

## **APPLICATION TO MODIFY PERMITS R13-1525D AND R30-04900043-2018**

**ND Fairmont LLC  
Facility ID No. 049-00043**

**Prepared for:**  
ND Fairmont LLC  
702 AFR Drive  
Fairmont, West Virginia 26554

**Prepared by:**  
The Thrasher Group, Inc.  
600 White Oaks Boulevard  
Bridgeport, West Virginia 26330

February 2019  
101-070-0548

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WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION  
**DIVISION OF AIR QUALITY**  
 601 57<sup>th</sup> Street, SE  
 Charleston, WV 25304  
 (304) 926-0475  
[www.dep.wv.gov/daq](http://www.dep.wv.gov/daq)

**APPLICATION FOR NSR PERMIT**  
**AND**  
**TITLE V PERMIT REVISION**  
**(OPTIONAL)**

PLEASE CHECK ALL THAT APPLY TO NSR (45CSR13) (IF KNOWN):  
 CONSTRUCTION     MODIFICATION     RELOCATION  
 CLASS I ADMINISTRATIVE UPDATE     TEMPORARY  
 CLASS II ADMINISTRATIVE UPDATE     AFTER-THE-FACT

PLEASE CHECK TYPE OF 45CSR30 (TITLE V) REVISION (IF ANY):  
 ADMINISTRATIVE AMENDMENT     MINOR MODIFICATION  
 SIGNIFICANT MODIFICATION  
 IF ANY BOX ABOVE IS CHECKED, INCLUDE TITLE V REVISION INFORMATION AS ATTACHMENT S TO THIS APPLICATION

**FOR TITLE V FACILITIES ONLY:** Please refer to "Title V Revision Guidance" in order to determine your Title V Revision options (Appendix A, "Title V Permit Revision Flowchart") and ability to operate with the changes requested in this Permit Application.

**Section I. General**

1. Name of applicant (as registered with the WV Secretary of State's Office): <b>ND Fairmont LLC</b>		2. Federal Employer ID No. (FEIN): <b>3 5 2 6 3 2 4 7 6</b>	
3. Name of facility (if different from above):		4. The applicant is the: <input type="checkbox"/> OWNER <input type="checkbox"/> OPERATOR <input checked="" type="checkbox"/> BOTH	
5A. Applicant's mailing address: <b>702 AFR Drive</b>  <b>Fairmont, WV 26554</b>		5B. Facility's present physical address: <b>702 AFR Drive</b> <b>Fairmont, WV 26554</b>	
6. <b>West Virginia Business Registration.</b> Is the applicant a resident of the State of West Virginia? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO – If YES, provide a copy of the <b>Certificate of Incorporation/Organization/Limited Partnership</b> (one page) including any name change amendments or other Business Registration Certificate as <b>Attachment A</b> . – If NO, provide a copy of the <b>Certificate of Authority/Authority of L.L.C./Registration</b> (one page) including any name change amendments or other Business Certificate as <b>Attachment A</b> .			
7. If applicant is a subsidiary corporation, please provide the name of parent corporation: <b>ND Paper LLC</b>			
8. Does the applicant own, lease, have an option to buy or otherwise have control of the <i>proposed site</i> ? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO – If YES, please explain: <b>Applicant owns the site</b> – If NO, you are not eligible for a permit for this source.			
9. Type of plant or facility (stationary source) to be <b>constructed, modified, relocated, administratively updated</b> or <b>temporarily permitted</b> (e.g., coal preparation plant, primary crusher, etc.): <b>Recycled paper mill</b>		10. North American Industry Classification System (NAICS) code for the facility: <b>322110</b>	
11A. DAQ Plant ID No. (for existing facilities only): <b>0 4 9 – 0 0 0 4 3</b>		11B. List all current 45CSR13 and 45CSR30 (Title V) permit numbers associated with this process (for existing facilities only): <b>R13-1525D; R30-04900043-2018</b>	

**All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.**

12A.

- For **Modifications, Administrative Updates** or **Temporary permits** at an existing facility, please provide directions to the *present location* of the facility from the nearest state road;
- For **Construction or Relocation permits**, please provide directions to the *proposed new site location* from the nearest state road. Include a **MAP** as **Attachment B**.

**From I-79, Exit 137 follow Route 310 North to Speedway Ave. Turn right onto Speedway Ave (Route 73). Turn left onto Suncrest Blvd. Continue to Hoult Road. Keep right and follow signs to AFR Drive to the facility**

12.B. New site address (if applicable):

**NA**

12C. Nearest city or town:

**Fairmont**

12D. County:

**Marion**

12.E. UTM Northing (KM): **4,375.10**

12F. UTM Easting (KM): **575.30**

12G. UTM Zone: **17**

13. Briefly describe the proposed change(s) at the facility:

**Increase in production that will increase emissions from the dryer. No change in equipment.**

14A. Provide the date of anticipated installation or change: **03/01/2019**

- If this is an **After-The-Fact** permit application, provide the date upon which the proposed change did happen:

14B. Date of anticipated Start-Up if a permit is granted:

**03/01/2019**

14C. Provide a **Schedule** of the planned **Installation of/Change** to and **Start-Up** of each of the units proposed in this permit application as **Attachment C** (if more than one unit is involved).

15. Provide maximum projected **Operating Schedule** of activity/activities outlined in this application:

Hours Per Day **24** Days Per Week **7** Weeks Per Year **52**

16. Is demolition or physical renovation at an existing facility involved?  **YES**  **NO**

17. **Risk Management Plans.** If this facility is subject to 112(r) of the 1990 CAAA, or will become subject due to proposed changes (for applicability help see [www.epa.gov/ceppo](http://www.epa.gov/ceppo)), submit your **Risk Management Plan (RMP)** to U. S. EPA Region III.

18. **Regulatory Discussion.** List all Federal and State air pollution control regulations that you believe are applicable to the proposed process (*if known*). A list of possible applicable requirements is also included in Attachment S of this application (Title V Permit Revision Information). Discuss applicability and proposed demonstration(s) of compliance (*if known*). Provide this information as **Attachment D**.

## ***Section II. Additional attachments and supporting documents.***

19. Include a check payable to WVDEP – Division of Air Quality with the appropriate **application fee** (per 45CSR22 and 45CSR13).

20. Include a **Table of Contents** as the first page of your application package.

21. Provide a **Plot Plan**, e.g. scaled map(s) and/or sketch(es) showing the location of the property on which the stationary source(s) is or is to be located as **Attachment E** (Refer to **Plot Plan Guidance**).

- Indicate the location of the nearest occupied structure (e.g. church, school, business, residence).

22. Provide a **Detailed Process Flow Diagram(s)** showing each proposed or modified emissions unit, emission point and control device as **Attachment F**.

23. Provide a **Process Description** as **Attachment G**.

- Also describe and quantify to the extent possible all changes made to the facility since the last permit review (*if applicable*).

**All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.**

24. Provide **Material Safety Data Sheets (MSDS)** for all materials processed, used or produced as **Attachment H**.

– For chemical processes, provide a MSDS for each compound emitted to the air.

25. Fill out the **Emission Units Table** and provide it as **Attachment I**.

26. Fill out the **Emission Points Data Summary Sheet (Table 1 and Table 2)** and provide it as **Attachment J**.

27. Fill out the **Fugitive Emissions Data Summary Sheet** and provide it as **Attachment K**.

28. Check all applicable **Emissions Unit Data Sheets** listed below:

- |   |  |  |
|---|--|--|
| <input type="checkbox"/> Bulk Liquid Transfer Operations                        | <input type="checkbox"/> Haul Road Emissions     | <input type="checkbox"/> Quarry  |
| <input type="checkbox"/> Chemical Processes                                     | <input type="checkbox"/> Hot Mix Asphalt Plant   | <input type="checkbox"/> Solid Materials Sizing, Handling and Storage Facilities |
| <input type="checkbox"/> Concrete Batch Plant                                   | <input type="checkbox"/> Incinerator             | <input type="checkbox"/> Storage Tanks   |
| <input type="checkbox"/> Grey Iron and Steel Foundry                            | <input type="checkbox"/> Indirect Heat Exchanger |  |
| <input checked="" type="checkbox"/> General Emission Unit, specify <b>Dryer</b> |  |  |

Fill out and provide the **Emissions Unit Data Sheet(s)** as **Attachment L**.

29. Check all applicable **Air Pollution Control Device Sheets** listed below:

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Absorption Systems        | <input type="checkbox"/> Baghouse                   | <input type="checkbox"/> Flare                 |
| <input type="checkbox"/> Adsorption Systems        | <input type="checkbox"/> Condenser                  | <input type="checkbox"/> Mechanical Collector  |
| <input type="checkbox"/> Afterburner               | <input type="checkbox"/> Electrostatic Precipitator | <input type="checkbox"/> Wet Collecting System |
| <input type="checkbox"/> Other Collectors, specify |   |  |

Fill out and provide the **Air Pollution Control Device Sheet(s)** as **Attachment M**.

30. Provide all **Supporting Emissions Calculations** as **Attachment N**, or attach the calculations directly to the forms listed in Items 28 through 31.

31. **Monitoring, Recordkeeping, Reporting and Testing Plans.** Attach proposed monitoring, recordkeeping, reporting and testing plans in order to demonstrate compliance with the proposed emissions limits and operating parameters in this permit application. Provide this information as **Attachment O**.

➤ Please be aware that all permits must be practically enforceable whether or not the applicant chooses to propose such measures. Additionally, the DAQ may not be able to accept all measures proposed by the applicant. If none of these plans are proposed by the applicant, DAQ will develop such plans and include them in the permit.

32. **Public Notice.** At the time that the application is submitted, place a **Class I Legal Advertisement** in a newspaper of general circulation in the area where the source is or will be located (See 45CSR§13-8.3 through 45CSR§13-8.5 and **Example Legal Advertisement** for details). Please submit the **Affidavit of Publication** as **Attachment P** immediately upon receipt.

33. **Business Confidentiality Claims.** Does this application include confidential information (per 45CSR31)?

YES     NO

➤ If **YES**, identify each segment of information on each page that is submitted as confidential and provide justification for each segment claimed confidential, including the criteria under 45CSR§31-4.1, and in accordance with the DAQ's **"Precautionary Notice – Claims of Confidentiality"** guidance found in the **General Instructions** as **Attachment Q**.

### **Section III. Certification of Information**

34. **Authority/Delegation of Authority.** Only required when someone other than the responsible official signs the application. Check applicable **Authority Form** below:

- |  |   |
|--|---|
| <input type="checkbox"/> Authority of Corporation or Other Business Entity | <input type="checkbox"/> Authority of Partnership         |
| <input type="checkbox"/> Authority of Governmental Agency                  | <input type="checkbox"/> Authority of Limited Partnership |

Submit completed and signed **Authority Form** as **Attachment R**.

**All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.**

**7. Certification For Use Of Minor Modification Procedures (Required Only for Minor Modification Requests)**

*Note:* This certification must be signed by a responsible official. Applications without a signed certification will be returned as incomplete. The criteria for allowing the use of Minor Modification Procedures are as follows:

- i. Proposed changes do not violate any applicable requirement;
- ii. Proposed changes do not involve significant changes to existing monitoring, reporting, or recordkeeping requirements in the permit;
- iii. Proposed changes do not require or change a case-by-case determination of an emission limitation or other standard, or a source-specific determination for temporary sources of ambient air quality impacts, or a visibility increment analysis;
- iv. Proposed changes do not seek to establish or change a permit term or condition for which there is no underlying applicable requirement and which permit or condition has been used to avoid an applicable requirement to which the source would otherwise be subject (synthetic minor). Such terms and conditions include, but are not limited to a federally enforceable emissions cap used to avoid classification as a modification under any provision of Title I or any alternative emissions limit approved pursuant to regulations promulgated under § 112(j)(5) of the Clean Air Act;
- v. Proposed changes do not involve preconstruction review under Title I of the Clean Air Act or 45CSR14 and 45CSR19;
- vi. Proposed changes are not required under any rule of the Director to be processed as a significant modification;

Notwithstanding subparagraph 45CSR§30-6.5.a.1.A. (items i through vi above), minor permit modification procedures may be used for permit modifications involving the use of economic incentives, marketable permits, emissions trading, and other similar approaches, to the extent that such minor permit modification procedures are explicitly provided for in rules of the Director which are approved by the U.S. EPA as a part of the State Implementation Plan under the Clean Air Act, or which may be otherwise provided for in the Title V operating permit issued under 45CSR30.

