequent

storm water runoff or wash waters from surfaces where the chemicals have been applied. (The request to add new Outfall 007 also include these wastewaters.)

ALLOWABLE NON-STORM WATER FLOWS (EMERGENCY FIREFIGHTING)

ExxonMobil requests that in the list of allowable non-storm waters in Provision 4 in the Other Requirements section of the current TPDES permit, that the term, emergency firefighting activities, be clarified to include firefighting not only of actual fire, but fire prevention actions taken to control other dangerous high heat conditions such as smoldering and emergency cooling of equipment.

ATTACHMENT T-4
Treatment Chemicals
ExxonMobil Baytown Chemical Plant

Product	Use	Chemicals Listed in SDS [CAS]	Toxicity Data in SDS
Calcium Chloride	Deicing	Calcium chloride [10043-52-4]	yes
DEPOSITROL PY5200	Deposit control agent	Isopropyl alcohol [67-63-0]	yes
FLOGARD MS6206	Corrosion inhibitor	Tetrapotassium pyrophosphate [7320-34-5]	yes
FLOGARD MS6222	Corrosion inhibitor	Phosphoric acid [7664-38-2]	yes
INHIBITOR AZ8104	Corrosion inhibitor	Chlorotolyltriazole sodium salt [202420-04-0] Dichlorotolyltriazole [no CAS] Sodium 4(or 5)-methyl-1H-benzotriaxolide [64665-57-2] Sodium hydroxide [1310-73-2]	yes
DIXICHLOR	Disinfectant	Sodium hypochlorite [7681-52-9] Sodium hydroxide [1310-73-2] Sodium chloride [7647-14-5]	yes
GENGARD GN8020	Corrosion inhibitor	Maleic acid [110-16-7] Carboxylic acid polymer [TSRN 125438-5052P]	yes
OPTIGUARD MCA4288	Internal boiler treatment	Sodium hydroxide [1310-73-2] Sodium sulfite [7757-83-7] 2-Diethylaminoethanol [100-37-8] Sodium carbonate [497-19-8]	yes
Sulfuric Acid	Acid	Sulfuric acid [7664-93-9]	yes

Safety Data Sheet

Conforms to OSHA CFR 29 1910.1200 and aligns to the United Nations Globally Harmonized System
Conforms to The United Nations Regulation Globally Harmonized System

Section 1 - Chemical Product and Company Identification

1.1 Product Name: Calcium Chloride Solid

1.2 Distributor: Vitro Chemicals, Fibers & Mining, LLC, 13711 Regional Drive. Laredo, TX 78045 (956)717-4226

Product Use: Swimming pool additive, drilling mud additive, Turkey processing, Vegetable canning additive, snow and ice melter, dust control.

1.4 Emergency Telephone: Hazmat Service 800-373-7542

1.5 Contract Number 1186

Section 2 - Hazards Identification

GHS HAZARD

2.1 Hazard Classes	Hazard Categories
Skin irritation	Category 3
Eye irritation	Category 2A
Acute toxicity, oral	Category 4

2.2 Signal Word: Warning

2.3 *Pictograms:*

2.4 *Hazard Statements*

PHYSICAL HAZARDS:	None
HEALTH HAZARDS:	H302: Harmful if swallowed H315: Causes skin mild irritation H319: Causes serious eye irritation
ENVIRONMENTAL HAZARDS:	None
PRECAUTIONARY STATEMENTS:	P261: Avoid breathing dust P264: Wash skin thoroughly after handling P280: Wear protective gloves and eye protection

RESPONSE STATEMENTS:

P301 +310+ P331: IF SWALLOWED: USA Immediately call the National POISON CENTER at 800-222-1222. OUT SIDE USA Immediately call poison center or doctor. DO NOT induce vomiting

P303+P361+353: IF ON SKIN, Take off immediately all contaminated clothing. Rinse skin with water/shower
P304+340: IF INHALED, Remove to fresh air and keep comfortable for breathing. If not breathing give artificial respiration. DO NOT use mouth to mouth resuscitation without proper protection
P305+P351: IF IN EYES rinse cautiously with water for at least 15 minutes
P306+P361: IF ON CLOTHING, Take off contaminated clothing
P376: Stop leaks if safe to do so. See section 6 for proper clean up

STORAGE STATEMENTS:

P403 + P233: Store in a well-ventilated place, Keep container tightly closed when not in use

DISPOSAL STATEMENTS:

P501: Dispose of content and/ container in accordance with local, regional, national and/or international regulations

Hazards not otherwise classified (HNOC) or not covered by GHS: May irritate mucous membranes.

Section 3 - Composition / Information on Ingredients

3.1

Chemical Names	CAS #.	Concentration%	Other Identifiers
Calcium chloride	10043-52-4	94 - 100%	Calcium dichloride

Section 4 - First Aid Measures

4.1 Eye: Contact with the eyes can cause serious irritation. Symptoms may include discomfort or pain and redness. Severe overexposure can result in swelling of the conjunctiva along with tissue damage.

Eyes: Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

4.2 Skin: Prolonged and repeated contact can cause defatting and drying of the skin and can lead to irritation and/or dermatitis.

Skin: Flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid immediately. Wash clothing before reuse.

4.3 Ingestion: Ingestion can cause inebriation, headache, gastrointestinal pain, nausea, and vomiting leading to central nervous system depression. Aspiration of liquid into the lungs must be avoided as even small quantities in the lungs can produce chemical pneumonia, pulmonary edema and even death.

Ingestion: Do NOT induce vomiting. Get medical aid immediately.

4.4 Inhalation: Prolonged breathing of high dust concentrations can produce headache, dizziness, nausea, and impaired vision. Excessive overexposure can cause central nervous system depression, loss of consciousness, liver damage and death resulting from respiratory failure.

Inhalation: Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult and **IF TRAINED**, give oxygen. Get medical aid. Do NOT use mouth-to-mouth resuscitation without protection.

4.5 After first aid, get appropriate paramedic, or community medical support.
Note to Physicians: The severity of outcome following ingestion may be more related to the time between ingestion and treatment, rather than the amount ingested. Therefore, there is a need for rapid treatment of any ingestion exposure.

Section 5 - Fire-Fighting Measures

5.1 Flammable Properties: Not flammable

5.2 Suitable Extinguishing Media: Carbon dioxide, dry chemical powder or appropriate foam. Use water to keep non-leaking, fire-exposed containers cool.

5.3 Special hazards arising from the substance or mixture: Hydrogen chloride gas, Calcium oxide

5.4 Precautions for Firefighters: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use water spray to keep fire-exposed containers cool. Substance is noncombustible. Contact with metals may evolve flammable hydrogen gas.

Section 6 - Accidental Release Measures

6.1 Personal Precautions: Evacuate the area immediately. Isolate the hazard area. Keep out unnecessary and unprotected personnel. Increase ventilation to area or move container to a well-ventilated and secure area. Do not touch damaged containers or spilled product unless wearing appropriate protective equipment. Before entry, especially into confined areas, check atmosphere with an appropriate monitor.

6.2 Methods for Containment and Clean-up
Contain the discharged material. If sweeping of a contaminated area is necessary use a dust suppressant agent.

6.3 Other Information: Report spills to local health, safety and environmental authorities, as required.

Section 7 - Handling and Storage

7.1 Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Do not breathe dust minimize dust generation and accumulation. Do not get in eyes, on skin, or on clothing.

7.2 Storage: Store in a cool, dry, well-ventilated area, out of direct sunlight. Keep quantities stored as small as possible. Storage area should be clearly identified, clear of obstruction and accessible only to trained and authorized personnel.

Section 8 - Exposure Controls / Personal Protection

8.1

Chemical Names	ACGIH- TLV	OSHA - PEL
Calcium chloride	5 mg/m3 TWA	5 mg/m3 TWA

8.2 ACGIH® = American Conference of Governmental Industrial Hygienists. TLV® = Threshold Limit Value. OSHA = US Occupational Safety and Health Administration. PEL = Permissible Exposure Limits.

NOTE: TWA Means "TWA is the employee's average airborne exposure in any 8-hour work shift of a 40-hour work week which shall not be exceeded."

8.3 Ventilation: Provide general or local exhaust ventilation systems to maintain airborne concentrations below TLV/PELs Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.

8.5 Personal protective equipment

8.5.1 Respiratory protection respirator Use a type N100 as a backup to engineering controls.

8.5.2 Hand protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique to avoid skin contact with this product. Dispose of contaminated gloves after use. Select gloves tested to the **ANSI/ISEA 105-2011**
Full contact: Nitrile rubber
Splash contact: Nitrile rubber

8.5.3 Eye protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US).

8.5.4 Skin and body protection
Chemical splash protecting against chemicals, the type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

8.9 Protective Clothing Pictograms

Section 9 - Physical and Chemical Properties

9.1 Physical State: Solid granules
Appearance: White
Odor: Odorless
Boiling Point: 3038°F 1670 °C
Melting/ Freezing Point: N/A
Relative Density (water = 1): 1.3
Solubility in Water: Soluble
pH: 9

Vapor Pressure: Not Data Available
Vapor Density (Air=1): Not Data Available
Flash Point: N/A
Lower Explosive Limit: N/A
Upper Explosive Limit: N/A

Section 10 - Stability and Reactivity

10.1 Chemical Stability: Stable under ordinary conditions of use and storage.

10.2 Conditions to Avoid: Exposure to moisture may affect product quality.

10.3 Incompatible Materials: Strong acids, Borane/boron oxides, Zinc, Calcium oxide, Methyl vinyl ether, Calcium chloride is attacked by bromine trifluoride

10.4 Hazardous Decomposition: When heated to decomposition, calcium chloride emits toxic fumes of hydrogen chloride.

10.5 Hazardous Polymerization: Violent polymerization occurs when mixed with Methyl Vinyl Ether.

Calcium Chloride Solid

Section 11- Toxicological Information

11.1 Toxicity Data

Chemical Name	LD50 oral rat	LC50 Dermal Rat
Calcium chloride	1000 mg/kg	2630mg/kg

11.2 Carcinogenicity: No

Chemical Name	IARC	ACGIH	NTP	OSHA
Calcium chloride	Not Listing	Not Listing	Not listed	Not Listed

11.3 Key to Abbreviations
IARC = International Agency for Research on Cancer.
ACGIH= American Conference of Governmental Industrial Hygienists
NTP = National Toxicology Program.

11.4 Routes: Ingestion, skin and/or eye contact.

11.5 Target Organs: None

11.6 Potential health effects Repeated or prolonged contact with dust may produce chronic eye irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation.

11.7 Inhalation May irritate mucous membranes.

11.8 Ingestion Harmful if swallowed.

11.9 Skin Causes skin irritation.

11.10 Eyes Causes severe eye irritation.

11.11 Signs and Symptoms of Exposure: Dust may produce irritation of eyes, mouth and respiratory tract. Inhalation of the dust may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

11.12Teratogenicity: Not harmful the unborn child

11.13 Reproductive Toxicity: Not a reproductive hazard

11.14 Mutagenicity: Not a mutagen

Section 12 - Ecological Information

12.1

Calcium chloride	LC50 759 mg/l	Fish	96 hours
Calcium chloride	EC50 590mg/l	Daphnia	48 hours

Toxicity Not toxic to aquatic organisms, contain runoff

Mobility in soil: No Data available

Persistence/degradability: No Data available

Bioaccumulation: No Data available

PBT and vPvB assessment: No Data available

Section 13 - Disposal Considerations

13.1 Disposal: DO NOT REUSE EMPTY CONTAINER! Container with residues should be considered to be hazardous wastes. Contact a licensed contractor for detailed recommendations. Follow applicable federal, state, and local regulations.

Section 14 - Transport Information

14.1

Regulatory Information	UN #	Proper Shipping Name	Hazard Class	PG	Label	Additional Information
US DOT Classification		Not Regulated				
TDG Classification		Not Regulated				

Section 15 - Regulatory Information

15.1 US Regulations:

TSCA: All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30

CERCLA Hazardous Substances and corresponding RQs None

SARA Community Right-to-Know Program: None

Clean Water Act: None

Clean Air Act: None

OSHA: All ingredients are listed in 1910.1200

State Regulations

California prop. 65: None

Chemicals on the following State Right to Know Lists:

Massachusetts: All components of this product are on the Massachusetts Inventory or are exempt from Inventory requirements.

New Jersey All components of this product are on the New Jersey inventory or are exempt from Inventory requirements.

Pennsylvania: All components of this product are on the Pennsylvania Inventory or are exempt from Inventory requirements.

15.2 Canadian Regulation:
All substances contained in this product are listed on the Canadian Domestic Substances List (DSL) or are not required to be listed.

Calcium Chloride Solid

Section 16 - Other Information

16.1 Disclaimer: The information presented in this Safety Data Sheet is based on data believed to be accurate as of the date this Safety Data Sheet was prepared. HOWEVER NO responsibility is assumed for any damage or injury resulting from abnormal use or from any failure to adhere to recommended practices. The information provided above is furnished on the condition that the person receiving them shall make their own determination as to the suitability of the product for their particular purpose and on the condition that they assume the risk of their use.

16.2 References: CHEMpendium data base of Canadian Centre for Occupational Health and Safety (CCOHS), JJ Keller on Line, European Chemical Agency Data Base and MSDS and SDS of chemicals in this mixture.

16.3 SDS Preparation Date: 05/22/2015

Prepared by SJC Compliance Education, Inc.
16516 El Camino Real Suite 417
Houston, TX 77062

GE Power & Water
Water & Process Technologies

SAFETY DATA SHEET

DEPOSITROL* PY5200

1. Identification

Product identifier	**DEPOSITROL PY5200**
Other means of identification	None.
Recommended use	Deposit control agent
Recommended restrictions	None known.

Company/undertaking identification

GE Betz, Inc.
4636 Somerton Road
Trevose, PA 19053
T 215 355 3300, F 215 953 5524

Emergency telephone

(800) 877 1940

2. Hazard(s) identification

Physical hazards	Not classified.	
Health hazards	Reproductive toxicity	Category 2
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
OSHA defined hazards	Not classified.	

Label elements

Signal word	Warning
Hazard statement	May cause respiratory irritation. Suspected of damaging fertility or the unborn child.
Precautionary statement	
Prevention	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid breathing mist or vapor. Use only outdoors or in a well-ventilated area.
Response	If inhaled: Remove person to fresh air and keep comfortable for breathing. If exposed or concerned: Get medical advice/attention. Call a poison center/doctor// if you feel unwell.
Storage	Store in a well-ventilated place. Keep container tightly closed. Store locked up.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	None.

3. Composition/information on ingredients

Mixtures

Components	CAS #	Percent
Propan-2-ol (Isopropyl alcohol)	67-63-0	0.1 - 1

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

Composition comments Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this SDS for our assessment of the potential hazards of this formulation.

4. First-aid measures

Inhalation Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

Skin contact Rinse skin with water/shower. Get medical attention if irritation develops and persists.