**Pursuant to 45CSR§30-6.5.a.2.C., the proposed modification contained herein meets the criteria for use of Minor permit modification procedures as set forth in Section 45CSR§30-6.5.a.1.A. The use of Minor permit modification procedures are hereby requested for processing of this application.**

(Signed): *Steven Demyon* Date: 02 / 04 / 2019  
(Please use blue ink) (Please use blue ink)  
 Named (typed): Steven Demyon Title: General Manager

**Note: Please check if the following included (if applicable):**

<input type="checkbox"/>	Compliance Assurance Monitoring Form(s)
<input type="checkbox"/>	Suggested Title V Draft Permit Language

*All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.*

**ATTACHMENT A – Business Certificate**

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# State of West Virginia



## Certificate

*I, Mac Warner, Secretary of State of the State of West Virginia, hereby certify that*

**ND FAIRMONT LLC**

Control Number: 9ANUX

a limited liability company, organized under the laws of the State of Delaware has filed its "Application for Certificate of Authority" in my office according to the provisions of West Virginia Code §31B-10-1002. I hereby declare the organization to be registered as a foreign limited liability company from its effective date of October 15, 2018, until a certificate of cancellation is filed with our office.

Therefore, I hereby issue this

### **CERTIFICATE OF AUTHORITY OF A FOREIGN LIMITED LIABILITY COMPANY**

to the limited liability company authorizing it to transact business in West Virginia



*Given under my hand and the  
Great Seal of the State of  
West Virginia on this day of  
September 18, 2018*

*Mac Warner*

*Secretary of State*

**WEST VIRGINIA  
STATE TAX DEPARTMENT  
BUSINESS REGISTRATION  
CERTIFICATE**

**ISSUED TO:  
ND FAIRMONT LLC  
702 AFR DR  
FAIRMONT, WV 26554-5710**

**BUSINESS REGISTRATION ACCOUNT NUMBER: 2364-0948**

**This certificate is issued on: 10/10/2018**

*This certificate is issued by  
the West Virginia State Tax Commissioner  
in accordance with Chapter 11, Article 12, of the West Virginia Code.*

*The person or organization identified on this certificate is registered  
to conduct business in the State of West Virginia at the location above.*

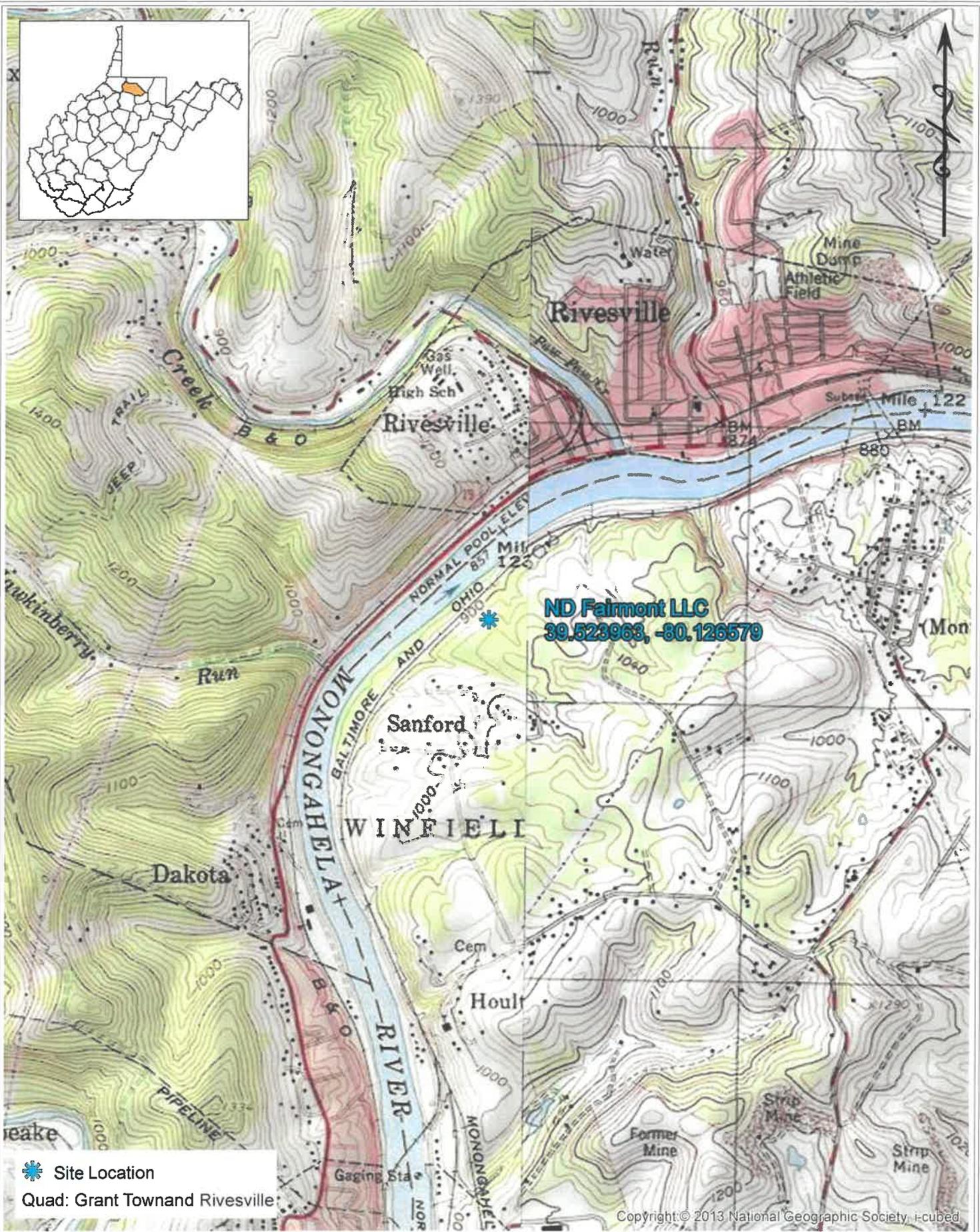
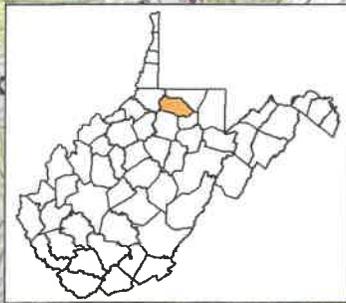
**This certificate is not transferrable and must be displayed at the location for which Issued.**  
This certificate shall be permanent until cessation of the business for which the certificate of registration was granted or until it is suspended, revoked or cancelled by the Tax Commissioner.

Change in name or change of location shall be considered a cessation of the business and a new certificate shall be required.

**TRAVELING/STREET VENDORS:** Must carry a copy of this certificate in every vehicle operated by them.  
**CONTRACTORS, DRILLING OPERATORS, TIMBER/LOGGING OPERATIONS:** Must have a copy of this certificate displayed at every job site within West Virginia.

**ATTACHMENT B – Map(s)**

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Document Path: R:\070-0548-AIR PERMIT ASSISTANCE-NINE DRAGONS PAPER-1\Mapping\MXD\Site Location Map.mxd

By: lhovermale

**ND Fairmont LLC**

**Area Map**  
Air Permit Assistance  
Marion County - West Virginia

**THRASHER**

1 inch = 1,500 feet

1/23/2019

**ATTACHMENT D – Regulatory Discussion**

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# Attachment D

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## Regulatory Discussion

45CSR7-3.1 Opacity limits

45CSR7-3.2 Opacity limits

45CSR7-4.1 Process weight rate particulate matter limits

45CSR7-4.3

45CSR7-4.12

45CSR7-8.1 Stack tests as required by the Director

45CSR7-9.1 Excess emissions during malfunctions

45CSR7-10.3 Maintenance operations exemption

45CSR7-10.4 Alternative visible emission standard during start-up and shutdown periods

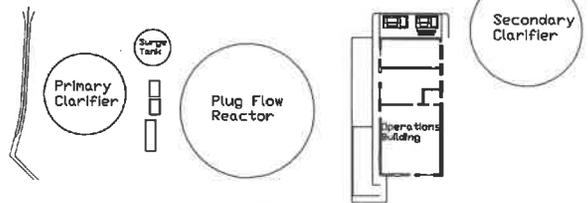
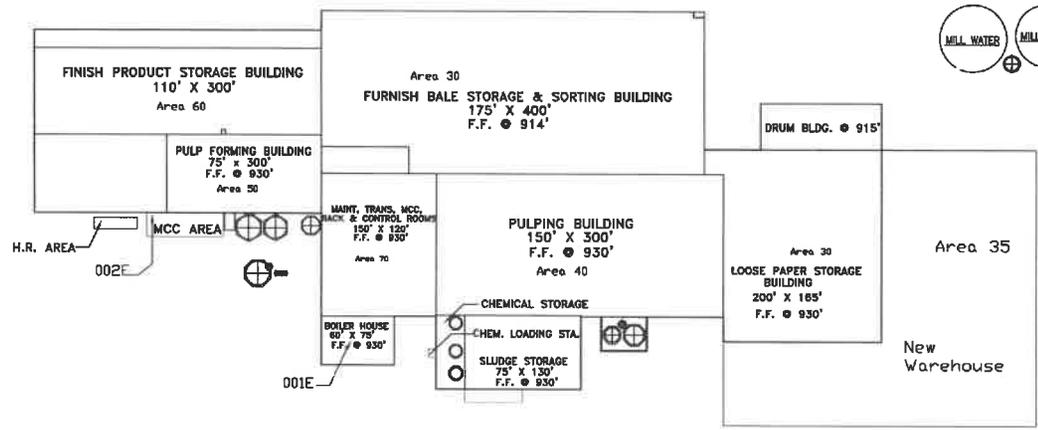
**40 CFR 63, Subpart S** – National Emission Standards for Hazardous Air Pollutants from the Pulp and Paper Industry

Although there are no changes to the existing boiler, the following MACT will apply since the facility will be a major source of HAPs.

**40 CFR 63, Subpart DDDDD** – National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial Commercial and Institutional Boilers and Process Heaters

**ATTACHMENT E – Plot Plan**

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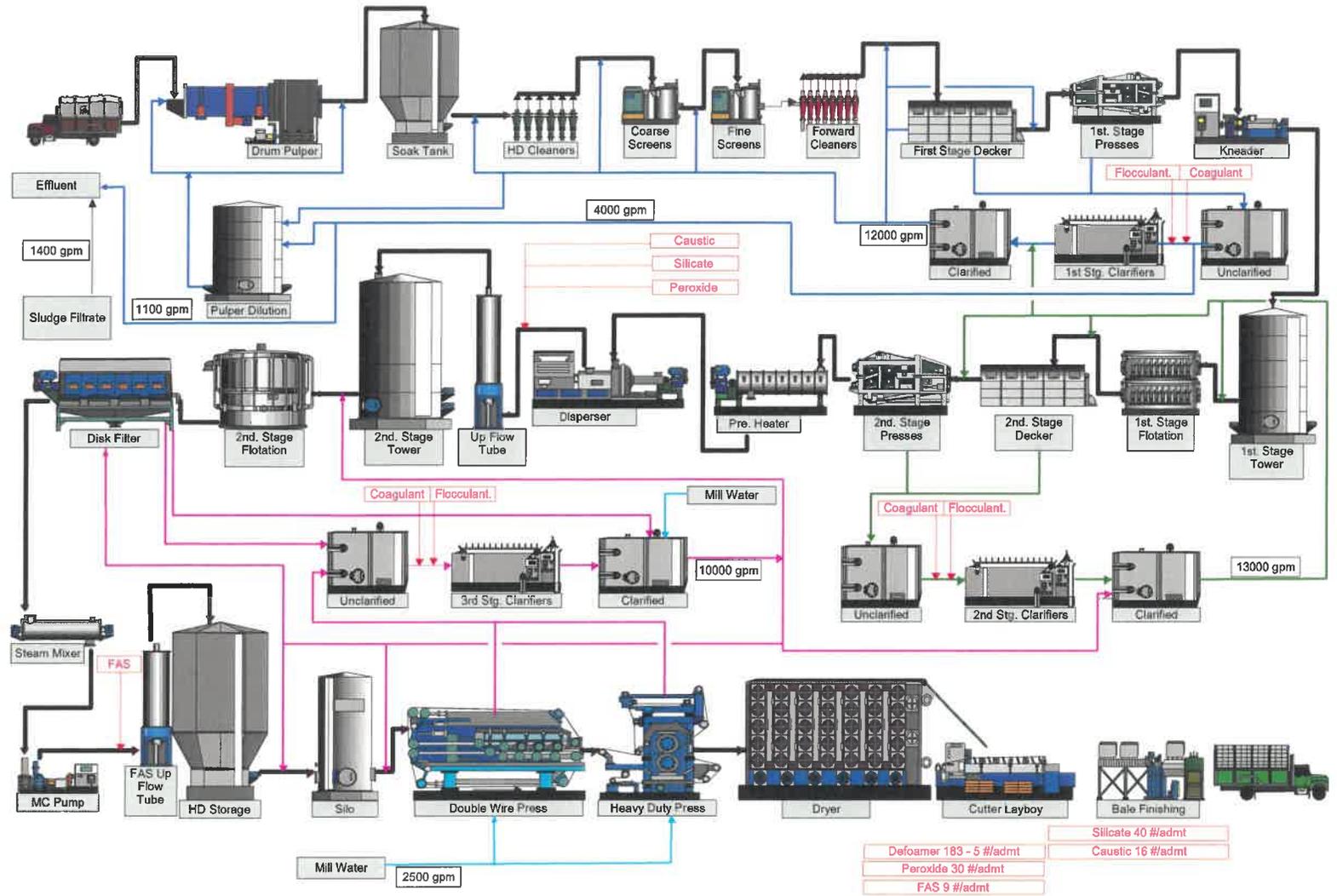


NO SCALE

FIBREK US, INC.  
 FACILITY PLOT PLAN  
 ATTACHMENT B

REFERENCE:  
 PLOT PLAN PROVIDED BY SKF PULP RECYCLING U.S., INC.

ATTACHMENT F – Detailed Process Flow Diagram(s)



**ATTACHMENT G – Process Description**

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# Attachment G

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## Process Description

The facility is a de-inked market pulp mill. Office waste paper is pulped, cleaned of contaminants, washed and pressed. Ink and adhesives are removed. The pulp is thickened, bleached, dewatered, and dried to form a final pulp sheet. Hydrogen peroxide, sodium bisulfate, sodium borohydride, and sodium silicate are used in the bleaching processes. No chlorine is used. Safety Data Sheets are included in Attachment H.

A natural gas fueled boiler provides steam that is used in the dryer. Emissions from the boiler are products of combustion. Air pollutant emissions from the dryer consist of particulate matter, VOCs, and hazardous air pollutants (HAP).

The facility was purchased in late 2018 by ND Paper LLC. The new owners wish to increase production. As a result, the potential air pollutant emissions from the dryer will increase. The potential methanol emissions from the dryer will exceed ten (10) tons per year and total potential HAP emissions will exceed 25 tons per year. The facility will become a major source of HAPs and will become subject to 40 CFR 63, Subpart DDDDD and 40 CFR 63, Subpart S.

ATTACHMENT H – Material Safety Data Sheets (MSDS)

### Material Safety Data Sheet Hydrogen Peroxide 70% Standard

MSDS #: 7722-84-1-70-10  
Revision Date: 2014-05-06  
Version 1



This MSDS has been prepared to meet U.S. OSHA Hazard Communication Standard 29 CFR 1910.1200 And Canadian Workplace Hazardous Materials Information System (WHMIS) requirements.



<b>Product name</b>	<b>Hydrogen Peroxide 70% Standard</b>
<b>Formula</b>	<b>HO - OH</b>
<b>Recommended use:</b>	<b>Industrial bleaching, processing, pollution abatement and general oxidation reactions</b>
<b>Manufacturer</b>	<b>Emergency telephone number</b>
PeroxyChem LLC 1735 Market Street Philadelphia, PA 19103 Phone: +1 215/ 299-5858 (General Information) E-Mail: sdsinfo@peroxychem.com	For leak, fire, spill or accident emergencies, call: 1 800 / 424 9300 (CHEMTREC - U.S.A.) 1 703 / 527 3887 (CHEMTREC - Collect - All Other Countries) 1 613/ 996-6666 (CANUTEC - Canada) 1 303/ 389-1409 (Medical - U.S. - Call Collect)
PeroxyChem Canada PG Pulp Mill Road Prince George, BC V2N2S6 1+ 250/ 561-4200 (General Information)	1 281 / 474-8750 (Bayport, Texas Plant) 1 250 / 561-4221 (Prince George, BC, Canada Plant)



**Emergency Overview**

Clear, colorless liquid  
Oxidizer; Contact with combustible material may cause fire.  
Decomposes under fire conditions to release oxygen that intensifies the fire.  
Decomposes yielding oxygen that can cause overpressure if confined

**Potential health effects**

<b>Principle Routes of Exposure</b>	<b>Eye contact; Skin contact</b>
<b>Eyes</b>	<b>Corrosive, Causes serious eye damage.</b>
<b>Skin</b>	<b>Corrosive; Causes skin burns.</b>
<b>Inhalation</b>	<b>Irritating to respiratory system.</b>
<b>Ingestion</b>	<b>Harmful if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.</b>

**Hydrogen Peroxide 70% Standard**

**MSDS #: 7722-84-1-70-10**  
**Revision Date: 2014-05-06**  
**Version 1**

**COMPOSITION INFORMATION ON INGREDIENTS**

**Ingredients**

Chemical Name	CAS-No	Weight %
Hydrogen peroxide	7722-84-1	70
Water	7732-18-5	30

**FIRST AID MEASURES**

**Eye contact** Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing. Seek immediate medical attention/advice.

**Skin contact** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

**Inhalation** Move to fresh air. If person is not breathing, contact emergency medical services, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

**Ingestion** Rinse mouth. Do not induce vomiting. If conscious, give 2 glasses of water. Get immediate medical attention. Never give anything by mouth to an unconscious person.

**Indication of immediate medical attention and special treatment needed, if necessary** Hydrogen peroxide at these concentrations is a strong oxidant. Direct contact with the eye is likely to cause corneal damage especially if not washed immediately. Careful ophthalmologic evaluation is recommended and the possibility of local corticosteroid therapy should be considered. Because of the likelihood of corrosive effects on the gastrointestinal tract after ingestion, and the unlikelihood of systemic effects, attempts at evacuating the stomach via emesis induction or gastric lavage should be avoided. There is a remote possibility, however, that a nasogastric or orogastric tube may be required for the reduction of severe distension due to gas formation.

**FIREFIGHTING MEASURES**

**Flammable properties** Contact with combustible material may cause fire.

**Flash Point** Not combustible

**Suitable extinguishing media** Water. Do not use any other substance.

**Uniform Fire Code** Oxidizer: Class 3--Liquid

**Hazardous combustion products** On decomposition product releases oxygen which may intensify fire.

**Explosion Data**  
**Sensitivity to Mechanical Impact** Not sensitive.  
**Sensitivity to Static Discharge** Not sensitive.

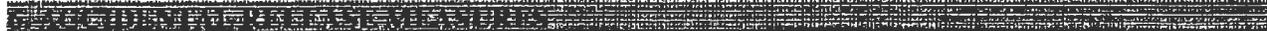
**Specific hazards arising from the chemical** In closed unventilated containers, risk of rupture due to the increased pressure from decomposition.

**Protective equipment and precautions for firefighters** Use water spray to cool fire exposed surfaces and protect personnel. Move containers from fire area if you can do it without risk. As in any fire, wear self-contained breathing apparatus and full protective gear.

<b>NFPA</b>	<b>Health Hazard 3</b>	<b>Flammability 0</b>	<b>Stability 3</b>	<b>Special Hazards OX</b>
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**Hydrogen Peroxide 70% Standard**

MSDS #: 7722-84-1-70-10  
Revision Date: 2014-05-06  
Version 1



**Personal precautions** Avoid contact with skin, eyes and clothing. Wear personal protective equipment. Isolate and post spill area. Keep people away from and upwind of spill/leak. Eliminate all sources of ignition and remove combustible materials.

**Methods for containment** Dike to collect large liquid spills Stop leak and contain spill if this can be done safely Small spillage: Dilute with large quantities of water

**Methods for cleaning up** Flush area with flooding quantities of water. Hydrogen peroxide may be decomposed by adding sodium metabisulfite or sodium sulfite after diluting to about 5%.

**Other** Combustible materials exposed to hydrogen peroxide should be immediately submerged in or rinsed with large amounts of water to ensure that all hydrogen peroxide is removed. Residual hydrogen peroxide that is allowed to dry (upon evaporation hydrogen peroxide can concentrate) on organic materials such as paper, fabrics, cotton, leather, wood or other combustibles can cause the material to ignite and result in fire.



**Handling** Use only in well-ventilated areas. Keep/Store away from clothing/ combustible materials. Wear personal protective equipment. Never return unused hydrogen peroxide to original container. Contamination may cause decomposition and generation of oxygen gas which could result in high pressures and possible container rupture. Empty drums should be triple rinsed with water before discarding. Utensils used for handling hydrogen peroxide should only be made of glass, stainless steel, aluminum or plastic. Pipes and equipment should be passivated before first use. Hydrogen peroxide should be stored only in vented containers and transferred only in a prescribed manner.

**Storage** Keep containers in cool areas out of direct sunlight and away from combustibles. Provide mechanical general and/or local exhaust ventilation to prevent release of vapor or mist into work environment. Containers must be vented. Store in original container only. Store rooms or warehouses should be made of non-combustible materials with impermeable floors. In case of release, spillage should flow to safe area. Containers should be visually inspected on a regular basis to detect any abnormalities (swollen drums, increases in temperature, etc.).



**Exposure guidelines**

Ingredients with workplace control parameters.

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH	Mexico
Hydrogen peroxide 7722-84-1	TWA: 1 ppm	TWA: 1 ppm TWA: 1.4 mg/m <sup>3</sup>	IDLH: 75 ppm TWA: 1 ppm TWA: 1.4 mg/m <sup>3</sup>	Mexico: TWA 1 ppm Mexico: TWA 1.5 mg/m <sup>3</sup> Mexico: STEL 2 ppm Mexico: STEL 3 mg/m <sup>3</sup>
Chemical Name	British Columbia	Quebec	Ontario TWA/EV	Alberta
Hydrogen peroxide 7722-84-1	TWA: 1 ppm	TWA: 1 ppm TWA: 1.4 mg/m <sup>3</sup>	TWA: 1 ppm	TWA: 1 ppm TWA: 1.4 mg/m <sup>3</sup>

**Occupational exposure controls**

**Engineering measures** Showers. Eyewash stations. Ventilation systems.

**General Information** Protective engineering solutions should be implemented and in use before personal protective equipment is considered.