Eye contact Remove contact lenses. Flush immediately with plenty of running water. Get medical attention if irritation develops and persists.

Ingestion Rinse mouth. If ingestion of a large amount does occur, call a poison control center immediately.

Most important symptoms/effects, acute and delayed May cause respiratory irritation.

Indication of immediate medical attention and special treatment needed Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.

General information IF exposed or concerned: Get medical advice/attention. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.

Fire fighting equipment/instructions In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk. Cool containers / tanks with water spray.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate personal protective equipment. Avoid inhalation of vapors or mists. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Environmental precautions Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling Do not handle until all safety precautions have been read and understood. Avoid breathing mist or vapor. Avoid contact during pregnancy/while nursing. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. When using, do not eat, drink or smoke. Wash hands thoroughly after handling.

Conditions for safe storage, including any incompatibilities Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the SDS). Store in accordance with local/regional/national/international regulation. Do not freeze. If frozen, thaw completely and mix thoroughly prior to use.

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Propan-2-ol (Isopropyl alcohol) (CAS 67-63-0)	PEL	980 mg/m3
		400 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value
Propan-2-ol (Isopropyl alcohol) (CAS 67-63-0)	STEL	400 ppm
	TWA	200 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Propan-2-ol (Isopropyl alcohol) (CAS 67-63-0)	STEL	1225 mg/m3
		500 ppm
	TWA	980 mg/m3
		400 ppm

Biological limit values

ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
Propan-2-ol (Isopropyl alcohol) (CAS 67-63-0)	40 mg/l	Acetone	Urine	*

* - For sampling details, please see the source document.

Appropriate engineering controls Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment

Eye/face protection Splash proof chemical goggles.

Skin protection

Hand protection Chemical resistant gloves. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. Glove selection must take into account any solvents and other hazards present.

Other Wear suitable protective clothing. Use of an impervious apron is recommended.

Respiratory protection Chemical respirator with organic vapor cartridge and full facepiece. A RESPIRATORY PROTECTION PROGRAM THAT MEETS OSHA'S 29 CFR 1910.134 AND ANSI Z88.2 REQUIREMENTS MUST BE FOLLOWED WHENEVER WORKPLACE CONDITIONS WARRANT A RESPIRATOR'S USE.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance

Color Yellow

Physical state Liquid

Odor Slight

Odor threshold Not available.

pH (concentrated product) 5.2

pH in aqueous solution 6 (5% SOL.)

Melting point/freezing point 25 °F (-4 °C)

Initial boiling point and boiling range 220 °F (104 °C)

Flash point > 212 °F (> 100 °C) P-M(CC)

Evaporation rate	< 1 (Ether = 1)
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	18 mm Hg
Vapor pressure temp.	70 °F (21 °C)
Vapor density	< 1 (Air = 1)
Relative density	1.17
Relative density temperature	70 °F (21 °C)
Solubility(ies)	
Solubility (water)	100 %
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	20 cps
Viscosity temperature	70 °F (21 °C)
Other information	
Percent volatile	0 (Calculated)
Pour point	30 °F (-1 °C)
Specific gravity	1.17

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Protect from freezing. Avoid contact with strong oxidizers.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	Oxides of carbon and sulphur evolved in fire.

11. Toxicological information

Information on likely routes of exposure

Inhalation	May cause irritation to the respiratory system.
Skin contact	Prolonged or repeated contact may cause irritation.
Eye contact	Direct contact with eyes may cause temporary irritation.
Ingestion	Expected to be a low ingestion hazard.
Symptoms related to the physical, chemical and toxicological characteristics	May cause respiratory irritation.

Information on toxicological effects

Acute toxicity May cause respiratory irritation.

Product	Species	Test Results
DEPOSITROL PY5200 (CAS Mixture)		
Acute		
Dermal		
LD50	Rabbit	> 5000 mg/kg, (Calculated according to GHS additivity formula)

Product	Species	Test Results
Inhalation		
LC50	Rat	> 20 mg/L, 4 Hour, (Calculated according to GHS additivity formula)
Oral		
LD50	Rat	> 5000 mg/kg, (Calculated according to GHS additivity formula)

Components	Species	Test Results
Propan-2-ol (Isopropyl alcohol) (CAS 67-63-0)		
Acute		
Dermal		
LD50	Rabbit	> 5000 mg/kg
Inhalation		
LC50	Rat	72.6 mg/L, 4 Hour
Oral		
LD50	Rat	5045 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Prolonged skin contact may cause temporary irritation.

Serious eye damage/eye irritation Direct contact with eyes may cause temporary irritation.

Respiratory or skin sensitization

Respiratory sensitization This product is not expected to cause respiratory sensitization.

Skin sensitization This product is not expected to cause skin sensitization.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

IARC Monographs. Overall Evaluation of Carcinogenicity

Not available.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

US. National Toxicology Program (NTP) Report on Carcinogens

Not available.

Reproductive toxicity Suspected of damaging fertility or the unborn child.

Specific target organ toxicity - single exposure May cause respiratory irritation.

Specific target organ toxicity - repeated exposure Not available.

Aspiration hazard Not classified.

Chronic effects Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity

Product		Species	Test Results
DEPOSITROL PY5200 (CAS Mixture)			
	0% Mortality	Mysid Shrimp	8000 mg/L, Static Renewal Bioassay, 48 hour, (pH adjusted)
		Sheepshead Minnow	16000 mg/L, Static Renewal Bioassay, 96 hour, (pH adjusted)
	10% Mortality	Mysid Shrimp	16000 mg/L, Static Renewal Bioassay, 48 hour, (pH adjusted)
	IC25	Ceriodaphnia	538 mg/L, Static Renewal Bioassay, 7 day
		Fathead Minnow	2000 mg/L, Static Renewal Bioassay, 7 day
	LC50	Ceriodaphnia	1265 mg/L, Static Renewal Bioassay, 48 hour

Product		Species	Test Results
		Fathead Minnow	> 2000 mg/L, Static Renewal Bioassay, 7 day
			1960 mg/L, Static Renewal Bioassay, 96 hour, (pH adjusted)
	NOEL	Fathead Minnow	313 mg/L, Static Renewal Bioassay, 96 hour, (pH adjusted)
Aquatic Crustacea	LC50	Daphnia magna	1767 mg/L, Static Renewal Bioassay, 48 hour, (pH adjusted)
	NOEL	Daphnia magna	1250 mg/L, Static Renewal Bioassay, 48 hour, (pH adjusted)

* Estimates for product may be based on additional component data not shown.

Bioaccumulative potential No data available.

Partition coefficient n-octanol / water (log Kow)

Propan-2-ol (Isopropyl alcohol) 0.05

Mobility in soil No data available.

Other adverse effects Nutrients: P : 0 mg/g, N : < 0.01 mg/g

Persistence and degradability

No data is available on the degradability of this product.

- **COD (mgO2/g)** 368 (calculated data)
- **BOD 5 (mgO2/g)** 10 (calculated data)
- **BOD 28 (mgO2/g)** 32 (calculated data)
- **Closed Bottle Test (% Degradation in 28 days)** 21 (calculated data)
- **Zahn-Wellens Test (% Degradation in 28 days)** 54 (calculated data)
- **TOC (mg C/g)** 144 (calculated data)

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

Not regulated as dangerous goods.

Some containers may be exempt from Dangerous Goods/Hazmat Transport Regulations, please check BOL for exact container classification.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Propan-2-ol (Isopropyl alcohol) (CAS 67-63-0) Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - Yes
Delayed Hazard - Yes
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical Yes

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Propan-2-ol (Isopropyl alcohol)	67-63-0	0.1 - 1

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

Food and drug administration 21 CFR 176.170 (components of paper and paperboard in contact with aqueous and fatty foods)
21 CFR 176.180 (components of paper and paperboard in contact with dry food)

NSF Registered and/or meets USDA (according to 1998 guidelines): Registration No. - 141020
Category Code(s):
G5 Cooling and retort water treatment products
G7 Boiler, steam line treatment products - nonfood contact

US state regulations California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

US - Massachusetts RTK - Substance List

Propan-2-ol (Isopropyl alcohol) (CAS 67-63-0)

US - Pennsylvania RTK - Hazardous Substances

Propan-2-ol (Isopropyl alcohol) (CAS 67-63-0)

US - Rhode Island RTK

Propan-2-ol (Isopropyl alcohol) (CAS 67-63-0)

US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)

Not listed.

US. New Jersey Worker and Community Right-to-Know Act

Propan-2-ol (Isopropyl alcohol) (CAS 67-63-0)

US. Pennsylvania Worker and Community Right-to-Know Law

Propan-2-ol (Isopropyl alcohol) (CAS 67-63-0)

US. California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Developmental toxin

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Female reproductive toxin

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Male reproductive toxin

No ingredient listed.

16. Other information, including date of preparation or last revision

Issue date	Oct-23-2014
Revision date	Aug-11-2015
Version #	3.0
List of abbreviations	CAS: Chemical Abstract Service Registration Number TWA: Time Weighted Average STEL: Short Term Exposure Limit LD50: Lethal Dose, 50% LC50: Lethal Concentration, 50% EC50: Effect Concentration, 50% NOEL: No Observed Effect Level COD: Chemical Oxygen Demand BOD: Biochemical Oxygen Demand TOC: Total Organic Carbon CEN: European Committee for Standardisation IATA: International Air Transport Association IMDG: International Maritime Dangerous Goods Code NFPA: National Fire Protection Association ACGIH: American Conference of Governmental Industrial Hygienists TSRN indicates a Trade Secret Registry Number is used in place of the CAS number.
References:	No data available
Disclaimer	The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.
Revision Information	Physical & Chemical Properties: Multiple Properties
Prepared by	This SDS has been prepared by GE Water & Process Technologies Regulatory Department (1-215-355-3300).

* Trademark of General Electric Company. May be registered in one or more countries.

Safety Data Sheet

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Identifier: DIXICHLOR
Synonyms: Bleach, Sodium Hypochlorite, Sodium Hypochlorite 10%
Intended use: Swimming pool chlorinator, Hard surface cleaner, Water treatment chemical, Biocides
Uses Advised Against: None identified. This is a pesticide product, do not use in a pesticide application that is not included on the label.

Company Identification
DPC Industries, Inc.
DPC Enterprises, LP
DXI Industries, Inc.
DX Terminals
PO Box 24600
Houston , TX 77229-4600

Emergency
CHEMTREC (USA) (800) 424-9300
24 hour Emergency Telephone No. (281) 457-4888
www.dxgroup.com

2. Hazard identification of the product

Physical hazards	Corrosive to metals	Category 1
Health hazards	Skin corrosion/irritation	Category 1
	Serious eye damage/eye irritation	Category 1
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
Environmental hazards	Hazardous to the aquatic environment, acute hazard	Category 1
	Hazardous to the aquatic environment, long-term hazard	Category 2

Label elements
Using the Toxicity Data listed in section 11 and 12 the product is labeled as follows.

Signal Word	**Danger**
Hazard Statements	Harmful in contact with skin. Causes severe skin burns and eye damage. Causes serious eye damage. Very toxic to aquatic life. Toxic to aquatic life with long lasting effects. May be corrosive to metals
Precautionary Statements	
Prevention	Do not breathe mist / vapors / spray. Wash thoroughly after handling. Avoid release to the environment. Wear protective gloves / eye protection / face protection. Use in well ventilated area.
Response	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF ON SKIN: Remove / Take off immediately all contaminated clothing. Wash with plenty of soap and water. IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor / physician if you feel unwell. IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do - continue rinsing. Immediately call a POISON CENTER or doctor / physician. Wash contaminated clothing before reuse. Collect spillage.
Storage	Store in a well-ventilated place. Keep container tightly closed. Store locked up. Protect from sunlight.
Disposal	Dispose of contents / container in accordance with local / national regulations.

3. Composition/information on ingredients

Synonyms: Bleach, Sodium Hypochlorite, Sodium Hypochlorite 10%

Ingredient	CAS Number	Percent (%)	NOTES
Sodium hypochlorite	7681-52-9	10 – 12.49	Substance classified with a health or environmental hazard.
Sodium chloride	7647-14-5	7 - 8	Substance classified with a health or environmental hazard.
Sodium hydroxide	1310-73-2	.1 - 5	Substance classified with a health or environmental hazard. Substance with a workplace exposure limit.

4. First aid measures

General	Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
Inhalation	Move victim to fresh air. Call emergency medical care. Apply artificial respiration if victim is not breathing. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Administer oxygen if breathing is difficult.
Eyes	Irrigate copiously with clean fresh water for at least 10 minutes, holding the eyelids apart. Get medical attention. Remove contact lenses if present and easy to do - continue rinsing.
Skin	Remove contaminated clothing. Wash skin thoroughly with soap and water or use a recognized skin cleanser. Do NOT use solvents or thinners.
Ingestion	If accidentally swallowed obtain immediate medical attention. Rinse mouth. Keep at rest. Do NOT induce vomiting. If vomiting occurs, keep head low so that stomach content does not get into lungs.
Most important symptoms and effects, both acute and delayed	
Overview	Corrosive effects. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.
Indication of immediate medical attention and special treatment needed	Treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

5. Fire-fighting measures

Recommended Extinguishing media	Alcohol resistant foam, CO^2, dry chemical powder, water spray. Do not use water jet.
Special hazards arising from the substance or mixture	Hydrogen chloride and chlorine. Chlorine gas rate of decomposition increases with the concentration with temperatures above 85 °F (30 °C). Do not breathe mist / vapors / spray.
Advice for fire-fighters	Wear positive pressure self-contained breathing apparatus (SCBA). Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection. Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible. Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes. Some are oxidizers and may ignite combustibles (wood, paper, oil, clothing, etc.). Contact with metals may evolve flammable hydrogen gas. Containers may explode when heated. TOXIC; inhalation, ingestion or skin contact with material may cause severe injury or death. Avoid any skin contact. Contact with molten substance may cause severe burns to skin and eyes. Effects of contact or inhalation may be delayed. Fire may produce irritating, corrosive and/or toxic gases. Runoff from fire control or dilution water may be corrosive and/or toxic and cause pollution. **ERG Guide No.** 154

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse. Stop leak if you can do it without risk. Prevent entry into waterways, sewers, basements or confined areas. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Local authorities should be contacted if significant spill cannot be contained.
Environmental precautions	Do not allow spills to enter drains or watercourses.
Methods and material for containment and cleaning up	Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water. Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Never return spills in original containers for re-use. For waste disposal, see Section 13 of the SDS.

7. Handling and storage

Precautions for safe handling	Wear appropriate personal protective equipment. Do not get in eyes, on skin, on clothing. Chemical attack increases with solution strength. Use with adequate ventilation. Observe good industrial hygiene practices. Do not apply heat or direct sunlight. Temperature and product concentration affect product quality and decomposition rates.
Conditions for safe storage, including any incompatibilities	Handle containers carefully to prevent damage and spillage. Keep container tightly closed. Store in a cool and well-ventilated place. Store in a corrosive resistant container. Consult container manufacturer for additional guidance. Store away from and do not mix with incompatible materials such as acids, ammonia, urea, oxidizers, organics and metals such as nickel, copper, tin, aluminum and iron.