**Respiratory protection** If concentrations in excess of 10 ppm are expected, use NIOSH/DHHS approved self-contained breathing apparatus (SCBA) or other approved air-supplied respirator (ASR) equipment (e.g., a full-face airline respirator (ALR)). DO NOT use any form of air-purifying respirator (APR) or filtering facepiece (dust mask), especially those containing oxidizable sorbents such as activated carbon.

**Hydrogen Peroxide 70% Standard**

**MSDS #: 7722-84-1-70-10**  
**Revision Date: 2014-05-06**  
**Version 1**

<b>Eye/face protection</b>	Use chemical splash-type monogoggles and a full-face shield made of polycarbonate, acetate, polycarbonate/acetate, PETG or thermoplastic.
<b>Skin and body protection</b>	For body protection wear impervious clothing such as an approved splash protective suit made of SBR rubber, PVC (PVC Outershell w/Polyester Substrate), Gore-Tex (Polyester trilaminate w/Gore-Tex), or a specialized HAZMAT Splash or Protective Suite (Level A, B, or C). For foot protection, wear approved boots made of NBR, PVC, Polyurethane, or neoprene. Overboots made of Latex or PVC, as well as firefighter boots or specialized HAZMAT boots are also permitted. DO NOT wear any form of boot or overboot made of nylon or nylon blends. DO NOT USE cotton, wool or leather as these materials react rapidly with higher concentrations of hydrogen peroxide. Completely submerge hydrogen peroxide contaminated clothing or other materials in water prior to drying. Residual hydrogen peroxide, if allowed to dry on materials such as paper, fabrics, cotton, leather, wood or other combustibles, can cause the material to ignite and result in a fire.
<b>Hand protection</b>	For hand protection, wear approved gloves made of nitrile, PVC, or neoprene. DO NOT use cotton, wool or leather for these materials react RAPIDLY with higher concentrations of hydrogen peroxide. Thoroughly rinse the outside of gloves with water prior to removal. Inspect regularly for leaks.
<b>Other Protective Equipment</b>	Ensure that eyewash stations and safety showers are close to the workstation location
<b>Hygiene measures</b>	Avoid breathing vapors, mist or gas. Clean water should be available for washing in case of eye or skin contamination.

**PHYSICAL AND CHEMICAL PROPERTIES**

Information on basic physical and chemical properties

<b>Appearance</b>	Clear, colorless liquid
<b>Physical state</b>	Liquid
<b>Odor</b>	Odorless
<b>pH</b>	<= 1
<b>Melting Point/Range</b>	No information available.
<b>Freezing point</b>	-40 °C
<b>Boiling Point/Range</b>	125 °C
<b>Flash Point</b>	Not combustible
<b>Evaporation rate</b>	>1 (BuAc = 1)
<b>Flammable properties</b>	Contact with combustible material may cause fire.
<b>Oxidizing properties</b>	Powerful oxidizer
<b>Vapor pressure</b>	11 mm Hg @ 30 °C
<b>Vapor density</b>	No information available
<b>Specific Gravity</b>	1.29
<b>Water solubility</b>	Completely Soluble
<b>Percent volatile</b>	100%
<b>Partition coefficient</b>	log Kow = -1.5 @ 20 °C
<b>Viscosity</b>	1.24 cP @ 20 °C
<b>Autoignition Temperature</b>	Not combustible

**HAZARD IDENTIFICATION**

<b>Stability</b>	Stable under normal conditions. Decomposes on heating. Stable under recommended storage conditions.
<b>Conditions to avoid</b>	Excessive heat; Contamination; Exposure to UV-rays; pH variations.
<b>Materials to avoid</b>	Combustible materials. Copper alloys, galvanized iron. Strong reducing agents. Heavy metals. Iron. Copper alloys. Contact with metals, metallic ions, alkalis, reducing agents and organic matter (such as alcohols or terpenes) may produce self-accelerated thermal decomposition.
<b>Hazardous decomposition products</b>	Oxygen which supports combustion. Liable to produce overpressure in container.
<b>Hazardous polymerization</b>	Hazardous polymerization does not occur.

**Hydrogen Peroxide 70% Standard**

MSDS #: 7722-84-1-70-10

Revision Date: 2014-05-06

Version 1

**Hazardous reactions** Contact with organic substances may cause fire or explosion. Contact with metals, metallic ions, alkalis, reducing agents and organic matter (such as alcohols or terpenes) may produce self-accelerated thermal decomposition.

**Acute effects****Eye irritation**

Corrosive

**Skin irritation**

Corrosive

**LD50 Oral**

50% solution: LD50 &gt; 225 mg/kg bw (Rat)

35 % solution: LD50 1193 mg/kg bw (rat)

70 % solution: LD50 1026 mg/kg bw (rat)

**LD50 Dermal**

35% solution: LD50 &gt; 2000 mg/kg bw (rabbit)

70 % solution: LD50 9200 mg/kg bw (rabbit)

**LC50 Inhalation**50% solution: LC50 > 170 mg/m<sup>3</sup> (Rat) (4-hr)Hydrogen Peroxide vapors: LC0 9400 mg/m<sup>3</sup> (mouse) (5 - 15 minutes)Hydrogen Peroxide vapors: LC50 > 2160 mg/m<sup>3</sup> (mouse)**Sensitization**

Did not cause sensitization on laboratory animals

**Chronic Toxicity****Carcinogenicity**

This product contains hydrogen peroxide. The International Agency for Research on Cancer (IARC) has concluded that there is inadequate evidence for carcinogenicity of hydrogen peroxide in humans, but limited evidence in experimental animals (Group 3 - not classifiable as to its carcinogenicity to humans). The American Conference of Governmental Industrial Hygienists (ACGIH) has concluded that hydrogen peroxide is a 'Confirmed Animal Carcinogen with Unknown Relevance to Humans' (A3)

Chemical Name	ACGIH	IARC	NTP	OSHA
Hydrogen peroxide	A3	3		

**Mutagenicity**

This product is not recognized as mutagenic by Research Agencies  
In vivo tests did not show mutagenic effects

**Target Organ Effects**

Eyes, Respiratory system, Skin.

**Hydrogen Peroxide 70% Standard**

**MSDS #: 7722-84-1-70-10**

**Revision Date: 2014-05-06**

**Version 1**

**ECOTOXICOLOGICAL INFORMATION**

**Ecotoxicity**

Hydrogen peroxide is naturally produced by sunlight (between 0.1 and 4 ppb in air and 0.001 to 0.1 mg/L in water). Not expected to have significant environmental effects.

**Hydrogen peroxide (7722-84-1)**

Active Ingredient(s)	Duration	Species	Value	Units
Hydrogen Peroxide	96 h LCS0	Fish <i>Pimephales promelas</i>	16.4	mg/L
Hydrogen Peroxide	72 h LCS0	Fish <i>Leuciscus idus</i>	35	mg/L
Hydrogen Peroxide	48 h ECS0	<i>Daphnia pulex</i>	2.4	mg/L
Hydrogen Peroxide	24 h ECS0	<i>Daphnia magna</i>	7.7	mg/L
Hydrogen Peroxide	72 h ECS0	Algae <i>Skeletonema costatum</i>	1.38	mg/L
Hydrogen Peroxide	21 d NOEC	<i>Daphnia magna</i>	0.63	mg/L

**Persistence and degradability**

Hydrogen peroxide in the aquatic environment is subject to various reduction or oxidation processes and decomposes into water and oxygen. Hydrogen peroxide half-life in freshwater ranged from 8 hours to 20 days, in air from 10 - 20 hours, and in soils from minutes to hours depending upon microbiological activity and metal contamination.

**Bioaccumulation**

Material may have some potential to bioaccumulate but will likely degrade in most environments before accumulation can occur.

**Mobility**

Will likely be mobile in the environment due to its water solubility but will likely degrade over time.

**Other adverse effects**

Decomposes into oxygen and water. No adverse effects.

**DISPOSAL CONSIDERATIONS**

**Waste disposal methods**

Dispose of in accordance with local regulations. Can be disposed as waste water, when in compliance with local regulations.

**RCRA D Waste Code**

D001 (ignitable), D002 (corrosive).

**Contaminated packaging**

Dispose of in accordance with local regulations.  
Drums - Empty as thoroughly as possible. Triple rinse drums before disposal. Avoid contamination; impurities accelerate decomposition. Never return product to original container.

**PREPARATION FOR TRANSPORTATION**

**DOT**

UN/ID No 2015  
 Proper shipping name HYDROGEN PEROXIDE, AQUEOUS SOLUTION, STABILIZED  
 Hazard Class 5.1 (Oxidizer)  
 Subsidiary Class 8  
 Packing group I

**IDG**

UN/ID No UN 2015  
 Proper shipping name HYDROGEN PEROXIDE, AQUEOUS SOLUTION, STABILIZED  
 Hazard Class 5.1 (Oxidizer)  
 Subsidiary Class 8  
 Packing group I

**ICAO/IATA**

Hydrogen peroxide (>40%) is forbidden on Passenger and Cargo Aircraft.

**IMDG/IMO**

UN/ID No 2015  
 Proper shipping name HYDROGEN PEROXIDE, AQUEOUS SOLUTION, STABILIZED  
 Hazard Class 5.1

**Hydrogen Peroxide 70% Standard**

**MSDS #: 7722-84-1-70-10**  
**Revision Date: 2014-05-06**  
**Version 1**

**Subsidiary hazard class** 8  
**Packing group** I

**Other information** Protect from physical damage Keep drums in upright position Drums should not be stacked in transit Do not store drums on wooden pallets

**REGULATORY INFORMATION**

**International Inventories**

TSCA Inventory (United States of America)	Complies
DSL (Canada)	Complies
NDSL (Canada)	Complies
ENECS/ELINCS (Europe)	Complies
ENCS (Japan)	Complies
IECSC (China)	Complies
KECL (Korea)	Complies
PICCS (Philippines)	Complies
AICS (Australia)	Complies
NZIoC (New Zealand)	Complies

**U.S. Federal Regulations**

**SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

**SARA 311/312 Hazard Categories**

Acute Health Hazard	Yes
Chronic Health Hazard	no
Fire Hazard	yes
Sudden Release of Pressure Hazard	no
Reactive Hazard	no

**CERCLA**

Chemical Name	Hazardous Substances RQs	Extremely Hazardous Substances RQs
Hydrogen peroxide		1000 lb

**SARA 302/CERCLA 355 Extremely Hazardous Substances:** Hydrogen Peroxide RQ is for concentrations of > 52% only

**International Regulations**

**Mexico - Grade** Serious risk, Grade 3

Chemical Name	Carcinogen Status	Mexico
Hydrogen peroxide	A3	Mexico: TWA 1 ppm Mexico: TWA 1.5 mg/m <sup>3</sup> Mexico: STEL 2 ppm Mexico: STEL 3 mg/m <sup>3</sup>

**Canada**

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

**WHMIS Hazard Class**

- C Oxidizing materials
- D1B Toxic materials
- E Corrosive material
- F Dangerously reactive material



**Hydrogen Peroxide 70% Standard**

**MSDS #: 7722-84-1-70-10**  
**Revision Date: 2014-05-06**  
**Version 1**

**REGULATORY INFORMATION**

<b>HMIS</b>	<b>Health Hazard 3</b>	<b>Flammability 0</b>	<b>Stability 3</b>	<b>Special precautions H</b>
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**Product Certifications**

**Revision Date:** 2014-05-06  
**Reason for revision:** Initial Release.

**Disclaimer**

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**Prepared By**

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End of Material Safety Data Sheet