8. Exposure controls and personal protection

Exposure Control parameters

CAS No.	Ingestion	Source	Value
1310-73-2	Sodium hydroxide	OSHA	TWA 2 mg/m3
		ACGIH	Ceiling: 2 mg/m3
		NIOSH	C 2 mg/m3
7647-14-5	Sodium chloride	OSHA	No Established Limit
		ACGIH	No Established Limit
		NIOSH	No Established Limit
7681-52-9	Sodium hypochlorite.	OSHA	No Established Limit
		ACGIH	No Established Limit
		NIOSH	No Established Limit

Individual protection measures, such as personal protective equipment

Respiratory	Use NIOSH/MSHA approved respirator, following manufacturer's recommendations when concentrations exceed permissible exposure limits.
Eyes	Wear face shield with safety glasses with side shields and/or safety goggles.
Skin	Chemical resistant clothing such as coveralls/apron boots should be worn. Chemical Impervious gloves.
Engineering Controls	Provide adequate ventilation. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. If these are not sufficient to maintain concentrations of particulates and any vapor below occupational exposure limits suitable respiratory protection must be worn. Eye wash and safety shower must be available when handling this product
Other Work Practices	Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

9. Physical and chemical properties

Appearance	Clear, pale yellow, or greenish Liquid
Odor	Pungent, chlorine odor
Odor threshold	0.9 mg/m^3
pH	12 - 13
Melting point / freezing point	7 °F (-13.9 °C)
Initial boiling point and boiling range	Decomposes above 230 °F (110 °C)
Flash Point	Nonflammable
Evaporation rate (Ether = 1)	Not Established
Flammability (solid, gas)	Not Applicable
Upper/lower flammability or explosive limits	**Lower Explosive Limit:** Not Measured **Upper Explosive Limit:** Not Measured
Vapor pressure (mmHg)	17.5 (@ 20 °C)
Vapor Density	Not Established
Specific Gravity	1.20 - 1.40
Solubility in Water	Complete
Partition coefficient n-octanol/water (Log Kow)	Not Measured
Auto-ignition temperature (°C)	Not Measured
Decomposition temperature	Not Measured
Viscosity (cSt)	Not Measured
VOC %	Not Measured
Other information	No other relevant information.

10. Stability and reactivity

Reactivity:	Hazardous Polymerization will not occur.
Chemical stability:	Stable under normal circumstances.
Possibility of hazardous reactions:	No data available.
Conditions to avoid:	Contact with incompatible materials. Acid contact will produce chlorine gas.
Incompatible materials:	Any acidic material, ammonia, urea, oxidizers, organics and metals such as nickel, copper, tin, aluminum and iron.
Hazardous decomposition products:	No hazardous decomposition products are known.

11. Toxicological information

Acute toxicity

Ingredient	Oral LD50, mg/kg	Skin LD50, mg/kg	Inhalation Vapor LC50, mg/L/4hr	Inhalation Dust/Mist LC50, mg/L/4hr	Inhalation Gas LC50, ppm
Sodium hypochlorite (7681-52-9)	5,000.00, Rat - Category: 5	10,000.00, Rabbit - Category: NA	10.50, Rat - Category: 4	No data available	No data available
Sodium chloride (7647-14-5)	1,350.00, Rabbit - Category: 4	100.00, Rat - Category: 2	40.00, Mouse - Category: NA	10,500.00, Rat - Category: NA	No data available
Sodium hydroxide (1310-73-2)	6,600.00, Mouse - Category: NA	1,350.00, Rabbit - Category: 4	600.00, Mouse - Category: NA	No data available	No data available

11. Toxicological information

Acute toxicity (cont.)

Item	Hazard
Acute Toxicity (mouth)	Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Ingestion may produce burns to the lips, oral cavity, upper airway, esophagus and possibly the digestive tract.
Acute Toxicity (skin)	Harmful in contact with skin.
Acute Toxicity (inhalation)	Vapors and spray mist may irritate throat and respiratory system and cause coughing.
Skin corrosion/irritation	Causes severe skin burns and eye damage
Eye damage/irritation	Causes serious eye damage.
Sensitization (respiratory)	No data available.
Sensitization (skin)	No data available.
Germ toxicity	No data available.
Carcinogenicity	Not considered to be a carcinogen by IARC, ACGIH, NTP or OSHA.
Reproductive Toxicity	No data available.
Specific target organ systemic toxicity (single exposure)	May cause respiratory irritation.
Specific target organ systemic Toxicity (repeated exposure)	Not Applicable.
Aspiration hazard	Not classified; however droplets of product may be aspirated into lungs, through ingestion or vomiting and may cause serious chemical pneumonia.

12. Ecological information

Toxicity: Very toxic to aquatic life. Toxic to aquatic life with long lasting effects.

Aquatic Ecotoxicity

Ingredient	96 hr LC50 fish, mg/l	48 hr EC50 crustacea, mg/l	ErC50 algae, mg/l
Sodium hypochlorite (7681-52-9)	0.08, Pimephales promelas	0.032, Daphnia magna	0.40 (72 hr),Dunaliella primolecta
Sodium chloride (7647-14-5)	1,100.00, Freshwater Fish	3,310.00, Daphnia magna	Not Available
Sodium hydroxide (1310-73-2)	196.00, Poecilia reticulata	40.38, Ceriodaphnia dubia	Not Available

Persistence and degradability	There is no data available on the preparation itself.
Bioaccumulative potential	Not Measured
Mobility in soil	No data available.
Results of PBT and vPvB assessment	This product contains no PBT/vPvB chemicals.
Other adverse effects	No other effects are expected.

13. Disposal considerations

Waste treatment methods:	Do not allow into drains or water courses. Wastes and emptied containers should be disposed of in accordance with regulations made under the Control of Pollution Act and the Environmental Protection Act. Using information provided in this data sheet, advice should be obtained from the Waste Regulation Authority, whether the special waste regulations apply.
Waste from material:	The waste determination should be made in discussion between the user and the waste disposal company.
Container Management:	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

UN number:	UN1791
UN proper shipping name:	Hypochlorite solutions
Transport hazard class(es)	
DOT (Domestic Surface Transportation)	
DOT Proper Shipping Name:	Hypochlorite solutions
DOT Hazard Class **DOT Label:**	8 8
UN / NA Number:	UN1791
DOT Packing Group:	III
CERCLA/DOT RQ:	100 lbs.
Environmental hazards:	IMDG Marine Pollutant: Yes (Sodium hypochlorite)
Special precautions for user:	Not Applicable

15. Regulatory information

Regulatory Overview:	The regulatory data in Section 15 is not intended to be all-inclusive, only selected regulations are represented. All ingredients of this product are listed on the TSCA (Toxic Substance Control Act) Inventory.	
WHMIS Classification	D2B E	
US EPA Tier II Hazards:	**Fire:**	No
	Sudden Release of Pressure:	No
	Reactive:	No
	Immediate (Acute):	Yes
	Delayed (Chronic):	No
SARA 302 Extremely Hazardous Substance:		No
SARA 311/312 Chemicals and RQs (lbs) (>0.1%) :		100
SARA 313 (TRI)		No
CAA Section 112 Hazardous Air Pollutant		No
CAA Section 112R Risk Management Plan		No
State Regulations:	**N.J. RTK Substances (>1%)**	Listed
	Penn RTK Substances (>1%)	Listed
	California Prop 65	Not Listed

16. Other information:

EPA Registration Number: 813-16

NSF Maximum Use Level (STD 60): Check BOL for facility Data. (46 to 105 mg/L)

Revision Information: 5/4/2017 – Section 3: Revised EPA registration.

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein. We accept no responsibility and disclaim all liability for any harmful effects which may be caused by exposure to our products. Customers/users of this product must comply with all applicable health and safety laws, regulations, and orders.

THE USER IS CAUTIONED TO PERFORM HIS OWN HAZARD EVALUATION AND TO RELY ON HIS OWN DETERMINATIONS.

GE Power & Water
Water & Process Technologies

SAFETY DATA SHEET

FLOGARD* MS6206

1. Identification

Product identifier	**FLOGARD MS6206**
Other means of identification	Not available.
Recommended use	Corrosion inhibitor
Recommended restrictions	None known.

Company/undertaking identification

GE Betz, Inc.
4636 Somerton Road
Trevose, PA 19053
T 215 355 3300, F 215 953 5524

Emergency telephone

(800) 877 1940

2. Hazard(s) identification

Physical hazards	Corrosive to metals	Category 1
Health hazards	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 2B
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
OSHA defined hazards	Not classified.	

Label elements

Signal word	Warning
Hazard statement	May be corrosive to metals. Causes skin irritation. Causes eye irritation. May cause respiratory irritation.
Precautionary statement	
Prevention	Keep only in original container. Avoid breathing mist or vapor. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear protective gloves.
Response	If on skin: Wash with plenty of water/. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a poison center/doctor// if you feel unwell. Specific treatment (see on this label). If skin irritation occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. Take off contaminated clothing and wash before reuse. Absorb spillage to prevent material damage.
Storage	Store in a well-ventilated place. Keep container tightly closed. Store locked up. Store in corrosive resistant/ container with a resistant inner liner.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	None.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
Tetrapotassium pyrophosphate		7320-34-5	2.5 - 10

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

Composition comments Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this SDS for our assessment of the potential hazards of this formulation.

4. First-aid measures

Inhalation Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

Skin contact Rinse skin with water/shower. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash before reuse.

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

Ingestion Rinse mouth. If ingestion of a large amount does occur, call a poison control center immediately.

Most important symptoms/effects, acute and delayed Exposed individuals may experience eye tearing, redness, and discomfort. May cause respiratory irritation. May cause redness and pain.

Indication of immediate medical attention and special treatment needed Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.

General information Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

Unsuitable extinguishing media Water. Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire-fighting equipment/instructions Move containers from fire area if you can do so without risk.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Wear appropriate protective equipment and clothing during clean-up. Avoid inhalation of vapors or mists. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb spillage to prevent material damage. Absorb in vermiculite, dry sand or earth and place into containers. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Environmental precautions Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling Avoid breathing mist or vapor. Avoid contact with skin. Avoid contact with eyes. Avoid contact with clothing. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. Use care in handling/storage.

Conditions for safe storage, including any incompatibilities	Store locked up. Store in corrosive resistant container with a resistant inner liner. Store in original tightly closed container. Keep only in the original container. Store in a cool, dry place out of direct sunlight. Store away from incompatible materials (see Section 10 of the SDS). Store in accordance with local/regional/national/international regulation.

8. Exposure controls/personal protection

Occupational exposure limits	No exposure limits noted for ingredient(s).
Biological limit values	No biological exposure limits noted for the ingredient(s).
Appropriate engineering controls	Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

Eye/face protection	Splash proof chemical goggles.
Skin protection	
Hand protection	Chemical resistant gloves. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. Glove selection must take into account any solvents and other hazards present.
Other	Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.
Respiratory protection	Chemical respirator with organic vapor cartridge and full facepiece. A RESPIRATORY PROTECTION PROGRAM THAT MEETS OSHA'S 29 CFR 1910.134 AND ANSI Z88.2 REQUIREMENTS MUST BE FOLLOWED WHENEVER WORKPLACE CONDITIONS WARRANT A RESPIRATOR'S USE.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance	
Color	Colorless
Physical state	Liquid
Odor	None
Odor threshold	Not available.
pH (concentrated product)	8.8
pH in aqueous solution	7.8 (5% SOL)
Melting point/freezing point	< 0 °F (< -18 °C)
Initial boiling point and boiling range	Not available.
Flash point	> 200 °F (> 93 °C) P-M(CC)
Evaporation rate	< 1 (Ether = 1)
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	18 mm Hg
Vapor pressure temp.	70 °F (21 °C)
Vapor density	< 1 (Air = 1)
Relative density	1.53
Relative density temperature	70 °F (21 °C)
Solubility(ies)	
Solubility (water)	100 %

Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	30 cps
Viscosity temperature	70 °F (21 °C)
Other information	
Percent volatile	0 (Estimated)
Pour point	< 5 °F (< -15 °C)
Specific gravity	1.53

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Avoid temperatures exceeding the flash point. Contact with incompatible materials. None under normal conditions.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	Oxides of phosphorus evolved in fire.

11. Toxicological information

Information on likely routes of exposure

Ingestion	Expected to be a low ingestion hazard.
Inhalation	May cause irritation to the respiratory system.
Skin contact	Causes skin irritation.
Eye contact	Causes eye irritation.
Symptoms related to the physical, chemical and toxicological characteristics	May cause redness and pain. May cause respiratory irritation. Exposed individuals may experience eye tearing, redness, and discomfort.

Information on toxicological effects

Acute toxicity May cause respiratory irritation.

Product	Species	Test Results
FLOGARD MS6206 (CAS Mixture)		
Acute		
Dermal		
LD50	Rabbit	> 2000 mg/kg, (Estimated value)
Oral		
LD50	Rat	> 2000 mg/kg, (Estimated value)

Components	Species	Test Results
Tetrapotassium pyrophosphate (CAS 7320-34-5)		
Acute		
Dermal		
LD50	Rabbit	> 2000 mg/kg
Oral		
LD50	Rat	2440 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation	Causes skin irritation.
Serious eye damage/eye irritation	Causes eye irritation.
Respiratory or skin sensitization	
Respiratory sensitization	Not available.

Skin sensitization	This product is not expected to cause skin sensitization.
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.
Specific target organ toxicity - single exposure	May cause respiratory irritation.
Specific target organ toxicity - repeated exposure	Not classified.
Aspiration hazard	Not available.

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Product		Species	Test Results
FLOGARD MS6206 (CAS Mixture)			
	LC50	Fathead Minnow	1740 mg/L, Static Renewal Bioassay, 96 hour
		Mysid Shrimp	724 mg/L, Static Renewal Bioassay, 48 hour
	NOEL	Fathead Minnow	1000 mg/L, Static Renewal Bioassay, 96 hour
		Mysid Shrimp	155 mg/L, Static Renewal Bioassay, 48 hour
Crustacea	LC50	Daphnia magna	1275 mg/L, Static Renewal Bioassay, 48 hour
	NOEL	Daphnia magna	500 mg/L, Static Renewal Bioassay, 48 hour
Other	LC50	Rainbow Trout	> 1000 mg/L, Acute Toxicity, 96 hour, (Estimated)

* Estimates for product may be based on additional component data not shown.

Bioaccumulative potential	No data available.
Mobility in soil	No data available.
Other adverse effects	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.
Environmental fate	The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
Persistence and degradability	This product, being inorganic and in its highest oxidation state, has no COD,BOD or TOC.