**SOUTHERN IONICS INCORPORATED (SII)**  
**SAFETY DATA SHEET**

SDS NO. 207  
 Effective Date: April 17, 2015  
 Revision Date:

**I. Product and Company Information**

<b>SII Product Name(s):</b>	Sodium Bisulfite Solution	<b>Synonym:</b>	SBS
<b>Chemical Name:</b>	Sodium Bisulfite Solution	<b>CAS Number:</b>	7631-90-5
<b>Manufacturer's Name:</b> Southern Ionics Incorporated 210 Commerce Street West Point, MS 39773 Customer Service: 1-800-953-3585 Web Site <a href="http://www.southernionics.com">www.southernionics.com</a>		<b>Emergency Contacts:</b> Afterhours (Southern Ionics)1-888-610-2379  For Chemical Emergency, Spill or Accident Call CHEMTREC at 1-800-424-9300 CHEMTREC CCN - 20596	

**II. Hazard Identification**

<b>OSHA HCS / GHS Classification(s):</b>		<b>Hazard Statement(s):</b>																							
Acute Toxicity Oral, Category 4		Harmful if swallowed.																							
Skin Irritation, Category 3		Causes mild skin irritation.																							
Eye Irritation, Category 2A		Causes serious eye irritation.																							
Specific Target Organ Toxicity - Single Exposure, Category 3		May cause respiratory irritation.																							
Corrosive to Metals, Category 1		May be corrosive to metals.																							
<b>Signal Word:</b>	<b>Precautionary Statement(s):</b>																								
Warning	<table border="1"> <tr> <td><b>Prevention:</b></td> <td>Wash affected body parts after handling.</td> </tr> <tr> <td></td> <td>Do not eat, drink or smoke when using this product.</td> </tr> <tr> <td></td> <td>Avoid breathing vapors.</td> </tr> <tr> <td></td> <td>Wear eye / face protection.</td> </tr> <tr> <td></td> <td>Use in well ventilated areas.</td> </tr> <tr> <td></td> <td>Keep in original container.</td> </tr> <tr> <td><b>Response:</b></td> <td>IF SWALLOWED: Rinse mouth and call a doctor if you feel unwell.</td> </tr> <tr> <td></td> <td>IF INHALED: Remove victim to fresh air and keep comfortable for breathing.</td> </tr> <tr> <td></td> <td>IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing.</td> </tr> <tr> <td></td> <td>If eye irritation persists: Get medical attention.</td> </tr> <tr> <td></td> <td>If skin irritation occurs: Get medical attention.</td> </tr> <tr> <td></td> <td>For specific treatment: See First Aid section IV.</td> </tr> </table>	<b>Prevention:</b>	Wash affected body parts after handling.		Do not eat, drink or smoke when using this product.		Avoid breathing vapors.		Wear eye / face protection.		Use in well ventilated areas.		Keep in original container.	<b>Response:</b>	IF SWALLOWED: Rinse mouth and call a doctor if you feel unwell.		IF INHALED: Remove victim 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 so. Continue rinsing.		If eye irritation persists: Get medical attention.		If skin irritation occurs: Get medical attention.		For specific treatment: See First Aid section IV.
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	If skin irritation occurs: Get medical attention.																								
	For specific treatment: See First Aid section IV.																								
<b>Symbol(s):</b>																									

**III. Composition / Information on Ingredients**

<b>Chemical Name:</b>	<b>CAS Reg #'s</b>	<b>%</b>
Sodium Bisulfite(NaHSO <sub>3</sub> )	7631-90-5	15-44
Sodium Sulfite (Na <sub>2</sub> SO <sub>3</sub> )	7757-83-7	<1
Sodium Sulfate (Na <sub>2</sub> SO <sub>4</sub> )	7757-82-6	<4
Water	7732-18-5	Balance

#### IV. First Aid Measures

<b>Eyes:</b>	Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Remove any contact lenses. Seek medical attention, if you feel unwell.
<b>Dermal / Skin:</b>	Remove contaminated clothing and wash exposed area thoroughly with soap and water. Seek medical attention, if you feel unwell.
<b>Inhalation:</b>	Move to fresh air immediately. If breathing is difficult, give oxygen. Seek medical attention, if you feel unwell.
<b>Ingestion:</b>	If swallowed, DO NOT induce vomiting. Rinse mouth, Seek medical attention, if you feel unwell.

#### V. Fire Fighting Measures

<b>NFPA Hazard Rating:</b>	Health (Blue)	Fire (Red)	Reactivity (Yellow)	Special Instructions (White)
	2	0	1	None
<b>NFPA Hazard Classification: 0 = Least 1=Slight 2= Moderate 3= High 4= Extreme</b>				
<b>Extinguishing Media:</b>	Use extinguishing media appropriate for surrounding fire.			
<b>Special Firefighting Procedure:</b>	Wear NIOSH-approved self-contained breathing apparatus (SCBA). Use water spray to keep containers cool and to knock down fumes. CAUTION: when subject to excess heat, product releases additional sulfur dioxide gas.			

#### VI. Accidental Release Measures

<b>Precaution if Spilled or Released:</b>	Steps should be taken to contain spilled liquids and prevent discharges to streams or sewer systems.
<b>Neutralizing Chemicals:</b>	Neutralize with appropriate alkali such as sodium hydroxide, or soda ash to neutral pH. Avoid conditions where the pH of spilled material is maintained at lower than pH 6, since sulfur dioxide can be released at ambient temperatures below this pH.

#### VII. Handling and Storage

<b>Handling:</b>	Handle all chemicals with respect. Keep separated from incompatible substances. Handle only with equipment, materials and supplies specified by their manufacturer as being compatible and appropriate for use with this product.
<b>Storage:</b>	Store at appropriate temperature to protect from freezing or crystallization. Consult the appropriate SII Product Bulletin for temperature recommendations. Do not store this material near food, animal feed or drinking water. Store in well ventilated area. Store away from excessive heat (e.g. steam pipes, radiators), and from reactive materials. Keep container tightly closed when not in use.

#### VIII. Exposure Control / Personal Protective Equipment

<b>Component Workplace Control Parameters:</b>				
<b>Components:</b>	<b>CAS-No.</b>	<b>Value</b>	<b>Parameters</b>	<b>Basis</b>
Sodium Bisulfite	7631-90-5	TWA	5 mg/m3	solid sodium bisulfite (metabisulfite)
<b>Engineering Controls:</b>	Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.			
<b>General Hygiene:</b>	Practice good personal hygiene after using this material, especially before eating, drinking, smoking or using the toilet			
<b>Personal Protection Equipment:</b>				
<b>Eye:</b>	Use chemical splash goggles and face shield. Eye protection worn must be compatible with respiratory protection system employed.			
<b>Skin:</b>	Chemically resistant gloves should be worn whenever this material is handled. Gloves should be removed and replaced immediately if there is any indication of degradation or chemical breakthrough.			

<b>Respiratory:</b>	None required under normal conditions. When conditions warrant a respirator, use NIOSH approved respirator and cartridge for particulates and Sulfur Dioxide.			
<b>Other Protective Items:</b>	Where splash is possible, full chemically resistant protective clothing and boots are required. Ensure that eyewash stations and safety showers are proximal to the work-station location.			
<b>HMIS Classification:</b>	Health (Blue)	Flammability (Red)	Physical Hazard (Yellow)	PPE (White)
	2	0	1	See Above
<b>Hazard Classification: 0 = Minimal 1=Slight 2= Moderate 3= Serious 4= Severe</b>				

<b>IX. Physical and Chemical Properties</b>			
<b>Physical State:</b>	Liquid	<b>pH:</b>	3.5 to 5.0
<b>Appearance:</b>	Clear to yellow	<b>Molecular Weight:</b>	104.1 for NaHSO <sub>3</sub>
<b>Odor:</b>	Pungent odor	<b>Odor Threshold:</b>	No Data Available
<b>Specific Gravity:(H<sub>2</sub>O=1)</b>	1.13 to 1.38 @ 77°F/25°C	<b>Weight per gallon (lbs)</b>	9.4 to 11.3 @ 77°F/25°C
<b>Vapor Density: (Air=1)</b>	Similar to water	<b>Vapor Pressure:</b>	≤ 32 mm Hg total (12 mm Hg SO <sub>2</sub> ) @ 77°F/25°C
<b>Boiling Point:</b>	217°F /103°C Estimated	<b>Freezing/Melting Point:</b>	15.8°F/ -9°C
<b>Lower Explosive Limit</b>	Not Applicable	<b>Upper Explosive Limit</b>	Not Applicable
<b>Flash Point</b>	Not Applicable	<b>Autoignition Temp.</b>	Not Applicable
<b>Solubility in water:</b>	Dilutable	:	
<b>Other:</b>			

<b>X. Stability and Reactivity Data</b>	
<b>Chemical Stability:</b>	Product is stable under normal or expected use.
<b>Conditions To Avoid:</b>	Avoid exposure to excessive heat.
<b>Incompatible Materials:</b>	Avoid contact with the following: acids and oxidizing agents.
<b>Hazardous Products of Decomposition:</b>	Thermal decomposition may yield the following: sulfur dioxide – toxic fumes.

<b>XI. Toxicological Information</b>						
<b>Routes of Entry:</b>	<input checked="" type="checkbox"/> Eyes <input checked="" type="checkbox"/> Skin <input checked="" type="checkbox"/> Ingestion <input checked="" type="checkbox"/> Inhalation					
<b>Sign and symptoms of Exposure:</b>	May cause irritation to eyes, skin and respiratory passages.					
<b>Eye Contact:</b>	Causes serious eye irritation.					
<b>Ingestion:</b>	May be harmful if swallowed.					
<b>Skin Contact:</b>	Causes mild skin irritation.					
<b>Inhalation:</b>	May be harmful if inhaled. May cause respiratory tract irritation.					
<b>Carcinogenicity:</b>	NPT	Not Listed	IARC	Not Listed	OSHA	Not Regulated
<b>Ingredient Name:</b>	<b>Species</b>		<b>Test</b>		<b>Route</b>	<b>Results</b>
Sodium Bisulfite Solution	Rat		2000 mg/kg		oral	LD50
<b>Comments:</b>	Sulfite sensitive individuals may experience an allergic reaction.					

<b>XII. Ecological Information</b>				
<b>Ingredient Name:</b>	<b>Species</b>	<b>Test</b>	<b>Period</b>	<b>Results</b>
Sodium Bisulfite Solution	Mosquitofish	240ppm	96 hours	LC50
<b>Comments:</b>				

<b>XIII. Disposal Considerations</b>	
<b>Waste Disposal:</b>	Always dispose of material in accordance with local, state, and federal regulations.

### XIV. Transportation Information

<b>Proper Shipping Name:</b>	Bisulfites, aqueous solutions, n.o.s. (contains Sodium Bisulfite)		
<b>DOT Classification:</b>	8		
<b>Identification Number:</b>	UN2693	<b>Packing Group:</b>	III
		<b>Other Labels:</b>	Corrosive

### XV. Regulatory Information

Inventory Status:		US Regulations:	
U. S. TSCA	Yes	SARA 302 TPQ	Not Listed
Europe EINECS	Yes	SARA 304 RQ	Not Listed
Canadian DSL	Yes	SARA 313 List	Not Listed
Japan ENCS	Yes	CERCLA (RQ)	5,000 lbs on dry weight basis for sodium bisulfite.
Korean KECI	Yes	RCRA 261.33	Not Listed
Philippines PICCS	Yes	CAA-112-r	Not Listed
Australian AICS	Yes		
		SARA 311/312	<input checked="" type="checkbox"/> Acute <input type="checkbox"/> Chronic <input type="checkbox"/> Fire <input type="checkbox"/> Release of Pressure <input type="checkbox"/> Reactive
International Regulations:		Other Regulations:	
Canada WHIMS	D-2B	Material causing other toxic effects	California PROP 65 Not Listed
Canada WHIMS	E	Corrosive	FDA GRAS 21 CFR 182.3739
EINECS	231-548-0		

### XVI. Other Information

<b>NSF Certification:</b>	Sodium Bisulfite manufactured at Pasadena, TX, Williamsport, MD and Tuscaloosa, AL are NSF-60 Certified. Maximum use in potable water is 50 mg/l.
<b>Other:</b>	_____
<b>Revision Notes:</b>	_____
<b>MSDS Replacements</b>	<u>SII MSDS 048 Sodium Bisulfite Solution (15%-28%)</u> . <u>SII MSDS 118 Sodium Bisulfite Solution, 30%</u> . <u>SII MSDS 024 Sodium Bisulfite Solution (38%-44%)</u> and <u>SII MSDS 054 SI-SBS 40</u>

#### SALES OFFICE

**For Product Information:**  
 TEL: 662-494-3055  
 FAX: 662-494-2828

Post Office Drawer 1217  
 West Point, MS 39773

**To Place An Order:**  
 TEL: 800-953-3585  
 FAX: 800-953-3588

#### IMPORTANT

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# Safety Data Sheet



Revision Date: 03-12-2018

Replaces: 30-11-2018

## CHROMACLEAR\* Solution

### 1. Identification

<b>Product identifier used on the label:</b>	<b>CHROMACLEAR* Solution</b>
<b>Other means of identification:</b>	
<b>Synonyms:</b>	Sodium Borohydride Solution
<b>Recommended use of the chemical and restrictions on use:</b>	
<b>Recommended use:</b>	Reagent in chemicals purification. Reagent in fine chemicals synthesis. Hydride generating agent.
<b>Restrictions on use:</b>	Uses other than those described above
<b>Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party:</b>	Ascensus Specialties LLC 4800 State Route 12 Elma, WA 98541
<b>Telephone number:</b>	Non-Emergency Phone Elma 360-482-4350
<b>E-mail address:</b>	sds@ascensuspecialties.com
<b>Emergency phone number:</b>	Ascensus Specialties: 1-360-482-4350 CHEMTREC (USA): 1-800-424-9300 (collect calls accepted) CHEMTREC (International): 1-703-527-3887 (collect calls accepted) NRCC (China): +86 532 83889090

### 2. Hazard(s) identification

Classification of the chemical in accordance with paragraph (d) of §1910.1200:

**GHS Hazard Symbols:**



<b>GHS Classification:</b>	Acute Toxicity - Dermal Category 4 Hazardous to the aquatic environment - Acute Category 3 Acute Toxicity - Oral Category 3 Reproductive Toxicity Category 1B Serious Eye Damage/Eye Irritation Category 1 Skin Corrosion/Irritation Category 1 Substance or mixture corrosive to metals Category 1
<b>Signal Word:</b>	Danger

\*Trademark of Ascensus Specialties LLC in the United States or elsewhere.

# Safety Data Sheet



Revision Date: 03-12-2018

Replaces: 30-11-2018

## CHROMACLEAR\* Solution

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### Hazard Statements:

May be corrosive to metals  
Toxic if swallowed  
Harmful in contact with skin  
Causes severe skin burns and eye damage  
May damage fertility or the unborn child  
Harmful to aquatic life

### Precautionary Statements:

#### Prevention:

Obtain special instructions before use.  
Do not handle until all safety precautions have been read and understood.  
Keep only in original container.  
Do not breathe dust/fume/gas/mist/vapors/spray.  
Wash thoroughly after handling.  
Do not eat, drink or smoke when using this product.  
Avoid release to the environment.  
Wear protective gloves/protective clothing/eye protection/face protection.

#### Response:

If swallowed: Immediately call a poison center/doctor.  
If swallowed: Rinse mouth. Do NOT induce vomiting.  
If on skin: Wash with plenty of water.  
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.  
Specific treatment (see Sections 4 to 8 on this SDS and any additional information on this label).  
Take off contaminated clothing and wash it before reuse.  
Wash contaminated clothing before reuse.  
Absorb spillage to prevent material damage.

#### Storage:

Store locked up.  
Store in corrosive resistant container with a resistant inner liner.

#### Disposal:

Dispose of contents/container to a suitable disposal site in accordance with local/national/international regulations.

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## CHROMACLEAR\* Solution

**Hazards not otherwise classified:** None known  
**% unknown toxicity (Inhalation Vapor):** 100 % of the mixture consists of ingredient(s) of unknown toxicity  
**% unknown toxicity (Inhalation Dust):** 100 % of the mixture consists of ingredient(s) of unknown toxicity

### 3. Composition/information on ingredients

Chemical Name	Common name and synonyms	CAS #	%
Sodium Borohydride	None	16940-66-2	11.5 - 12.4
Sodium hydroxide	None	1310-73-2	30 - 40.4

One or more hazardous ingredient(s) is claimed as a trade secret under the OSHA Hazard Communication Standard. The hazards of this (these) ingredient(s) are given on this SDS.

### 4. First-aid measures

Description of necessary measures, subdivided according to the different routes of exposure, i.e., inhalation, skin and eye contact, and ingestion:

**Inhalation:** Remove from exposure. If not breathing, give artificial respiration and call a physician.

**Eye Contact:** Immediately flush eyes with plenty of water for at least 20 minutes. Get immediate medical attention. Hold eyelids apart periodically while flushing. Continue to flush eyes while awaiting medical attention.

**Skin Contact:** Immediately flush skin with plenty of water. Remove clothing. Get medical attention immediately. Wash clothing separately from other articles before reuse. Do NOT take contaminated clothing home.

**Ingestion:** Do not induce vomiting unless directed to do so by medical personnel. Immediately give 1 or 2 glasses of water and get prompt medical attention. Do not give anything by mouth to an unconscious person.

**Most important symptoms/effects, acute and delayed:** Sodium borohydride is corrosive to eyes, skin and mucous membranes. Toxic upon ingestion. Delayed Effects: None known.

**Indication of immediate medical attention and special treatment needed, if necessary:** Eye irrigation may be necessary for an extended period of time to remove as much caustic as possible. Duration of irrigation and treatment is at the discretion of medical personnel. If burn is present, treat as any thermal burn, after decontamination. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

### 5. Fire-fighting measures

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## CHROMACLEAR\* Solution

### Suitable (and unsuitable) extinguishing media:

**Suitable extinguishing media:** Will not burn, no special instructions available. Use methods appropriate for surrounding materials.

**Unsuitable extinguishing media:** None known

**Specific hazards arising from the chemical:** Heat, strong acids or dilution with large volumes of water can form hydrogen gas. Hydrogen is extremely flammable and can form explosive mixtures with air.

**Hazardous combustion products:** Not combustible

**Special protective equipment and precautions for fire-fighters:** Wear self-contained breathing apparatus and full protective clothing (i.e., Bunker gear). Skin and eye contact must be avoided due to corrosivity. Normal fire fighting procedures may be used.

### 6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures:** Remain upwind and use personal protective equipment. Avoid dust formation and remove all sources of ignition. See Section 8 for personal protective equipment recommendations. Remove all contaminated clothing to prevent further absorption. Decontaminate affected personnel using the first aid procedures in Section 4. Leather shoes that have been saturated must be discarded. Exposure to the spilled material may be severely irritating or toxic. Use personal protective equipment. Isolate the hazard area and deny entry to unnecessary and unprotected personnel.

**Methods and materials for containment and cleaning up:** Shut off ignition sources; including electrical equipment and flames. Do not allow smoking in the area. Ventilate the area of spill or leak. Wear protective equipment during clean-up. Non-sparking tools should be used. Store in a container equipped with a vent. Scoop up spill and place in approved chemical waste container. Avoid generation of dust clouds during clean-up. Dispose of contents & container in accordance with local, regional, national or international regulations.

### 7. Handling and storage

**Precautions for safe handling:** Wear appropriate protective equipment when performing maintenance on contaminated equipment. Wash hands thoroughly before eating or smoking after handling this material. Do not eat, drink or smoke in work areas. Prevent contact with incompatible materials. Avoid spills and keep away from drains. Handle in a manner to prevent generation of aerosols, vapors or dust clouds. Avoid contact with skin, eyes and

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## CHROMACLEAR\* Solution

clothing. Avoid contact with water. Do not breathe vapors or spray mist. Ensure adequate ventilation. Keep container tightly closed. Sodium borohydride solutions can liberate flammable hydrogen gas upon contact with acids, oxidizing agents, transition metals or water.

### Conditions for safe storage, including any incompatibilities:

#### Safe storage conditions:

Do not store near acids. store at room temperature in the original container. Do not store this material in containers made of glass or aluminium. Electrically bond and ground all containers and equipment before transfer or use of material. Store in a cool dry place Store in a tightly closed container

#### Materials to Avoid/Chemical Incompatibility:

Avoid water, acids, metals, aluminum, copper, zinc, oxidizing agents, alcohols and metal salts (such as Ni<sup>2+</sup>, Co<sup>2+</sup>, etc.)

## 8. Exposure controls/personal protection

OSHA permissible exposure limit (PEL), American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV), and any other exposure limit used or recommended by the chemical manufacturer, importer, or employer preparing the safety data sheet, where available:

Chemical component	OSHA PEL	ACGIH TLV	ACGIH STEL	IDLH
Sodium hydroxide	2 mg/m <sup>3</sup>	2 mg/m <sup>3</sup> Ceiling	2 mg/m <sup>3</sup>	10 mg/m <sup>3</sup>
Sodium Borohydride	0.1 mg/m <sup>3</sup>	0.1 mg/m <sup>3</sup>	0.1 mg/m <sup>3</sup>	Not established

#### Appropriate engineering controls:

All operations should be conducted in well-ventilated conditions.  
Local exhaust ventilation should be provided.

#### Individual protection measures, such as personal protective equipment:

##### Respiratory Protection:

Observe OSHA regulations for respirator use (29 CFR 1910.134). Air-purifying respirators must not be used in oxygen-deficient atmospheres.

##### Eye protection:

Wear chemical splash goggles.

##### Skin protection:

Wear full protective equipment including acid-resistant clothing, gloves and boots, chemical splash goggles and face shield (ANSI Z-87.1 or approved equivalent). MATERIAL IS CORROSIVE. Chemical resistant gloves.

##### Gloves:

Chemical resistant gloves (neoprene, nitrile/butadiene rubber ("nitrile")); a thickness greater than 0.38 mm is recommended.

##### Other protective equipment:

Chemical goggles. Chemical resistant gloves (butyl rubber, chlorinated polyethylene, natural rubber ("latex"), neoprene, nitrile/butadiene rubber ("nitrile"), polyethylene, ethyl vinyl alcohol laminate ("EVAL"),

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polyvinyl chloride ("PVC" or "vinyl"), styrene/butadiene rubber, Viton®.); a thickness greater than 0.38 mm is recommended. Avoid gloves made of Polyvinyl alcohol ("PVA"). Chemically resistant protective clothing such as face shield, boots, apron, or full body suit, depending on the exposure potential. Nationally approved air-purifying respirator with highly toxic particulate filters (HEPA filters). P2 filter required when aerosols can be formed for cleaning operations if >1 hour in duration.

### General hygiene conditions:

Do not eat, drink or smoke when using this product.

Wear protective gloves/protective clothing/eye protection/face protection.

### 9. Physical and chemical properties

#### Appearance (physical state, color etc.):

Physical state: Liquid  
Color: Clear, Colorless liquid

Odor: No Odor

Odor Threshold: No data available.

pH: 14.0

#### Melting point/freezing point (°C):

Melting Point (°C): No data available

Freezing point (°C): No data available

Initial boiling point and boiling range (°C): 130 - 135 C @ 760 MM HG

Flash Point (°C): No data available

Evaporation Rate: No data available

Flammability (solid, gas): Non-flammable

#### Upper/lower flammability or explosive limits:

Upper flammability or explosive limits: No data available.  
No data available

Lower flammability or explosive limits: Non-flammable

Vapor pressure: No data available

Vapor density: No data available.