13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Incinerate the material under controlled conditions in an approved incinerator. Dispose of contents/container in accordance with local/regional/national/international regulations.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	D002: Waste Corrosive material (pH <=2 or =>12.5, or corrosive to steel) The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number	UN3266
UN proper shipping name	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (Tetrapotassium pyrophosphate)
Transport hazard class(es)	
Class	8
Subsidiary risk	-
Packing group	III
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
ERG number	154

Some containers may be DOT exempt, please check BOL for exact container classification.

IATA

UN number	UN3266
UN proper shipping name	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (Tetrapotassium pyrophosphate)
Transport hazard class(es)	
Class	8
Subsidiary risk	-
Packing group	III
Environmental hazards	No.
ERG Code	154
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number	UN3266
UN proper shipping name	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (Tetrapotassium pyrophosphate)
Transport hazard class(es)	
Class	8
Subsidiary risk	-
Packing group	III
Environmental hazards	
Marine pollutant	No.
EmS	Not available.
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

DOT

IATA; IMDG

15. Regulatory information

US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

Food and drug administration 21 CFR 176.170 (components of paper and paperboard in contact with aqueous and fatty foods)

US state regulations California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

US - Massachusetts RTK - Substance List

Not regulated.

US - Pennsylvania RTK - Hazardous Substances

Not regulated.

US - Rhode Island RTK

Not regulated.

US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)

Not listed.

US. New Jersey Worker and Community Right-to-Know Act

Not regulated.

US. California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Developmental toxin

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Female reproductive toxin

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Male reproductive toxin

No ingredient listed.

16. Other information, including date of preparation or last revision

Issue date	Oct-10-2014
Revision date	Oct-10-2014
Version #	1.0
List of abbreviations	CAS: Chemical Abstract Service Registration Number TSRN indicates a Trade Secret Registry Number is used in place of the CAS number. ACGIH: American Conference of Governmental Industrial Hygienists NOEL: No Observed Effect Level STEL: Short Term Exposure Limit LC50: Lethal Concentration, 50% TWA: Time Weighted Average BOD: Biochemical Oxygen Demand COD: Chemical Oxygen Demand TOC: Total Organic Carbon IATA: International Air Transport Association IMDG: International Maritime Dangerous Goods Code TLV: Threshold Limit Value LD50: Lethal Dose, 50% NFPA: National Fire Protection Association
References:	No data available
Disclaimer	The information in the sheet was written based on the best knowledge and experience currently available. The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.
Revision Information	Transport Information: Experimental Data GHS: Classification
Prepared by	This SDS has been prepared by GE Water & Process Technologies Regulatory Department (1-215-355-3300).

* Trademark of General Electric Company. May be registered in one or more countries.

GE Power & Water
Water & Process Technologies

SAFETY DATA SHEET

FLOGARD* MS6222

1. Identification

Product identifier FLOGARD MS6222

Other means of identification None.

Recommended use Water-based corrosion inhibitor

Recommended restrictions None known.

Company/undertaking identification

GE Betz, Inc.
4636 Somerton Road
Trevose, PA 19053
T 215 355 3300, F 215 953 5524

Emergency telephone

(800) 877 1940

2. Hazard(s) identification

Physical hazards	Corrosive to metals	Category 1
Health hazards	Skin corrosion/irritation	Category 1B
	Serious eye damage/eye irritation	Category 1
	Specific target organ toxicity, single exposure	Category 2
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation

OSHA defined hazards Not classified.

Label elements

Signal word Danger

Hazard statement May be corrosive to metals. Causes severe skin burns and eye damage. Causes serious eye damage. May cause respiratory irritation. May cause damage to organs.

Precautionary statement

Prevention Keep only in original container. Do not breathe mist or vapor. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection.

Response If swallowed: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor/. Specific treatment (see on this label). Wash contaminated clothing before reuse. Absorb spillage to prevent material damage.

Storage Store in a well-ventilated place. Keep container tightly closed. Store locked up. Store in corrosive resistant/ container with a resistant inner liner.

Disposal Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	None.

3. Composition/information on ingredients

Mixtures

Components	CAS #	Percent
Phosphoric Acid	7664-38-2	60 - 80

Composition comments Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this SDS for our assessment of the potential hazards of this formulation.

4. First-aid measures

Inhalation Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

Skin contact Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician or poison control center immediately. Chemical burns must be treated by a physician. Wash contaminated clothing before reuse.

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.

Ingestion Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.

Most important symptoms/effects, acute and delayed Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. May cause respiratory irritation.

Indication of immediate medical attention and special treatment needed Provide general supportive measures and treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim under observation. Symptoms may be delayed.

General information If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb spillage to prevent material damage. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Environmental precautions Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling

Acidic. Do not mix with alkaline material. Do not breathe mist or vapor. Do not get in eyes, on skin, or on clothing. Avoid prolonged exposure. When using, do not eat, drink or smoke. Provide adequate ventilation. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Do not freeze. If frozen, thaw completely and mix thoroughly prior to use. Contact with metals may release flammable hydrogen gas. Store locked up. Store in a cool, dry place out of direct sunlight. Store in corrosive resistant container with a resistant inner liner. Keep only in the original container. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Phosphoric Acid (CAS 7664-38-2)	PEL	1 mg/m3

US. ACGIH Threshold Limit Values

Components	Type	Value
Phosphoric Acid (CAS 7664-38-2)	STEL	3 mg/m3
	TWA	1 mg/m3

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Phosphoric Acid (CAS 7664-38-2)	STEL	3 mg/m3
	TWA	1 mg/m3

Biological limit values

No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear safety glasses with side shields (or goggles) and a face shield.

Skin protection

Hand protection

Wear appropriate chemical resistant gloves. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. Glove selection must take into account any solvents and other hazards present.

Other

Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.

Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment. A RESPIRATORY PROTECTION PROGRAM THAT MEETS OSHA'S 29 CFR 1910.134 AND ANSI Z88.2 REQUIREMENTS MUST BE FOLLOWED WHENEVER WORKPLACE CONDITIONS WARRANT A RESPIRATOR'S USE.

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance

Color	Colorless to light yellow
Physical state	Liquid
Odor	Mild
Odor threshold	Not available.
pH (concentrated product)	1
pH in aqueous solution	1.2 (5% SOL.)
Melting point/freezing point	< -30 °F (< -34 °C)

Initial boiling point and boiling range	Not available.
Flash point	> 212 °F (> 100 °C) P-M(CC)
Evaporation rate	< 1 (Ether = 1)
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	15 mm Hg
Vapor pressure temp.	70 °F (21 °C)
Vapor density	> 1 (Air = 1)
Relative density	1.58
Relative density temperature	70 °F (21 °C)
Solubility(ies)	
Solubility (water)	100 %
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	20 cps
Viscosity temperature	70 °F (21 °C)
Other information	
Percent volatile	0 (Estimated)
Pour point	< -25 °F (< -32 °C)
Specific gravity	1.58

10. Stability and reactivity

Reactivity	May be corrosive to metals.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur. Contact with water reactive compounds may cause fire or explosion.
Conditions to avoid	Protect from freezing. Contact with metals may release flammable hydrogen gas.
Incompatible materials	Strong oxidizing agents. Metals. Avoid contact with strong bases.
Hazardous decomposition products	Oxides of carbon and phosphorus evolved in fire.

11. Toxicological information

Information on likely routes of exposure

Inhalation	May cause damage to organs by inhalation. May cause irritation to the respiratory system. Prolonged inhalation may be harmful.
Skin contact	Causes severe skin burns.
Eye contact	Causes serious eye damage.
Ingestion	Causes digestive tract burns.
Symptoms related to the physical, chemical and toxicological characteristics	Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. May cause respiratory irritation.

Information on toxicological effects

Acute toxicity	May cause respiratory irritation.

Product	Species	Test Results
FLOGARD MS6222 (CAS Mixture)		
Acute		
Dermal		
LD50	Rabbit	3650 mg/kg, (Calculated according to GHS additivity formula)
Oral		
LD50	Rat	2040 mg/kg, (Calculated according to GHS additivity formula)

Components	Species	Test Results
Phosphoric Acid (CAS 7664-38-2)		
Acute		
Dermal		
LD50	Rabbit	2740 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Prolonged skin contact may cause temporary irritation.

Serious eye damage/eye irritation Causes serious eye damage.

Respiratory or skin sensitization

Respiratory sensitization Not a respiratory sensitizer.

Skin sensitization This product is not expected to cause skin sensitization.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure May cause damage to organs. May cause respiratory irritation.

Specific target organ toxicity - repeated exposure Not available.

Aspiration hazard Based on available data, the classification criteria are not met.

Chronic effects Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Product		Species	Test Results
FLOGARD MS6222 (CAS Mixture)			
	IC25	Ceriodaphnia	416.7 mg/l, Chronic Bioassay, 7 day, (pH adjusted)
	LC50	Ceriodaphnia	1387 mg/l, Static Renewal Bioassay, 48 hour, (pH adjusted)
		Fathead Minnow	4200 mg/l, Static Renewal Bioassay, 96 hour, (pH adjusted)
	NOEL	Ceriodaphnia	625 mg/l, Static Renewal Bioassay, 48 hour, (pH adjusted)
			125 mg/l, Chronic Bioassay, 7 day, (pH adjusted)
		Fathead Minnow	2100 mg/l, Static Renewal Bioassay, 96 hour, (pH adjusted)
Aquatic			
Crustacea	LC50	Daphnia magna	3540 mg/l, Static Renewal Bioassay, 48 hour, (pH adjusted)

Product		Species	Test Results
	NOEL	Daphnia magna	2100 mg/l, Static Renewal Bioassay, 48 hour, (pH adjusted)
Fish	LC50	Rainbow Trout	7382 mg/l, Static Renewal Bioassay, 96 hour, (pH adjusted)
	NOEL	Rainbow Trout	5000 mg/l, Static Renewal Bioassay, 96 hour, (pH adjusted)

* Estimates for product may be based on additional component data not shown.

Bioaccumulative potential No information available.

Mobility in soil No data available.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

Environmental fate The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Persistence and degradability

Product contains only inorganics that are not subject to typical biological degradation. Assimilation by microbes may occur in waste treatment or the environment. This product, being inorganic, has no TOC, BOD.

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Incinerate the material under controlled conditions in an approved incinerator. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code D002: Waste Corrosive material (pH <=2 or =>12.5, or corrosive to steel)
The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number UN1805
UN proper shipping name PHOSPHORIC ACID SOLUTION, RQ
Transport hazard class(es)
Class 8
Subsidiary risk -
Packing group III
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.
ERG number 154
Some containers may be exempt from Dangerous Goods/Hazmat Transport Regulations, please check BOL for exact container classification.

IATA

UN number UN1805
UN proper shipping name PHOSPHORIC ACID SOLUTION
Transport hazard class(es)
Class 8
Subsidiary risk -
Packing group III
Environmental hazards No.
ERG Code 154
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number UN1805
UN proper shipping name PHOSPHORIC ACID SOLUTION

Transport hazard class(es)	
Class	8
Subsidiary risk	-
Packing group	III
Environmental hazards	
Marine pollutant	No.
EmS	Not available.
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

DOT

IATA; IMDG

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Phosphoric Acid (CAS 7664-38-2) Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Clean Water Act (CWA) Section 112(r) (40 CFR 68.130)	Hazardous substance
Safe Drinking Water Act (SDWA)	Not regulated.

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

US state regulations

US - Massachusetts RTK - Substance List

Phosphoric Acid (CAS 7664-38-2)

US - Pennsylvania RTK - Hazardous Substances

Phosphoric Acid (CAS 7664-38-2)

US - Rhode Island RTK

Phosphoric Acid (CAS 7664-38-2)

US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)

Not listed.

US. New Jersey Worker and Community Right-to-Know Act

Phosphoric Acid (CAS 7664-38-2)

US. Pennsylvania Worker and Community Right-to-Know Law

Phosphoric Acid (CAS 7664-38-2)

US. California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Developmental toxin

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Female reproductive toxin

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Male reproductive toxin

No ingredient listed.

16. Other information, including date of preparation or last revision

Issue date	Jun-15-2015
Revision date	Jun-15-2015
Version #	1.1

List of abbreviations

CAS: Chemical Abstract Service Registration Number
TWA: Time Weighted Average
STEL: Short Term Exposure Limit
LD50: Lethal Dose, 50%
LC50: Lethal Concentration, 50%
NOEL: No Observed Effect Level
COD: Chemical Oxygen Demand
BOD: Biochemical Oxygen Demand
TOC: Total Organic Carbon
TLV: Threshold Limit Value
IATA: International Air Transport Association
IMDG: International Maritime Dangerous Goods Code
NFPA: National Fire Protection Association
ACGIH: American Conference of Governmental Industrial Hygienists

	TSRN indicates a Trade Secret Registry Number is used in place of the CAS number.
References:	No data available
Disclaimer	The information in the sheet was written based on the best knowledge and experience currently available. The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.
Revision Information	Product and Company Identification: Product and Company Identification Composition / Information on Ingredients: Component Summary Physical & Chemical Properties: Multiple Properties Transport Information: Material Transportation Information Regulatory Information: Other Material Attributes & Uses; Experimental Data: Experimental Data HazReg Data: Pacific Rim GHS: Hazard Category
Prepared by	This SDS has been prepared by GE Water & Process Technologies Regulatory Department (1-215-355-3300).

* Trademark of General Electric Company. May be registered in one or more countries.

GE Power
Water & Process Technologies

SAFETY DATA SHEET

GENGARD* GN8020

1. Identification

Product identifier	**GENGARD GN8020**
Other means of identification	None.
Recommended use	Corrosion inhibitor
Recommended restrictions	None known.

Company/undertaking identification

GE Betz, Inc.
4636 Somerton Road
Trevose, PA 19053
T 215 355 3300, F 215 953 5524

Emergency telephone

(800) 877 1940

2. Hazard(s) identification

Physical hazards	Not classified.	
Health hazards	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 2
	Sensitization, skin	Category 1A
OSHA defined hazards	Not classified.	

Label elements

Signal word	Warning
Hazard statement	Causes skin irritation. Causes serious eye irritation. May cause an allergic skin reaction.
Precautionary statement	
Prevention	Wear eye/face protection. Avoid breathing mist or vapor. Wash thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace. Wear protective gloves.
Response	If skin irritation or rash occurs: Get medical advice/attention. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. Take off contaminated clothing and wash before reuse. If on skin: Wash with plenty of water.
Storage	Store in a well-ventilated place. Keep container tightly closed.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	None.

3. Composition/information on ingredients

Mixtures

Components	CAS #	Percent
Maleic acid	110-16-7	0.1 - 1
CARBOXYLIC ACID POLYMER	TSRN 125438 - 5052P	

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

Composition comments Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this SDS for our assessment of the potential hazards of this formulation.

4. First-aid measures

Inhalation Move to fresh air. Call a physician if symptoms develop or persist.

Skin contact Remove contaminated clothing immediately and wash skin with soap and water. Wash contaminated clothing before reuse. Get medical attention immediately.

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Keep eyelids apart. Get medical attention immediately.

Ingestion Rinse mouth. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed Skin contact may cause itching and/or redness. May cause allergic skin reaction. May cause redness and pain. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.

Indication of immediate medical attention and special treatment needed Provide general supportive measures and treat symptomatically. Symptoms may be delayed.

General information Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media Water fog. Foam. Carbon dioxide (CO2). Dry chemical powder.

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.

Fire fighting equipment/instructions In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk. Cool containers / tanks with water spray. Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Keep unnecessary personnel away. Avoid breathing mist or vapor. Wear appropriate protective equipment and clothing during clean-up. Keep people away from and upwind of spill/leak. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Avoid contact with spilled material. Ensure adequate ventilation. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up Small Spills: Absorb in vermiculite, dry sand or earth and place into containers. Place in waste disposal container. Wet area may be slippery. Spread sand/grit. Following product recovery, flush area with water. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Large Spills: Cover with plastic sheet to prevent spreading. Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Ventilate the area.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Environmental precautions Avoid discharge into drains, water courses or onto the ground. Water contaminated with this product may be sent to a sanitary sewer treatment facility, or a permitted waste treatment facility, in accordance with any local agreements.

7. Handling and storage

Precautions for safe handling	Observe good industrial hygiene practices. Do not get in eyes, on skin, on clothing. Do not breathe mist or vapor. Provide adequate ventilation. Wear appropriate personal protective equipment. Avoid contact with eyes, skin, and clothing. Wash hands thoroughly after handling.
Conditions for safe storage, including any incompatibilities	Store in cool, well ventilated area. Keep container tightly closed in a dry and well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS). Avoid high temperatures. Protect from freezing. If frozen, thaw completely and mix thoroughly prior to use.

8. Exposure controls/personal protection

Occupational exposure limits	No exposure limits noted for ingredient(s).
Biological limit values	No biological exposure limits noted for the ingredient(s).
Appropriate engineering controls	Eye wash facilities and emergency shower must be available when handling this product. Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.
Individual protection measures, such as personal protective equipment	
Eye/face protection	Splash proof chemical goggles. Face shield.
Skin protection	
Hand protection	Wear appropriate chemical resistant gloves. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. Glove selection must take into account any solvents and other hazards present.
Other	Wear suitable protective clothing. Wash off after each use. Replace as necessary.
Respiratory protection	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. A RESPIRATORY PROTECTION PROGRAM THAT MEETS OSHA'S 29 CFR 1910.134 AND ANSI Z88.2 REQUIREMENTS MUST BE FOLLOWED WHENEVER WORKPLACE CONDITIONS WARRANT A RESPIRATOR'S USE.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Appearance	
Color	Amber to brown
Physical state	Liquid
Odor	Slight sweet
Odor threshold	Not available.
pH (concentrated product)	2.6
pH in aqueous solution	3 (5% SOL.)
Melting point/freezing point	27 °F (-3 °C)
Initial boiling point and boiling range	212 °F (100 °C)
Flash point	Not applicable.
Evaporation rate	< 1 (Water = 1)
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	18 mm Hg
Vapor pressure temp.	70 °F (21 °C)
Vapor density	< 1 (Air = 1)
Relative density	1.17

Relative density temperature	70 °F (21 °C)
Solubility(ies)	
Solubility (water)	100 %
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	17 cps
Viscosity temperature	70 °F (21 °C)
Other information	
Percent volatile	0 (Estimated)
Pour point	32 °F (0 °C)
Specific gravity	1.166

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Contact with incompatible materials.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	Oxides of carbon, nitrogen, and sulphur evolved in fire.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Mists/aerosols may cause irritation to upper respiratory tract.
Skin contact	May cause an allergic skin reaction.
Eye contact	Causes eye irritation.
Ingestion	Ingestion of large amounts may produce gastrointestinal disturbances including irritation, nausea, and diarrhea.
Symptoms related to the physical, chemical and toxicological characteristics	Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Symptoms on skin may develop redness and itching.

Information on toxicological effects

Acute toxicity None known.

Product	Species	Test Results
GENGARD GN8020 (CAS Mixture)		
Acute		
Dermal		
LD50	Rabbit	> 5000 mg/kg, (Calculated according to GHS additivity formula)
Oral		
LD50	Rat	> 5000 mg/kg, (Calculated according to GHS additivity formula)

Components	Species	Test Results
CARBOXYLIC ACID POLYMER (CAS TSRN 125438 - 5052P)		
Acute		
Oral		
LD50	Rat	4563 mg/kg
Maleic acid (CAS 110-16-7)		
Acute		
Dermal		
LD50	Rabbit	1560 mg/kg

Components	Species	Test Results
Inhalation		
LC50	Rat	> 2.88 mg/L, 4 Hour
Oral		
LD50	Rat	708 mg/kg

Skin corrosion/irritation Causes skin irritation.

Serious eye damage/eye irritation Causes eye irritation.

Respiratory or skin sensitization

Respiratory sensitization This product is not expected to cause respiratory sensitization.

Skin sensitization May cause an allergic skin reaction.

Germ cell mutagenicity Not classified.

Carcinogenicity This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

IARC Monographs. Overall Evaluation of Carcinogenicity

Not listed. .

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

US. National Toxicology Program (NTP) Report on Carcinogens

Not listed.

Reproductive toxicity Not classified.

Specific target organ toxicity - single exposure Not classified.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard Based on available data, the classification criteria are not met.

Chronic effects No evidence of potential chronic effects.

12. Ecological information

Ecotoxicity

Product		Species	Test Results
GENGARD GN8020 (CAS Mixture)			
	LC50	Fathead Minnow	5814 mg/l, Static Renewal Bioassay, 96 hour, (pH adjusted)
	NOEL	Fathead Minnow	5000 mg/l, Static Renewal Bioassay, 96 hour, (pH adjusted)
Aquatic			
Crustacea	LC50	Daphnia magna	3628 mg/l, Static Renewal Bioassay, 48 hour, (pH adjusted)
	NOEL	Daphnia magna	1250 mg/l, Static Renewal Bioassay, 48 hour, (pH adjusted)
Fish	LC50	Rainbow Trout	7071 mg/l, Static Renewal Bioassay, 96 hour, (pH adjusted)
	NOEL	Rainbow Trout	5000 mg/l, Static Renewal Bioassay, 96 hour, (pH adjusted)

Bioaccumulative potential Not available.

Partition coefficient n-octanol / water (log Kow)

Maleic acid -0.48

Mobility in soil Not available.

Other adverse effects Not available.

Persistence and degradability

- **COD (mgO2/g)** 464 (calculated data)
- **BOD 5 (mgO2/g)** 30 (calculated data)
- **BOD 28 (mgO2/g)** 71 (calculated data)

- Closed Bottle Test (% Degradation in 28 days)	15 (calculated data)
- TOC (mg C/g)	142 (calculated data)

13. Disposal considerations

Disposal instructions	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner.
Contaminated packaging	Via an authorized waste disposal contractor to an approved waste disposal site, observing all local and national regulations.

14. Transport information

DOT

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Maleic acid (CAS 110-16-7) Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical Yes

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No

Country(s) or region	Inventory name	On inventory (yes/no)*
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

NSF Registered and/or meets USDA (according to 1998 guidelines):

Registration No. - 144523
Category Code(s):
G5 Cooling and retort water treatment products
G7 Boiler, steam line treatment products – nonfood contact

US state regulations

US - Massachusetts RTK - Substance List

Maleic acid (CAS 110-16-7)

US - Pennsylvania RTK - Hazardous Substances

Maleic acid (CAS 110-16-7)

US - Rhode Island RTK

Maleic acid (CAS 110-16-7)

US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)

Not listed.

US. New Jersey Worker and Community Right-to-Know Act

Maleic acid (CAS 110-16-7)

US. Pennsylvania Worker and Community Right-to-Know Law

Maleic acid (CAS 110-16-7)

US. California Proposition 65

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Developmental toxin

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Female reproductive toxin

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Male reproductive toxin

No ingredient listed.

16. Other information, including date of preparation or last revision

Issue date Sep-26-2014

Revision date Jan-04-2017

Version # 4.0

List of abbreviations

CAS: Chemical Abstract Service Registration Number
NFPA: National Fire Protection Association
ACGIH: American Conference of Governmental Industrial Hygienists
TWA: Time Weighted Average
STEL: Short Term Exposure Limit
LD50: Lethal Dose, 50%
LC50: Lethal Concentration, 50%
EC50: Effect Concentration, 50%
NOEL: No Observed Effect Level
COD: Chemical Oxygen Demand
BOD: Biochemical Oxygen Demand
TOC: Total Organic Carbon
CEN: European Committee for Standardisation
IATA: International Air Transport Association
IMDG: International Maritime Dangerous Goods Code
TSRN indicates a Trade Secret Registry Number is used in place of the CAS number.

References: No data available

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Revision information	This document has undergone significant changes and should be reviewed in its entirety.
Prepared by	This SDS has been prepared by GE Water & Process Technologies Regulatory Department (1-215-355-3300).

* Trademark of General Electric Company. May be registered in one or more countries.

GE Power
Water & Process Technologies

SAFETY DATA SHEET

INHIBITOR AZ8104

1. Identification

Product identifier	**INHIBITOR AZ8104**
Other means of identification	None.
Recommended use	Water-based corrosion inhibitor
Recommended restrictions	None known.

Company/undertaking identification

GE Betz, Inc.
4636 Somerton Road
Trevose, PA 19053
T 215 355 3300, F 215 953 5524

Emergency telephone

(800) 877 1940

2. Hazard(s) identification

Physical hazards	Corrosive to metals	Category 1
Health hazards	Skin corrosion/irritation	Category 1B
	Serious eye damage/eye irritation	Category 1
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
OSHA defined hazards	Not classified.	

Label elements

Signal word	Danger
Hazard statement	May be corrosive to metals. Causes severe skin burns and eye damage. Causes serious eye damage. May cause respiratory irritation.
Precautionary statement	
Prevention	Keep only in original container. Do not breathe mist or vapor. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection.
Response	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor. Wash contaminated clothing before reuse. Absorb spillage to prevent material-damage.
Storage	Store in a well-ventilated place. Keep container tightly closed. Store locked up. Store in corrosive resistant container with a resistant inner liner.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	None known.

Supplemental information None.

3. Composition/information on ingredients

Mixtures

Components	CAS #	Percent
Chlorotolyltriazole sodium salt	202420-04-0	10 - 20
DICHLOROTOLYLTRIAZOLE	NOT ASSIGNED	2.5 - 10
Sodium 4(or 5)-methyl-1H-benzotriazolide	64665-57-2	1 - 2.5
Sodium hydroxide	1310-73-2	1 - 2.5

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

Composition comments Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this SDS for our assessment of the potential hazards of this formulation.

4. First-aid measures

Inhalation Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

Skin contact Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician or poison control center immediately. Chemical burns must be treated by a physician. Wash contaminated clothing before reuse.

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.

Ingestion Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.

Most important symptoms/effects, acute and delayed Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. May cause respiratory irritation.

Indication of immediate medical attention and special treatment needed Provide general supportive measures and treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim under observation. Symptoms may be delayed.

General information If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.

Fire fighting equipment/instructions In case of fire and/or explosion do not breathe fumes. Use standard firefighting procedures and consider the hazards of other involved materials. Move containers from fire area if you can do so without risk. Cool containers / tanks with water spray.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Keep unnecessary personnel away. Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist or vapor. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up Absorb spillage to prevent material damage. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Following product recovery, flush area with water.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Environmental precautions Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling

Alkaline. Do not mix with acidic material. Do not breathe mist or vapor. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. Do not get in eyes, on skin, or on clothing.

Conditions for safe storage, including any incompatibilities

Store away from oxidizers. Store away from acids. Store in a cool, dry place out of direct sunlight. Store away from incompatible materials (see Section 10 of the SDS). Store locked up. Keep only in the original container.

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Sodium hydroxide (CAS 1310-73-2)	PEL	2 mg/m3

US. ACGIH Threshold Limit Values

Components	Type	Value
Sodium hydroxide (CAS 1310-73-2)	Ceiling	2 mg/m3

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Sodium hydroxide (CAS 1310-73-2)	Ceiling	2 mg/m3

Biological limit values

No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls

Eye wash facilities and emergency shower must be available when handling this product. Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear safety glasses with side shields (or goggles) and a face shield.

Skin protection

Hand protection

Wear appropriate chemical resistant gloves. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. Suitable gloves can be recommended by the glove supplier. Glove selection must take into account any solvents and other hazards present.

Other

Wear appropriate chemical resistant clothing.

Respiratory protection

If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. A RESPIRATORY PROTECTION PROGRAM THAT MEETS OSHA'S 29 CFR 1910.134 AND ANSI Z88.2 REQUIREMENTS MUST BE FOLLOWED WHENEVER WORKPLACE CONDITIONS WARRANT A RESPIRATOR'S USE.

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance

Color	Yellow to amber
Physical state	Liquid
Odor	Slight
Odor threshold	Not available.
pH (concentrated product)	12.7
pH in aqueous solution	11.6 (5% SOL.)
Melting point/freezing point	12 °F (-11 °C)
Initial boiling point and boiling range	210 °F (99 °C)

Flash point	Not applicable.
Evaporation rate	< 1 (Ether = 1)
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	18 mm Hg
Vapor pressure temp.	70 °F (21 °C)
Vapor density	< 1 (Air = 1)
Relative density	1.13
Relative density temperature	70 °F (21 °C)
Solubility(ies)	
Solubility (water)	100 %
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	5 cps
Viscosity temperature	70 °F (21 °C)
Other information	
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.
Percent volatile	0 (Estimated)
Pour point	17 °F (-8 °C)
Specific gravity	1.132

10. Stability and reactivity

Reactivity	May be corrosive to metals. May react violently with acidic materials.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Contact with incompatible materials.
Incompatible materials	Strong acids. Strong oxidizing agents. Metals.
Hazardous decomposition products	Hydrogen chloride, oxides of carbon and nitrogen evolved in fire.

11. Toxicological information

Information on likely routes of exposure

Inhalation	May cause irritation to the respiratory system. Prolonged inhalation may be harmful.
Skin contact	Causes severe skin burns.
Eye contact	Causes serious eye damage.
Ingestion	Causes digestive tract burns.
Symptoms related to the physical, chemical and toxicological characteristics	Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. May cause respiratory irritation.

Information on toxicological effects

Acute toxicity	May cause respiratory irritation.