Relative density: 1.4

Solubility(ies): Complete

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## CHROMACLEAR\* Solution

Partition coefficient: n-octanol/water:	No data available.
Auto-ignition temperature (°C):	No data available
Decomposition temperature (°C):	No data available
Viscosity:	60.43 mPa.s @ 20°C
Volatile Organic Chemicals:	0.00
Bulk Density:	No data available

### 10. Stability and reactivity

Reactivity:	Sodium borohydride solutions can liberate flammable hydrogen gas upon contact with acids, oxidizing agents, transition metals or water.
Chemical stability:	Stable under normal temperatures and pressures.
Possibility of hazardous reactions:	Polymerization is not expected to occur
Conditions to avoid (e.g., static discharge, shock, or vibration):	No data available.
Incompatible materials:	Avoid water, acids, metals, aluminum, copper, zinc, oxidizing agents, alcohols and metal salts (such as Ni <sup>2+</sup> , Co <sup>2+</sup> , etc.)
Hazardous decomposition products:	Hydrogen, Oxides of boron

### 11. Toxicological information

#### Description of the various toxicological (health) effects and the available data used to identify those effects:

**Information on the likely routes of exposure (inhalation, ingestion, skin and eye contact):** Skin contact and absorption, eye contact, and inhalation. Ingestion is not likely to be a primary route of exposure.

**Symptoms related to the physical, chemical and toxicological characteristics:** See Section 11 for further toxicological information. Delayed Effects: None known. Sodium borohydride is corrosive to eyes, skin and mucous membranes. Toxic upon ingestion.

#### Delayed and immediate effects and also chronic effects from short- and long-term exposure:

Ingestion Toxicity:	No data available
Skin Contact:	Corrosive to skin.
Absorption:	(Rabbit) 230 mg/ kg
Inhalation Toxicity:	No data available
Eye Contact:	Corrosive to eyes.
Sensitization:	Not a sensitizer

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<b>Mutagenicity:</b>	This product has been shown not to be mutagenic based on a battery of assays. For the hydrolysis product: Boric acid. In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.
<b>Reproductive and Developmental Toxicity:</b>	Classification has been based on toxicological information of the components in Section 3.
<b>Carcinogenicity:</b>	Unable to be tested due to reactivity. Hydrolysis product (Boric Acid) found negative for carcinogenic effects.
<b>STOT-single exposure:</b>	Based on available data, the classification criteria are not met.
<b>STOT-repeated exposure:</b>	Based on available data, the classification criteria are not met.
<b>Aspiration hazard:</b>	Based on available data, the classification criteria are not met.
<b>Other information:</b>	No reliable acute toxicity data for sodium hydroxide exists due to corrosivity.

### Numerical measures of toxicity (such as acute toxicity estimates):

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Sodium hydroxide	(rat) 140 mg/kg	(Rabbit) 1350 mg/ kg	No data available
Sodium Borohydride	(rat) 162 mg/kg	(Rabbit) 230 mg/ kg	(rat) 1.5 mg/L, 4 hrs

Is the hazardous chemical is listed in the National Toxicology Program (NTP) Report on Carcinogens (latest edition) or has been found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs (latest edition), or by OSHA:

Chemical Name	OSHA Carcinogen	LD50 Oral	NTP Carcinogen
There are no components that are known or reported to cause cancer			

### 12. Ecological information

**Ecotoxicity (aquatic and terrestrial, where available):** NOEC calculated based on fish toxicity of boric acid (most sensitive trophic level), equivalent to 5.6 mg boron/L.

#### Ecological Toxicity Data:

Chemical Name	CAS #	Aquatic EC50 Crustacea	Aquatic ERC50 Algae	Aquatic LC50 Fish
Sodium hydroxide	1310-73-2	48H Daphnia - 40.38 mg/L	No data available	96H Fish - 196 mg/L
Sodium Borohydride	16940-66-2	No data available	No data available	Aquatic LC50 (96h) MOSQUITO FISH

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## CHROMACLEAR\* Solution

5600 mg/L

<b>Persistence and degradability:</b>	Rapidly hydrolyzes in water to form sodium borate/boric acid and hydrogen gas.
<b>Bioaccumulative potential:</b>	The rapid hydrolysis of sodium borohydride, along with the high water solubility and low log Kow of boric acid indicates that this product is not capable of bioaccumulation.
<b>Mobility in soil:</b>	Soil mobility studies are not technically feasible given the rapid hydrolysis of this product, whose half-life ranges from seconds to minutes at environmentally relevant pH's.
<b>Other adverse effects (such as hazardous to the ozone layer):</b>	May increase pH of aquatic systems to >pH 10 which may be toxic to aquatic organisms.

### 13. Disposal considerations

<b>Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging:</b>	Dispose of this material responsibly, and in accordance with standard practice for disposal of potentially hazardous materials as required by applicable international, national, regional, state or local laws, and environmental protection duty of care principles. Do NOT dump into any sewers, on the ground, or into any body of water. For disposal within the EC, the appropriate classification code according to the European Community List of Wastes should be used. Note that disposal regulations may also apply to empty containers and equipment rinsates.  NOTE: Generator is responsible for proper waste characterization. State hazardous waste regulations may differ substantially from federal regulations.  Corrosive.
<b>Waste codes / waste designations:</b>	D002

### 14. Transport information

<b>Carriage of dangerous goods by road (DOT), rail or inland waterways:</b>	
<b>UN number:</b>	UN3320
<b>UN Proper shipping name:</b>	SODIUM BOROHYDRIDE AND SODIUM HYDROXIDE SOLUTION
<b>Transport hazard class(es):</b>	8
<b>Packing group, if applicable:</b>	II
<b>DOT Basic description:</b>	No data available

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## CHROMACLEAR\* Solution

### International carriage of dangerous goods by sea (IMDG/IMO):

UN number: UN3320  
UN Proper shipping name: SODIUM BOROHYDRIDE AND SODIUM HYDROXIDE SOLUTION  
Transport hazard class(es): 8  
Packing group, if applicable: II  
EMS#: S-B; F-A

### International carriage of dangerous goods by air (IATA):

UN number: UN3320  
UN Proper shipping name: SODIUM BOROHYDRIDE AND SODIUM HYDROXIDE SOLUTION  
Transport hazard class(es): 8  
Packing group, if applicable: II

Environmental hazards (e.g., Marine pollutant (Yes/No)): No

Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code): No data available

Special precautions which a user needs to be aware of or needs to comply with in connection with transport or conveyance either within or outside their premises: Consult IMO regulations before transporting in bulk by ocean.

### 15. Regulatory information

#### Safety, health and environmental regulations specific for the product in question:

TSCA Status: Listed

#### Regulated Components:

Chemical Name	CAS #	CERCLA	Sara EHS	Sara 313	U.S. HAP
Sodium hydroxide	1310-73-2	Y	N	N	N
Sodium Borohydride	16940-66-2	N	Y	N	N

Chemical Name	CAS #	California Prop 65 - Cancer	California Prop 65 - Dev. Toxicity	California Prop 65 - Reprod fem	California Prop 65 - Reprod male
Sodium hydroxide	1310-73-2	N	N	N	N
Sodium Borohydride	16940-66-2	N	N	N	N

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## CHROMACLEAR\* Solution

Chemical Name	CAS #	Massachusetts RTK List	New Jersey RTK List	Pennsylvania RTK List	Rhode Island RTK List	Minnesota Hazardous Substance List
Sodium hydroxide	1310-73-2	Y	Y	Y	N	N
Sodium Borohydride	16940-66-2	N	Y	Y	N	N

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

**SDS Prepared by:** JAYDEEP

**Revision Date:** 12-03-2018

**Revision Number:** 18

**Reason for revision:** Updated for toxicity data.

**Other Info:** This container may be hazardous when empty.  
Water, acid or high temperatures can liberate flammable hydrogen gas.

**Disclaimer:** Important Note: Please note that the information contained herein is furnished without warranty of any kind. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use and disposal of these materials and the safety and health of employees and customers. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. The information contained herein may change without prior notice. THIS SAFETY DATA SHEET SUPERSEDES ALL PREVIOUS EDITIONS.

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Trade Name: **N<sup>®</sup> Sodium Silicate Solution**  
Date Prepared: 06/13/06

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## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

*Product name:* N<sup>®</sup> Sodium silicate solution  
*Product description:* A 3.22 weight ratio sodium silicate, 37.5% solution in water  
*Manufacturer:* PQ Corporation  
P. O. Box 840  
Valley Forge, PA 19482 USA  
*Telephone:* 610-651-4200  
*In case of emergency call:* 610-651-4200  
*For transportation emergency*  
*Call CHEMTREC:* 800-424-9300

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical and Common Name	CAS Registry Number	Wt. %	OSHA PEL	ACGIH TLV
Water	7732-18-5	62.5%	Not Established	Not Established
Silicic acid, sodium salt; Sodium silicate	1344-09-8	37.5%	Not Established	Not Established

## 3. HAZARDS IDENTIFICATION

*Emergency Overview:* Clear to hazy, colorless, odorless, thick liquid. Causes moderate eye, skin, and digestive tract irritation. Spray mist causes irritation to respiratory tract. Due to high pH of product, release into surface water is harmful to aquatic life. Noncombustible. Spills are slippery. Reacts with acids, ammonium salts, reactive metals and some organics.

*Eye contact:* Causes moderate irritation to the eyes.  
*Skin contact:* Causes moderate irritation to the skin.  
*Inhalation:* Spray mist irritating to respiratory system.  
*Ingestion:* May cause irritation to mouth, esophagus, and stomach.  
*Chronic hazards:* No known chronic hazards. Not listed by NTP, IARC or OSHA as a carcinogen.

*Physical hazards:* Dries to form glass film which can easily cut skin. Spilled material is very slippery. Can etch glass if not promptly removed.

## 4. FIRST AID MEASURES

*Eye:* In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.  
*Skin:* In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention.

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Trade Name: **N<sup>®</sup> Sodium Silicate Solution**

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*Inhalation:* Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

*Ingestion:* If swallowed, DO NOT induce vomiting. Get medical attention immediately. If victim is fully conscious, give a cupful of water. Never give anything by mouth to an unconscious person.

---

### **5. FIRE FIGHTING MEASURES**

*Flammable limits:* This material is noncombustible.

*Extinguishing Media:* This material is compatible with all extinguishing media

*Hazards to fire-fighters:* See Section 3 for information on hazards when this material is present in the area of a fire.

*Fire-fighting equipment:* The following protective equipment for fire fighters is recommended when this material is present in the area of a fire: chemical goggles, body-covering protective clothing, chemical resistant gloves, and rubber boots.

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### **6. ACCIDENTAL RELEASE MEASURES**

*Personal protection:* Wear chemical goggles, body-covering protective clothing, chemical resistant gloves, and rubber boots. See section 8.

*Environmental Hazards:* Sinks and mixes with water. High pH of this material is harmful to aquatic life, see Section 12. Only water will evaporate from a spill of this material.

*Small spill cleanup:* Mop up and neutralize liquid, then discharge to sewer in accordance with federal, state and local regulations or permits.

*Large spill cleanup:* Keep unnecessary people away; isolate hazard area and deny entry. Do not touch or walk through spilled material. Stop leak if you can do so without risk. Prevent runoff from entering into storm sewers and ditches which lead to natural waterways. Isolate, dike and store discharged material, if possible. Use sand or earth to contain spilled material. If containment is impossible, neutralize contaminated area and flush with large quantities of water.