Product	Species	Test Results
INHIBITOR AZ8104 (CAS Mixture)		
Acute		
Dermal		
LD50	Rat	> 5000 mg/kg, (Calculated according to GHS additivity formula)
Oral		
LD50	Rat	> 5000 mg/kg, (Calculated according to GHS additivity formula)

Components	Species	Test Results
Chlorotolyltriazole sodium salt (CAS 202420-04-0)		
Acute		
Dermal		
LD50	Rat	> 5000 mg/kg
Oral		
LD50	Rat	3100 mg/kg
DICHLOROTOLYLTRIAZOLE (CAS NOT ASSIGNED)		
Acute		
Dermal		
LD50	Rat	> 5000 mg/kg
Oral		
LD50	Rat	3100 mg/kg
Sodium 4(or 5)-methyl-1H-benzotriazolide (CAS 64665-57-2)		
Acute		
Dermal		
LD50	Rabbit	> 2000 mg/kg
Oral		
LD50	Rat	735 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Causes severe skin burns and eye damage.

Serious eye damage/eye irritation Causes serious eye damage.

Respiratory or skin sensitization

Respiratory sensitization This product is not expected to cause respiratory sensitization.

Skin sensitization This product is not expected to cause skin sensitization.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

IARC Monographs. Overall Evaluation of Carcinogenicity

Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

US. National Toxicology Program (NTP) Report on Carcinogens

Not listed.

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure May cause respiratory irritation.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard Based on available data, the classification criteria are not met.

Chronic effects Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity

Product		Species	Test Results
INHIBITOR AZ8104 (CAS Mixture)			
	LC50	Annelida(Lumbriculus variegatus)	138 mg/L, Static Acute Bioassay, 96 hour
		Benthic Crustacean(Gammerus pseutolimnaeus)	42.1 mg/L, Static Acute Bioassay, 96 hour
		Bluegill Sunfish	36.6 mg/L, Static Acute Bioassay, 96 hour
		Ceriodaphnia	124 mg/L, Static Renewal Bioassay, 48 hour
		Fathead Minnow	135 mg/L, Static Acute Bioassay, 96 hour, (pH adjusted)
			50.7 mg/L, Static Renewal Bioassay, 96 hour, (pH adjusted)
		Freshwater Snail(Physa sp.)	47.4 mg/L, Static Acute Bioassay, 96 hour
		Menidia beryllina (Silversides)	41 mg/L, Static Acute Bioassay, 96 hour
		Midge larvae (Chironomus tentans)	95.8 mg/L, Static Acute Bioassay, 96 hour
		Mysid Shrimp	53 mg/L, Static Acute Bioassay, 48 hour, (pH adjusted)
		Sheepshead Minnow	132 mg/L, Static Acute Bioassay, 96 hour, (pH adjusted)
	LOEL	Ceriodaphnia	40 mg/L, Chronic Bioassay, 7 day
		Fathead Minnow	8.3 mg/L, Chronic Flow-Thru Bioassay, 28 day, (pH adjusted)
	NOEL	Annelida(Lumbriculus variegatus)	62.5 mg/L, Static Acute Bioassay, 96 hour
		Benthic Crustacean(Gammerus pseutolimnaeus)	25 mg/L, Static Acute Bioassay, 96 hour
		Bluegill Sunfish	25 mg/L, Static Acute Bioassay, 96 hour
		Ceriodaphnia	75 mg/L, Static Renewal Bioassay, 48 hour
			20 mg/L, Chronic Bioassay, 7 day
		Fathead Minnow	21.8 mg/L, Static Renewal Bioassay, 96 hour, (pH adjusted)
			15 mg/L, Static Acute Bioassay, 96 hour, (pH adjusted)
			4.2 mg/L, Chronic Flow-Thru Bioassay, 28 day, (pH adjusted)
		Freshwater Snail(Physa sp.)	25 mg/L, Static Acute Bioassay, 96 hour
		Menidia beryllina (Silversides)	25 mg/L, Static Acute Bioassay, 96 hour
		Midge larvae (Chironomus tentans)	62.5 mg/L, Static Acute Bioassay, 96 hour
		Mysid Shrimp	25 mg/L, Static Acute Bioassay, 48 hour, (pH adjusted)
		Sheepshead Minnow	100 mg/L, Static Acute Bioassay, 96 hour, (pH adjusted)
Aquatic			
Crustacea	EC0	Daphnia magna	155 mg/L, Static Acute Bioassay, 48 hour, (pH adjusted)
	EC50	Daphnia magna	210 mg/L, Static Acute Bioassay, 48 hour, (pH adjusted)
			50 mg/L, Chronic Bioassay, 21 day, (pH adjusted)
	LC50	Daphnia magna	217 mg/L, Static Renewal Bioassay, 48 hour, (pH adjusted)

Product		Species	Test Results
	NOEL	Daphnia magna	148 mg/L, Static Renewal Bioassay, 48 hour, (pH adjusted)
			27 mg/L, Chronic Bioassay, 21 day, (pH adjusted)
Fish	LC50	Rainbow Trout	15.4 mg/L, Static Renewal Bioassay, 96 hour
	NOEL	Rainbow Trout	6.3 mg/L, Static Renewal Bioassay, 96 hour

Components		Species	Test Results
Chlorotolyltriazole sodium salt (CAS 202420-04-0)			
Aquatic			
Algae	EbC50	Algae	6.84 mg/l
	ErC50	Algae	18.6 mg/l

* Estimates for product may be based on additional component data not shown.

Bioaccumulative potential No data available.

Mobility in soil No data available.

Other adverse effects Nutrients: N: 40,4 mg/g

Persistence and degradability

Testing has shown product not to be readily biodegradable.

- **COD (mgO2/g)** 300
- **BOD 5 (mgO2/g)** 15
- **BOD 28 (mgO2/g)** 15
- **Closed Bottle Test (% Degradation in 28 days)** 6
- **Zahn-Wellens Test (% Degradation in 28 days)** 0
- **TOC (mg C/g)** 100

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Incinerate the material under controlled conditions in an approved incinerator. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code D002: Waste Corrosive material (pH <=2 or =>12.5, or corrosive to steel)
The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT

UN number UN1760

UN proper shipping name CORROSIVE LIQUID, N.O.S. (SODIUM HYDROXIDE, HALOGENATED AROMATIC HETEROCYCLE SODIUM SALT)

Transport hazard class(es)

Class 8

Subsidiary risk -

Packing group II

Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

ERG number 154

Some containers may be exempt from Dangerous Goods/Hazmat Transport Regulations, please check BOL for exact container classification.

IATA

UN number	UN1760
UN proper shipping name	CORROSIVE LIQUID, N.O.S. (SODIUM HYDROXIDE; HALOGENATED AROMATIC HETEROCYCLE SODIUM SALT)
Transport hazard class(es)	
Class	8
Subsidiary risk	-
Packing group	II
Environmental hazards	No.
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number	UN1760
UN proper shipping name	CORROSIVE LIQUID, N.O.S. (SODIUM HYDROXIDE; HALOGENATED AROMATIC HETEROCYCLE SODIUM SALT)
Transport hazard class(es)	
Class	8 -
Subsidiary risk	-
Packing group	II
Environmental hazards	
Marine pollutant	No.
EmS	Not available.
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

DOT

IATA; IMDG

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Sodium hydroxide (CAS 1310-73-2) Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories
Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance
Not listed.

SARA 311/312 Hazardous chemical Yes

SARA 313 (TRI reporting)
Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)
Not regulated.

Clean Water Act (CWA) Section 112(r) (40 CFR 68.130) Hazardous substance

Safe Drinking Water Act (SDWA) Not regulated.

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

NSF Registered and/or meets USDA (according to 1998 guidelines):
Registration No. – 141530
Category Code(s):
G5 Cooling and retort water treatment products
G7 Boiler, steam line treatment products – nonfood contact

US state regulations

US - Massachusetts RTK - Substance List
Sodium hydroxide (CAS 1310-73-2)

US - Pennsylvania RTK - Hazardous Substances
Sodium hydroxide (CAS 1310-73-2)

US - Rhode Island RTK
Sodium hydroxide (CAS 1310-73-2)

US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)
Not listed.

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))
Sodium hydroxide (CAS 1310-73-2)

US. New Jersey Worker and Community Right-to-Know Act
Sodium hydroxide (CAS 1310-73-2)

US. Pennsylvania Worker and Community Right-to-Know Law
Sodium hydroxide (CAS 1310-73-2)

US. California Proposition 65
California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance
No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Developmental toxin
No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Female reproductive toxin
No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Male reproductive toxin

No ingredient listed.

16. Other information, including date of preparation or last revision

Issue date	Oct-24-2014
Revision date	Aug-08-2016
Version #	3.0
List of abbreviations	CAS: Chemical Abstract Service Registration Number TWA: Time Weighted Average STEL: Short Term Exposure Limit LD50: Lethal Dose, 50% LC50: Lethal Concentration, 50% NOEL: No Observed Effect Level COD: Chemical Oxygen Demand BOD: Biochemical Oxygen Demand TOC: Total Organic Carbon IATA: International Air Transport Association IMDG: International Maritime Dangerous Goods Code ACGIH: American Conference of Governmental Industrial Hygienists TSRN indicates a Trade Secret Registry Number is used in place of the CAS number.
References:	No data available
Disclaimer	The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.
Revision information	This document has undergone significant changes and should be reviewed in its entirety.
Prepared by	This SDS has been prepared by GE Water & Process Technologies Regulatory Department (1-215-355-3300).

GE Power & Water
Water & Process Technologies

SAFETY DATA SHEET

OPTIGUARD MCA4288

1. Identification

Product identifier	**OPTIGUARD MCA4288**
Other means of identification	Not available.
Recommended use	Internal boiler treatment
Recommended restrictions	None known.

Company/undertaking identification

GE Betz, Inc.
4636 Somerton Road
Trevose, PA 19053
T 215 355 3300, F 215 953 5524

Emergency telephone

(800) 877 1940

2. Hazard(s) identification

Physical hazards	Corrosive to metals	Category 1
Health hazards	Skin corrosion/irritation	Category 1B
	Serious eye damage/eye irritation	Category 1
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
OSHA defined hazards	Not classified.	

Label elements

Signal word	Danger
Hazard statement	May be corrosive to metals. Causes severe skin burns and eye damage. Causes serious eye damage. May cause respiratory irritation.
Precautionary statement	
Prevention	Keep only in original container. Do not breathe mist or vapor. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection.
Response	If swallowed: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor/. Specific treatment (see on this label). Wash contaminated clothing before reuse. Absorb spillage to prevent material damage.
Storage	Store in a well-ventilated place. Keep container tightly closed. Store locked up. Store in corrosive resistant/ container with a resistant inner liner.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations. Dispose of contents/container to approved local facility.

Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	None.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
Sodium hydroxide		1310-73-2	2.5 - 10
Sodium sulphite		7757-83-7	2.5 - 10
2-Diethylaminoethanol		100-37-8	1 - 2.5
Sodium carbonate		497-19-8	1 - 2.5

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

Composition comments	Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this SDS for our assessment of the potential hazards of this formulation.

4. First-aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
Skin contact	Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician or poison control center immediately. Chemical burns must be treated by a physician. Wash contaminated clothing before reuse.
Eye contact	Rinse immediately with plenty of water for at least 20 minutes Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.
Ingestion	Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
Most important symptoms/effects, acute and delayed	Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. May cause respiratory irritation.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim under observation. Symptoms may be delayed.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire-fighting equipment/instructions	Move containers from fire area if you can do so without risk.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb spillage to prevent material damage. Absorb in vermiculite, dry sand or earth and place into containers. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Environmental precautions

Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling

Do not breathe mist or vapor. Do not get this material in contact with eyes. Do not get this material in contact with skin. Avoid prolonged exposure. Do not get this material on clothing. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. Use care in handling/storage.

Conditions for safe storage, including any incompatibilities

Protect from freezing. Do not store at elevated temperatures. Store locked up. Store in corrosive resistant container with a resistant inner liner. Store in original tightly closed container. Keep only in the original container. Store in a cool, dry place out of direct sunlight. Store away from incompatible materials (see Section 10 of the SDS). Store in accordance with local/regional/national/international regulation.

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
2-Diethylaminoethanol (CAS 100-37-8)	PEL	50 mg/m3 10 ppm
Sodium hydroxide (CAS 1310-73-2)	PEL	2 mg/m3

US. ACGIH Threshold Limit Values

Components	Type	Value
2-Diethylaminoethanol (CAS 100-37-8)	TWA	2 ppm
Sodium hydroxide (CAS 1310-73-2)	Ceiling	2 mg/m3

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
2-Diethylaminoethanol (CAS 100-37-8)	TWA	50 mg/m3 10 ppm
Sodium hydroxide (CAS 1310-73-2)	Ceiling	2 mg/m3

Biological limit values

No biological exposure limits noted for the ingredient(s).

Exposure guidelines

US. ACGIH Threshold Limit Values

2-Diethylaminoethanol (CAS 100-37-8) Can be absorbed through the skin.

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

2-Diethylaminoethanol (CAS 100-37-8) Can be absorbed through the skin.

Appropriate engineering controls

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

Eye/face protection

Splash proof chemical goggles. Face shield.

Skin protection

Hand protection

Chemical resistant gloves. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. Glove selection must take into account any solvents and other hazards present.

Other	Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.
Respiratory protection	Chemical respirator with organic vapor cartridge and full facepiece. A RESPIRATORY PROTECTION PROGRAM THAT MEETS OSHA'S 29 CFR 1910.134 AND ANSI Z88.2 REQUIREMENTS MUST BE FOLLOWED WHENEVER WORKPLACE CONDITIONS WARRANT A RESPIRATOR'S USE.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance	
Color	Colorless to light yellow
Physical state	Liquid
Odor	Slight
Odor threshold	Not available.
pH (concentrated product)	13.5
Melting point/freezing point	32 °F (0 °C)
Initial boiling point and boiling range	212 °F (100 °C)
Flash point	> 200 °F (> 93 °C) P-M(CC)
Evaporation rate	< 1 (Ether = 1)
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	18 mm Hg
Vapor pressure temp.	70 °F (21 °C)
Vapor density	< 1 (Air = 1)
Relative density	1.15
Relative density temperature	70 °F (21 °C)
Solubility(ies)	
Solubility (water)	100 %
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	10 cps
Viscosity temperature	70 °F (21 °C)
Other information	
Percent volatile	1.4 (Calculated)
Pour point	37 °F (3 °C)
Specific gravity	1.15

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Contact with strong acids may cause a violent reaction releasing heat.
Conditions to avoid	Protect from freezing.
Incompatible materials	May react with acids or strong oxidisers. Do not contaminate.

Hazardous decomposition products	Oxides of carbon, nitrogen, and sulphur evolved in fire.

11. Toxicological information

Information on likely routes of exposure

Ingestion	Causes digestive tract burns.
Inhalation	Prolonged inhalation may be harmful. May cause irritation to the respiratory system.
Skin contact	Causes severe skin burns.
Eye contact	Causes serious eye damage.

Symptoms related to the physical, chemical and toxicological characteristics Burning pain and severe corrosive skin damage. Causes serious eye damage. May cause respiratory irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.

Information on toxicological effects

Acute toxicity May cause respiratory irritation.

Product	Species	Test Results
OPTIGUARD MCA4288 (CAS Mixture)		
Acute		
Dermal		
LD50	Rabbit	> 5000 mg/kg, (Calculated according to GHS additivity formula)
Inhalation		
LC50	Rat	> 5 mg/l, 4 Hours, (Calculated according to GHS additivity formula)
Oral		
LD50	Rat	> 5000 mg/kg, (Calculated according to GHS additivity formula)

Components	Species	Test Results
2-Diethylaminoethanol (CAS 100-37-8)		
Acute		
Dermal		
LD50	Guinea Pig	885 mg/kg
Inhalation		
LC50	Rat	> 4.5 mg/l, 4 Hour
Oral		
LD50	Rat	1300 mg/kg
Sodium carbonate (CAS 497-19-8)		
Acute		
Dermal		
LD50	Rabbit	> 2000 mg/kg
Inhalation		
LC50	Rat	1.53 mg/l, 4 Hours
Oral		
LD50	Rat	2800 mg/kg
Sodium hydroxide (CAS 1310-73-2)		
Acute		
Dermal		
LD50	Rabbit	1350 mg/kg
Oral		
LD50	Rabbit	> 500 mg/kg
Sodium sulphite (CAS 7757-83-7)		
Acute		
Dermal		
LD50	Rabbit	> 2000 mg/kg

Components	Species	Test Results
Inhalation		
LC50	Rat	> 5.5 mg/l, 4 Hour
Oral		
LD50	Rat	2610 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Causes severe skin burns and eye damage.

Serious eye damage/eye irritation Causes serious eye damage.

Respiratory or skin sensitization

Respiratory sensitization Not available.

Skin sensitization This product is not expected to cause skin sensitization.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

IARC Monographs. Overall Evaluation of Carcinogenicity

Sodium sulphite (CAS 7757-83-7) 3 Not classifiable as to carcinogenicity to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure May cause respiratory irritation.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard Based on available data, the classification criteria are not met. Aspiration of this product may cause the same corrosiveness/irritation impacts as if it were ingested.

Chronic effects Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Product		Species	Test Results
OPTIGUARD MCA4288 (CAS Mixture)			
	0% Mortality	Fathead Minnow	2000 mg/L, Static Bioassay with 48-Hour Renewal, 96 hour, (pH adjusted)
Crustacea	0% Mortality	Daphnia magna	2000 mg/L, Static Acute Bioassay, 48 hour, (pH adjusted)

* Estimates for product may be based on additional component data not shown.

Bioaccumulative potential No data available.

Mobility in soil No data available.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

Environmental fate The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Persistence and degradability

No data is available on the degradability of this product.

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Incinerate the material under controlled conditions in an approved incinerator. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code D002: Waste Corrosive material (pH <=2 or =>12.5, or corrosive to steel)
The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number	UN3266
UN proper shipping name	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (Sodium hydroxide RQ = 33267 LBS, SODIUM SULFITE)
Transport hazard class(es)	
Class	8
Subsidiary risk	-
Packing group	III
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
ERG number	154

Some containers may be DOT exempt, please check BOL for exact container classification.

IATA

UN number	UN3266
UN proper shipping name -	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (Sodium hydroxide, SODIUM SULFITE)
Transport hazard class(es)	
Class	8
Subsidiary risk	-
Packing group	III
Environmental hazards	No.
ERG Code	154
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number	UN3266
UN proper shipping name	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (Sodium hydroxide, SODIUM SULFITE)
Transport hazard class(es)	
Class	8
Subsidiary risk	-
Packing group	III
Environmental hazards	
Marine pollutant	No.
EmS	Not available.
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

DOT

IATA; IMDG

15. Regulatory information

US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Sodium hydroxide (CAS 1310-73-2) Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
ACETALDEHYDE	75-07-0	0 - 0.1

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

Food and drug administration ALL ingredients in this product are authorized in 21CFR173.310 for use as boiler water additives where the steam may contact food.

US state regulations WARNING: This product contains a chemical known to the State of California to cause cancer.

US - Massachusetts RTK - Substance List

2-Diethylaminoethanol (CAS 100-37-8)
Sodium hydroxide (CAS 1310-73-2)

US - Pennsylvania RTK - Hazardous Substances

2-Diethylaminoethanol (CAS 100-37-8)
Sodium hydroxide (CAS 1310-73-2)

US - Rhode Island RTK

Sodium hydroxide (CAS 1310-73-2)

US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)

Not listed.

US. New Jersey Worker and Community Right-to-Know Act

Not regulated.

US. California Proposition 65

WARNING: This product contains a chemical known to the State of California to cause cancer.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

ACETALDEHYDE (CAS 75-07-0) Listed: April 1, 1988

US - California Proposition 65 - CRT: Listed date/Developmental toxin

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Female reproductive toxin

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Male reproductive toxin

No ingredient listed.

16. Other information, including date of preparation or last revision

Issue date	Dec-15-2014
Revision date	Dec-15-2014
Version #	1.0
List of abbreviations	CAS: Chemical Abstract Service Registration Number TSRN indicates a Trade Secret Registry Number is used in place of the CAS number. ACGIH: American Conference of Governmental Industrial Hygienists NOEL: No Observed Effect Level STEL: Short Term Exposure Limit LC50: Lethal Concentration, 50% TWA: Time Weighted Average BOD: Biochemical Oxygen Demand COD: Chemical Oxygen Demand TOC: Total Organic Carbon IATA: International Air Transport Association IMDG: International Maritime Dangerous Goods Code TLV: Threshold Limit Value LD50: Lethal Dose, 50% NFPA: National Fire Protection Association
References:	No data available
Disclaimer	The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. The information in the sheet was written based on the best knowledge and experience currently available.
Revision Information	Product and Company Identification: Physical States Toxicological Information: Toxicological Data Transport Information: Experimental Data GHS: Classification
Prepared by	This SDS has been prepared by GE Water & Process Technologies Regulatory Department (1-215-355-3300).

SAFETY DATA SHEET	ECOSERVICES
SULFURIC ACID 93% TECHNICAL	
Revision:1 3/11/2015	Issuing date: 11/20/2014

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name : SULFURIC ACID 93% TECHNICAL

1.2 Relevant identified uses of the substance or mixture and uses advised against

no data available

1.3 Details of the supplier of the safety data sheet

Company : Eco Services Operations LLC
CN 9803
Cranbury, NJ 08512
Phone number : 844 812-1812

1.4 Emergency telephone

FOR EMERGENCIES INVOLVING A SPILL, LEAK, FIRE, EXPOSURE OR ACCIDENT CONTACT: CHEMTREC 800-424-9300 within the United States and Canada, or 703-527-3887 for international collect calls.

SECTION 2: Hazards identification

Although OSHA has not adopted the environmental portion of the GHS regulations, this document may include information on environmental effects.

2.1 Classification of the substance or mixture

HCS 2012 (29 CFR 1910.1200)

Skin corrosion, Category 1A	H314: Causes severe skin burns and eye damage.
Serious eye damage, Category 1	H318: Causes serious eye damage.
Specific target organ systemic toxicity - single exposure, Category 3, Respiratory system	H335: May cause respiratory irritation.

2.2 Label elements

HCS 2012 (29 CFR 1910.1200)

Pictogram :

Signal Word : Danger

Hazard Statements:

H314	Causes severe skin burns and eye damage.
H335	May cause respiratory irritation.

Precautionary Statements:

Prevention	
P261	Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
P264	Wash skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response	
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER or doctor/ physician.
P363	Wash contaminated clothing before reuse.
Storage	
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
Disposal	
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Other hazards which do not result in classification

Water Reactive

H402: Harmful to aquatic life.
H411: Toxic to aquatic life with long lasting effects.

SECTION 3: Composition/information on ingredients

3.1 Substance

Not applicable, this product is a mixture.

3.2 Mixture

Hazardous Ingredients and Impurities

Chemical Name	Identification number CAS-No.	Concentration [%]
Sulfuric acid	7664-93-9	93

Non Hazardous Ingredients and Impurities

Chemical Name	Identification number CAS-No.	Concentration [%]
Water	7732-18-5	7

SECTION 4: First aid measures

4.1 Description of first-aid measures

If inhaled	:	Remove victim from exposure and then have him lie down in the recovery position. In case of shortness of breath, give oxygen. If victim has stopped breathing: administer CPR (cardio-pulmonary resuscitation) Immediate medical attention is required.
Skin contact	:	In case of contact, immediately flush skin with plenty of water for at least 30 minutes. Remove all contaminated apparel under the shower. Wash off with plenty of water. Do not attempt to neutralize with chemical agents Immediate medical attention is required.
Eye contact	:	In case of contact, immediately flush eyes with plenty of water for at least 30 minutes. Immediate medical attention is required.
Ingestion	:	Do NOT induce vomiting. If victim is conscious: Rinse mouth with water. Do not leave the victim unattended. Risk of product entering the lungs on vomiting after ingestion. Lay victim on side. Never give anything by mouth to an unconscious person. Immediate medical attention is required.

4.2 Most important symptoms and effects, both acute and delayed

Risks	:	Inhalation of product may aggravate existing chronic respiratory problems such as asthma, emphysema or bronchitis Skin contact may aggravate existing skin disease

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician	:	All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

SECTION 5: Firefighting measures

Flash point	:	Not applicable
Autoignition temperature	:	no data available
Flammability / Explosive limit	:	no data available

5.1 Extinguishing media

Suitable extinguishing media	:	Dry chemical

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire fighting	:	Not combustible. Strong oxidizer. Contact with other material may cause fire. Reacts violently with water. Corrosive or suffocating vapors are released. On combustion or on thermal decomposition (pyrolysis), releases: Sulfur oxides

5.3 Advice for firefighters

Special protective equipment for fire-fighters	:	Firefighters should wear NIOSH/MSHA approved self-contained breathing apparatus and full protective clothing. Acid-resistant protective clothing
Specific fire fighting methods	:	Fight fire with normal precautions from a reasonable distance.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions, protective equipment and emergency procedures	:	The product must only be handled by specifically trained employees.

6.2 Environmental precautions

Environmental precautions	:	Do not flush into surface water or sanitary sewer system. Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Spills may be reportable to the National Response Center (800-424-8802) and to state and/or local agencies Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases.

6.3 Methods and materials for containment and cleaning up

Recovery	:	Stop leak if safe to do so. Dam up with sand or inert earth (do not use combustible materials).
Decontamination / cleaning	:	Pump or collect any free spillage into an appropriate closed container. (see Section 7: Handling and Storage) Exercise caution during neutralization as considerable heat may be generated Carefully neutralize the remainder using: soda ash Soak up with inert absorbent material. Scrape up. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

Reference to other sections : 7. HANDLING AND STORAGE

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Technical measures : Do not breathe mist or vapors.
Avoid contact with the skin and the eyes.
When diluting, always add the product to water. Never add water to the product.
Reacts violently with:
bases.

Hygiene measures : Personal hygiene is an important work practice exposure control measure and the following general measures should be taken when working with or handling this materials:
1) Do not store, use, and/or consume foods, beverages, tobacco products, or cosmetics in areas where this material is stored.
2) Wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics, or using the toilet.
3) Wash exposed skin promptly to remove accidental splashes or contact with material.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Recommended : Keep tightly closed.
Store in an area:
dry
well-ventilated
diked

Storage stability

Storage temperature : < 104 °F (< 40 °C)

Other data : Corrosion rates increase at elevated temperatures.

7.3 Specific end use(s)

no data available

SECTION 8: Exposure controls/personal protection

Introductory Remarks:
These recommendations provide general guidance for handling this product. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. While developing safe handling procedures, do not overlook the need to clean equipment and piping systems for maintenance and repairs. Waste resulting from these procedures should be handled in accordance with Section 13: Disposal Considerations.

Assistance with selection, use and maintenance of worker protection equipment is generally available from equipment manufacturers.

8.1 Control parameters

Ingredients with workplace control parameters

Ingredients	Value type	Value	Basis
Sulfuric acid	TWA	1 mg/m3	NIOSH
Sulfuric acid	TWA	0.2 mg/m3	ACGIH
	Form of exposure : Thoracic fraction Pulmonary function, Classification refers to sulfuric acid contained in strong inorganic acid mists, Suspected human carcinogen		
Sulfuric acid	TWA	1 mg/m3	OSHA Z-1
Sulfuric acid	TWA	1 mg/m3	OSHA Z-1-A
Sulfuric acid	TWA	0.2 mg/m3	Eco Services

NIOSH IDLH (Immediately Dangerous to Life or Health Concentrations)

Ingredients	CAS-No.	Concentration
Sulfuric acid	7664-93-9	15 milligram per cubic meter

8.2 Exposure controls

Control measures

Engineering measures : Where engineering controls are indicated by use conditions or a potential for excessive exposure exists, the following traditional exposure control techniques may be used to effectively minimize employee exposures :

Effective exhaust ventilation system

Personal protective equipment

Respiratory protection : When respirators are required, select NIOSH/MSHA approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industrial recommendations.

Recommended Filter type: Acidic gas/vapor type

Eye protection : Eye and face protection requirements will vary dependent upon work environment conditions and material handling practices. Appropriate ANSI Z87 approved equipment should be selected for the particular use intended

for this material.

Eye contact should be prevented through the use of:

Wear protective eye glasses for protection against liquid splashes (goggles)

Skin and body protection : Wear as appropriate:
Face-shield
Acid-resistant protective clothing
Acid resistant boots.

Hygiene measures : Personal hygiene is an important work practice exposure control measure and the following general measures should be taken when working with or handling this materials:
1) Do not store, use, and/or consume foods, beverages, tobacco products, or cosmetics in areas where this material is stored.
2) Wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics, or using the toilet.
3) Wash exposed skin promptly to remove accidental splashes or contact with material.

Protective measures : Ensure that eyewash stations and safety showers are close to the workstation location.

SECTION 9: Physical and chemical properties

Physical and Chemical properties here represent typical properties of this product. Contact the business area using the Product information phone number in Section 1 for its exact specifications.

9.1 Information on basic physical and chemical properties

Appearance	:	Form : oily Physical state: liquid Color: colorless
Odor	:	odorless
Odor Threshold	:	no data available
pH	:	1.0 (1 % (m/v))
Melting point/range	:	-26 °F (-32 °C)
Boiling point/boiling range	:	529 °F (276 °C) (760 mmHg (1,013.25 hPa))
Flash point	:	Not applicable
Evaporation rate (Butylacetate = 1)	:	no data available
Flammability (solid, gas)	:	no data available
Flammability (liquids)	:	no data available

Flammability / Explosive limit	:	no data available
Autoignition temperature	:	no data available
Vapor pressure	:	< 1 mmHg (1.33 hPa) (104 °F (40 °C))
Vapor density	:	no data available
Specific Gravity	:	1.836 (61 °F (16 °C))
Solubility	:	Water solubility : miscible
Partition coefficient: n-octanol/water	:	no data available
Thermal decomposition	:	no data available
Viscosity	:	no data available
Explosive properties	:	no data available
Oxidizing properties	:	no data available

9.2 Other information

Molecular weight	:	98.08 g/mol
Reactions with water / air	:	Reacts violently with water.

SECTION 10: Stability and reactivity

10.1 Reactivity

no data available

10.2 Chemical stability

Chemical stability	:	Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Hazardous polymerization does not occur.

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Materials to avoid : Water
Strong reducing agents
Halogenated compounds
Bases
metals
Nitrogen oxides (NOx)

10.6 Hazardous decomposition products

Decomposition products : On combustion or on thermal decomposition (pyrolysis), releases:
Sulfur oxides

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Acute oral toxicity
Sulfuric acid : LD50 Oral : 2,140 mg/kg - Rat
Gavage
Published data

Acute inhalation toxicity
Sulfuric acid : LC50 - 4 h (aerosol) : 0.375 mg/l - Rat , male and female
Toxicity secondary to corrosive effects at site of contact.
Published data

LC50 - 4 h (aerosol) : 0.85 mg/l - Mouse , male and female
Toxicity secondary to corrosive effects at site of contact.
Published data

(Mist) Humans
Symptoms: Potential health effects, Respiratory disorders, Symptoms may be delayed., Cough, Risk of delayed pulmonary edema.
Effects of breathing high concentration of respirable particles may include:
May cause irritation of respiratory tract.
Lung irritation
Published data

Acute dermal toxicity
Sulfuric acid : Not classified as hazardous for acute toxicity according to GHS
Not applicable
Corrosive
internal evaluation

Acute toxicity (other routes of administration) : no data available

Skin corrosion/irritation
Skin irritation
Sulfuric acid : Causes severe burns.
Published data

Serious eye damage/eye irritation
Eye irritation
Sulfuric acid : Risk of serious damage to eyes.
Published data

Respiratory or skin sensitization
Sensitization
Sulfuric acid : Local lymph node assay
Not applicable
Corrosive
The product is not considered to be sensitizing by skin contact.
internal evaluation

Mutagenicity
Genotoxicity in vitro
Sulfuric acid : Mutagenicity (Salmonella typhimurium - reverse mutation assay)
with and without metabolic activation
negative
Method: OECD Test Guideline 471
Published data

Chromosome aberration test in vitro
Strain: Chinese hamster ovary cells
with and without metabolic activation
positive
Effects observed are due to the reduced pH in the test medium.
Published data

Product is not considered to be genotoxic

Genotoxicity in vivo : no data available

Carcinogenicity

Carcinogenicity

Sulfuric acid : inhalation (mist)

Animal studies
Unpublished reports
Published data
No carcinogenic effects have been observed

Note: IARC Classification: Group 1
mists from strong inorganic acids

IARC and NTP classified "occupational exposure to strong inorganic acid mists containing sulfuric acid" as a known human carcinogen. ACGIH has also classified "sulfuric acid as contained in strong inorganic acid mists" as a suspected human carcinogen. There is still a debate on the studies reviewed by these agencies. We disagree with IARC's conclusion, in that more recent studies have failed to find association between "occupational exposure to strong inorganic acid mist containing sulfuric acid." and laryngeal or lung cancer. In fact, in 2012 IARC revised their classification dropping the "containing sulfuric acid" wording. Lifetime animal studies in hamsters, rats, and guinea pigs were conducted by the EPA and NIEHS and were all negative. However, they were not formally published by the agencies and not considered by IARC or NTP.

Ingredients	CAS-No.	Rating	Basis
Strong inorganic acid mists containing sulfuric acid		Group 1: Carcinogenic to humans	IARC
Strong inorganic acid mists containing sulfuric acid		Suspected human carcinogen	ACGIH
Strong inorganic acid mists containing sulfuric acid		Known to be human carcinogen	NTP
Sulfuric acid	7664-93-9	Suspected human carcinogen	ACGIH

This product does not contain any ingredient designated as probable or suspected human carcinogens by:
OSHA
NTP
IARC

Toxicity for reproduction and development

Toxicity to reproduction / fertility

Sulfuric acid : Effects on fertility
fetotoxic effect
no observed effect

Developmental Toxicity/Teratogenicity

Sulfuric acid : Rabbit
Application Route: inhalation (mist)
NOAEC teratogenicity: 19.3 mg/m3

Method: OECD Test Guideline 414
no teratogenic effects have been observed

Mouse
Application Route: inhalation (mist)
NOAEC teratogenicity: 19.3 mg/m3

Method: OECD Test Guideline 414
no teratogenic effects have been observed
Published data

STOT

STOT-single exposure

Sulfuric acid

Routes of exposure: inhalation (mist)
Target Organs: Respiratory Tract
Toxicology Assessment:
May cause respiratory irritation.

STOT-repeated exposure

Sulfuric acid : Toxicology Assessment:
The substance or mixture is not classified as specific target organ toxicant, repeated exposure., internal evaluation

Sulfuric acid : inhalation (mist) 28 d - Rat
LOAEC: 0.3 mg/m3
Target Organs: Larynx
Method: OECD Test Guideline 412
Symptoms: Local irritation
Unpublished reports

inhalation (mist) 78 Weeks - Monkey
LOAEC: 0.38 mg/m3
Target Organs: Respiratory Tract
Symptoms: Local irritation, Respiratory disorders
Published data

Repeated inhalation of aerosols may cause adverse effects on health

Experience with human exposure
Experience with human exposure : Inhalation
Sulfuric acid : Target Organs: Respiratory Tract

Target Organs: Nose
Symptoms: Burning sensations in the nose and throat.
Breathing difficulties
Dental erosion
Mist
At high concentrations:
Irritating to the respiratory system and mucous membranes.
Published data

Carcinogenicity
Sulfuric acid : Carcinogenicity classification not possible from current data.
Teratogenicity
Sulfuric acid : Did not show teratogenic effects in animal experiments.

Aspiration toxicity
Aspiration toxicity
Sulfuric acid : Not applicable

SECTION 12: Ecological information

12.1 Toxicity

Aquatic Compartment
Acute toxicity to fish
Sulfuric acid : LC50 - 96 h : 16 - 28 mg/l - Lepomis macrochirus (Bluegill sunfish)
static test

Non neutralized product
pH 3.5 - 3.25
Harmful to fish.
Published data

Acute toxicity to daphnia and other aquatic invertebrates.
Sulfuric acid : EC50 - 48 h : > 100 mg/l - Daphnia magna (Water flea)
static test Method: OECD Test Guideline 202
Fresh water
Neutralized product
Not harmful to aquatic invertebrates. (EC50 > 100 mg/L)
Unpublished reports

EC50 - 24 h : 29 mg/l - Daphnia magna (Water flea)
Method: ISO 6341
Non neutralized product
Harmful to aquatic invertebrates.
Published data

Toxicity to aquatic plants
Sulfuric acid : NOEC : 0.13 mg/l - Algae
field study
pH 5.6
Non neutralized product
Published data

ErC50 - 72 h : > 100 mg/l - Desmodesmus subspicatus (green algae)
Growth inhibition
Method: OECD Test Guideline 201
Neutralized product
Unpublished reports

Chronic toxicity to fish
Sulfuric acid : NOEC: 0.13 mg/l - 10 Months - Salvelinus fontinalis (brown trout)
flow-through test
pH 5.6
Fresh water
Non neutralized product
Published data

Ecotoxicity assessment
Acute aquatic toxicity
Sulfuric acid : If the product is not neutralized, it may cause adverse effects to aquatic organisms due to its acidity.
Neutralization will reduce ecotoxic effects.

Chronic aquatic toxicity
Sulfuric acid : If the product is not neutralized, it may cause adverse effects to aquatic organisms due to its acidity.

12.2 Persistence and degradability

Biodegradability
Biodegradability
Sulfuric acid : Not applicable, inorganic substance

Stability
Stability in water
Sulfuric acid : Product dissociates rapidly to corresponding ions on contact with water.

12.3 Bioaccumulative potential
Partition coefficient: n-octanol/water
Sulfuric acid : Not applicable, inorganic substance

Bioconcentration factor (BCF)
Sulfuric acid : Not relevant
internal evaluation

12.4 Mobility in soil
no data available

12.5 Results of PBT and vPvB assessment

Results of PBT and vPvB assessment

Sulfuric acid : This substance is not considered to be persistent, bioaccumulating, and toxic (PBT)., This substance is not considered to be very persistent and very bioaccumulating (vPvB).

12.6 Other adverse effects

Environment assessment

Sulfuric acid : Not classified as Dangerous for the Environment

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product Disposal

Advice on Disposal : Chemical additions, processing or otherwise altering this material may make the waste management information presented in this MSDS incomplete, inaccurate or otherwise inappropriate. Please be advised that state and local requirements for waste disposal may be more restrictive or otherwise different from federal laws and regulations. Consult state and local regulations regarding the proper disposal of this material.

Waste Code : EPA:
Hazardous Waste – YES

RCRA:
D002 - Corrosive waste – (C)
D003 - Reactive waste – (R)

SECTION 14: Transport information

Transportation status: IMPORTANT! Statements below provide additional data on listed transport classification.
The listed Transportation Classification does not address regulatory variations due to changes in package size, mode of shipment or other regulatory descriptors.

DOT

14.1 UN number UN 1830

14.2 Dangerous Good Description UN 1830 SULFURIC ACID, 8, II

14.3 Transport hazard class 8

14.4 Packing group

Packing group II
Label(s) 8
ERG No 137

14.5 Environmental hazards NO
Marine pollutant

14.6 Special precautions for user

This product contains one or more ingredients identified as a hazardous substance in Appendix A of 49 CFR 172.101. The product quantity, in one package, which triggers the RQ requirements under 49 CFR for each hazardous substance is shown.

Reportable quantities : RQ substance: Sulfuric acid
RQ limit for substance: 1,000 lb

TDG

14.1 UN number UN 1830

14.2 Dangerous Good Description UN 1830 SULFURIC ACID, 8, II

14.3 Transport hazard class 8

14.4 Packing group
Packing group II
Label(s) 8
ERG No 137

14.5 Environmental hazards NO
Marine pollutant

IMDG

14.1 UN number UN 1830

14.2 Dangerous Good Description UN 1830 SULPHURIC ACID, 8, II

14.3 Transport hazard class 8

14.4 Packing group
Packing group II
Label(s) 8
EmS F-A , S-B

14.5 Environmental hazards NO
Marine pollutant

14.6 Special precautions for user
For personal protection see section 8.

IATA

14.1 UN number UN 1830

14.2 Dangerous Good Description UN 1830 SULPHURIC ACID, 8, II

14.3 Transport hazard class 8

14.4 Packing group

Packing group	II
Label(s):	8
Packing instruction (cargo aircraft)	855
Max net qty / pkg	30.00 L
Packing instruction (passenger aircraft)	851
Max net qty / pkg	1.00 L

14.5 Environmental hazards NO
Marine pollutant

14.6 Special precautions for user
For personal protection see section 8.

Note: The above regulatory prescriptions are those valid on the date of publication of this sheet. Given the possible evolution of transportation regulations for hazardous materials, it would be advisable to check their validity with your sales office.

SECTION 15: Regulatory information

15.1 Notification status

United States TSCA Inventory	:	YES (positive listing) On TSCA Inventory
Canadian Domestic Substances List (DSL)	:	YES (positive listing) All components of this product are on the Canadian DSL.
Australia Inventory of Chemical Substances (AICS)	:	YES (positive listing) On the inventory, or in compliance with the inventory
Japan. CSCL - Inventory of Existing and New Chemical Substances	:	YES (positive listing) On the inventory, or in compliance with the inventory
Korea. Korean Existing Chemicals Inventory (KECI)	:	YES (positive listing) On the inventory, or in compliance with the inventory
China. Inventory of Existing Chemical Substances in China (IECSC)	:	YES (positive listing) On the inventory, or in compliance with the inventory

15.2 Federal Regulations

SARA 311/312 Hazards

Fire Hazard	no
Reactivity Hazard	yes
Sudden Release of Pressure Hazard	no
Acute Health Hazard	yes
Chronic Health Hazard	no

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:
Sulfuric acid 7664-93-9 93 %

SARA 302 : The following components are subject to reporting levels established by SARA Title III, Section 302:

Ingredients	CAS-No.	Threshold planning quantity	Remarks
Sulfuric acid	7664-93-9	1000 lb	

EPCRA - Emergency Planning and Community Right-to-Know

CERCLA Reportable Quantity

Ingredients	CAS-No.	Reportable quantity
Unlisted hazardous wastes - Characteristic of Corrosivity		100 lb
Unlisted hazardous wastes - Characteristic of Reactivity		100 lb
Sulfuric acid	7664-93-9	1000 lb

SARA 304 Reportable Quantity

Ingredients	CAS-No.	Reportable quantity
Sulfuric acid	7664-93-9	1000 lb

SARA 302 Reportable Quantity

Ingredients	CAS-No.	Reportable quantity
Sulfuric acid	7664-93-9	1000 lb

15.3 State Regulations

California Prop 65 : WARNING! This product contains a chemical known in the State of California to cause cancer.
Strong inorganic acid mists containing sulfuric acid

This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

SECTION 16: Other information

NFPA-Classification

Health	:	3 serious
Flammability	:	0 minimal
Instability or Reactivity	:	2 moderate

HMIS-Classification

Health	:	3 serious
Flammability	:	0 minimal
Reactivity	:	2 moderate

Further information

Date Prepared	:	11/20/2014
Further information	:	Product classified under the US GHS format.

Key or legend to abbreviations and acronyms used in the safety data sheet

TWA	:	8-hour, time-weighted average
ACGIH	:	American Conference of Governmental Industrial Hygienists
OSHA	:	Occupational Safety and Health Administration
WHMIS	:	Workplace Hazardous Materials Information System
NTP	:	National Toxicology Program
IARC	:	International Agency for Research on Cancer
SAEL	:	Solvay Acceptable Exposure Limit
NIOSH	:	National Institute for Occupational Safety and Health
NFPA	:	National Fire Protection Association
HMIS	:	Hazardous Materials Identification System (Paint & Coating)

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information, and belief at the date of its publication. Such information is only given as a guidance to help the user handle, use, process, store, transport, dispose, and release the product in satisfactory safety conditions and is not to be considered as a warranty or quality specification. It should be used in conjunction with technical sheets but do not replace them. Thus, the information only relates to the designated specific product and may not be applicable if such product is used in combination with other materials or in another manufacturing process, unless otherwise specifically indicated. It does not release the user from ensuring he is in conformity with all regulations linked to its activity.