*CERCLA RQ:* There is no CERCLA Reportable Quantity for this material. If a spill goes off site, notification of state and local authorities is recommended.

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### **7. HANDLING AND STORAGE**

*Handling:* Avoid contact with eyes, skin and clothing. Avoid breathing spray mist. Keep container closed. Promptly clean residue from closures with cloth dampened with water. Promptly clean up spills.

*Storage:* Keep containers closed. Store in clean steel or plastic containers. Separate from acids, reactive metals, and ammonium salts. Storage temperature 0-95° C. Loading temperature 45-95° C. Do not store in aluminum, fiberglass, copper, brass, zinc or galvanized containers.

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### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

*Engineering controls:* Use with adequate ventilation. Keep containers closed. Safety shower and eyewash fountain should be within direct access.

*Respiratory protection:* Use a NIOSH-approved dust and mist respirator where spray mist occurs. Observe OSHA regulations for respirator use (29 C.F.R. §1910.134)

*Skin protection:* Wear body-covering protective clothing and gloves.

*Eye protection:* Wear chemical goggles.

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### 9. PHYSICAL AND CHEMICAL PROPERTIES

*Appearance:* Thick liquid.

*Color:* Clear to hazy white.

*Odor:* Odorless or musty odor.

*pH:* Approximately 11.3

*Specific gravity:* 1.39 g/cm<sup>3</sup> (20°C), 41° B $\acute{e}$ , 11.62 lbs/gal

*Solubility in water:* Miscible.

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### 10. STABILITY AND REACTIVITY

*Stability:* This material is stable under all conditions of use and storage.

*Conditions to avoid:* None.

*Materials to avoid:* Gels and generates heat when mixed with acid. May react with ammonium salts resulting in evolution of ammonia gas. Flammable hydrogen gas may be produced on contact with aluminum, tin, lead, and zinc.

*Hazardous decomposition products:* Hydrogen.

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### 11. TOXICOLOGICAL INFORMATION

*Acute Data:* When tested for eye and skin irritation potential, a similar material caused moderate irritation to the eyes and moderate irritation to the skin. Human experience indicates that skin irritation occurs, particularly, when sodium silicates get on clothes at the collar, cuffs or other areas where contact and abrasion may occur.

The acute oral toxicity of this product has not been tested. When sodium silicates were tested on a 100% solids basis, their single dose acute oral LD<sub>50</sub> in rats ranged from 1500 mg/kg to 3200 mg/kg. The acute oral lethality resulted from nonspecific causes. This product contains approximately 37.5% sodium silicate.

*Subchronic Data:* In a study of rats fed sodium silicate in drinking water for three months, at 200, 600 and 1800 ppm, changes were reported in the blood chemistry of some animals, but no specific changes to the organs of the animals due to sodium silicate administration were observed in any of the dosage groups. Another study reported adverse effects to the kidneys of dogs fed sodium silicate in their diet at 2.4g/kg/day for 4 weeks, whereas rats fed

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*Special Studies:*

the same dosage did not develop any treatment-related effects. Decreased numbers of births and survival to weaning was reported for rats fed sodium silicate in their drinking water at 600 and 1200 ppm. Sodium silicate was not mutagenic to the bacterium *E. Coli* when tested in a mutagenicity bioassay. There are no known reports of carcinogenicity of sodium silicates. Frequent ingestion over extended periods of time of gram quantities of silicates is associated with the formation kidney stones and other siliceous urinary calculi in humans. Sodium silicate is not listed by IARC, NTP or OSHA as a carcinogen.

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**12. ECOLOGICAL INFORMATION**

*Eco toxicity:*

The following data is reported for sodium silicates on a 100% solids basis: A 96 hour median tolerance for fish (*Gambusia affinis*) of 2320 ppm; a 96 hour median tolerance for water fleas (*Daphnia magna*) of 247 ppm; a 96 hour median tolerance for snail eggs (*Lymnaea*) of 632 ppm; and a 96 hour median tolerance for Amphipoda of 160 ppm. This product contains approximately 37.5% sodium silicate.

*Environmental Fate:*

This material is not persistent in aquatic systems, but its high pH when undiluted or unneutralized is acutely harmful to aquatic life. Diluted material rapidly depolymerizes to yield dissolved silica in a form that is indistinguishable from natural dissolved silica. It does not contribute to BOD. This material does not bioaccumulate except in species that use silica as a structural material such as diatoms and siliceous sponges. Where abnormally low natural silica concentrations exist (less than 0.1 ppm), dissolved silica may be a limiting nutrient for diatoms and a few other aquatic algal species. However, the addition of excess dissolved silica over the limiting concentration will not stimulate the growth of diatom populations; their growth rate is independent of silica concentration once the limiting concentration is exceeded. Neither silica nor sodium will appreciably bioconcentrate up the food chain.

*Physical/Chemical:*

Sinks and mixes with water. Only water will evaporate from this material.

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**13. DISPOSAL CONSIDERATIONS**

*Classification:*

Disposed material is not a hazardous waste.

*Disposal Method:*

Dispose in accordance with federal, state and local regulations and permits.

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**14. TRANSPORT INFORMATION**

*DOT UN Status:*

This material is not regulated hazardous material for transportation.

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Trade Name: **N® Sodium Silicate Solution**  
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**15. REGULATORY INFORMATION**

<i>CERCLA:</i>	No CERCLA Reportable Quantity has been established for this material.
<i>SARA TITLE III:</i>	Not an Extremely Hazardous Substance under §302. Not a Toxic Chemical under §313. Hazard Categories under §§311/312: Acute
<i>TSCA:</i>	All ingredients of this material are listed on the TSCA inventory.
<i>FDA:</i>	The use of sodium silicate is authorized by FDA as a boiler water additive for the production of steam that will contact food pursuant to 21 CFR §173.310; as a component of zinc-silicon dioxide matrix coatings on food contact surfaces pursuant to 21 CFR §175.390(c); as a GRAS substance when migrating from cotton fabric used in dry food packaging pursuant to 21 CFR §182.70; and as a GRAS substance when migrating to food from paper and paperboard products pursuant to 21 CFR §182.90.

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**16. OTHER INFORMATION**

Prepared by: John G. Blumberg  
Supersedes revision of: 03/28/06

THE INFORMATION ON THIS SAFETY DATA SHEET IS BELIEVED TO BE ACCURATE AND IT IS THE BEST INFORMATION AVAILABLE TO PQ CORPORATION THIS DOCUMENT IS INTENDED ONLY AS A GUIDE TO THE APPROPRIATE PRECAUTIONS FOR HANDLING A CHEMICAL BY A PERSON TRAINED IN CHEMICAL HANDLING. PQ CORPORATION MAKES NO WARRANTY OF MERCHANTABILITY OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED WITH RESPECT TO SUCH INFORMATION OR THE PRODUCT TO WHICH IT RELATES, AND WE ASSUME NO LIABILITY RESULTING FROM THE USE OR HANDLING OF THE PRODUCT TO WHICH THIS SAFETY DATA SHEET RELATES. USERS AND HANDLERS OF THIS PRODUCT SHOULD MAKE THEIR OWN INVESTIGATIONS TO DETERMINE THE SUITABILITY OF THE INFORMATION PROVIDED HEREIN FOR THEIR OWN PURPOSES.

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# Caustic Soda (All Grades)

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1. Product identifier

Product form : Mixture  
Product name : Caustic Soda (All Grades)

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Chemical raw material  
Industrial use

#### 1.3. Details of the supplier of the safety data sheet

Old World Industries, LLC  
4065 Commercial Ave.  
Northbrook, IL 60062 - USA  
T (847) 559-2000  
[www.oldworldind.com](http://www.oldworldind.com)

#### 1.4. Emergency telephone number

Emergency number : (800) 424-9300; (703) 527 3887 (International)  
Chemtrec

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

##### GHS-US classification

Acute Tox. 4 (Oral) H302  
Skin Corr. 1A H314

Full text of H statements : see section 16

#### 2.2. Label elements

##### GHS-US labelling

Hazard pictograms (GHS-US) :



GHS05

GHS07

Signal word (GHS-US) :

Danger

Hazard statements (GHS-US) :

H302 - Harmful if swallowed  
H314 - Causes severe skin burns and eye damage

Precautionary statements (GHS-US) :

P260 - Do not breathe mist, spray, vapors  
P264 - Wash affected areas thoroughly after handling  
P270 - Do not eat, drink or smoke when using this product  
P280 - Wear personal protective equipment as required  
P301+P310 - If swallowed: Immediately call doctor/physician or poison center. Rinse Mouth  
P301+P330+P331 - If swallowed: rinse mouth. Do NOT induce vomiting  
P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower  
P304+P340 - If inhaled: Remove person to fresh air and keep 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 doctor/physician or poison center  
P330 - Rinse mouth  
P363 - Wash contaminated clothing before reuse  
P405 - Store locked up  
P501 - Dispose of contents/container to appropriate waste disposal facility, in accordance with local/regional/national/international regulations

#### 2.3. Other hazards

No additional information available

# Caustic Soda (All Grades)

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### 2.4. Unknown acute toxicity (GHS US)

No data available

## SECTION 3: Composition/information on ingredients

### 3.1. Substance

Not applicable

### 3.2. Mixture

Name	Product identifier	% by wt	GHS-US classification
water	(CAS No) 7732-18-5	48.5 - 94.5	Not classified
sodium hydroxide	(CAS No) 1310-73-2	5.5 - 51.5	Met. Corr. 1, H290 Acute Tox. 4 (Dermal), H312 Skin Corr. 1A, H314
sodium chloride	(CAS No) 7647-14-5	0 - 5	Not classified

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

- First-aid measures general : Call a physician immediately.
- First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. If not breathing, give artificial respiration. Seek immediate medical advice.
- First-aid measures after skin contact : Rinse skin with water/shower. Remove/Take off immediately all contaminated clothing. Call a physician immediately.
- First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician immediately.
- First-aid measures after ingestion : Rinse mouth. Do not induce vomiting. Call a physician immediately.

### 4.2. Most important symptoms and effects, both acute and delayed

- Symptoms/injuries after skin contact : Burns.
- Symptoms/injuries after eye contact : Serious damage to eyes.

### 4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

Suitable extinguishing media : Water spray. Alcohol-resistant foam. Dry chemical powder. Carbon dioxide.

### 5.2. Special hazards arising from the substance or mixture

- Fire hazard : Non combustible.
- Reactivity : May react with bases, copper, silver, mercury, magnesium, zinc and their alloys. Reacts with (some) metals and their compounds: release of highly flammable gases/vapours (hydrogen).

### 5.3. Advice for firefighters

- Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.
- Special protective equipment for fire fighters : Wear positive pressure air supplied respirator if required by safe entry procedures. Protective fire fighting clothing (includes fire-fighting helmet, coat, pants, boots and gloves).

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

#### 6.1.1. For non-emergency personnel

No additional information available

#### 6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

### 6.2. Environmental precautions

Avoid release to the environment.

### 6.3. Methods and material for containment and cleaning up

- Methods for cleaning up : Take up liquid spill into absorbent material.
- Other information : Dispose of materials or solid residues at an authorized site.

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### 6.4. Reference to other sections

For further information refer to section 13.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

- Precautions for safe handling : Ensure good ventilation of the work station. Avoid contact with skin and eyes. Do not breathe mist, spray, vapors. Wear personal protective equipment.
- Hygiene measures : Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

### 7.2. Conditions for safe storage, including any incompatibilities

- Storage conditions : Store locked up. Store in a well-ventilated place. Keep cool.
- Incompatible materials : May react with bases, copper, silver, mercury, magnesium, zinc and their alloys. Reacts with (some) metal powders: release of highly flammable gases/vapors hydrogen.

### 7.3. Specific end use(s)

No additional information available

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

sodium hydroxide (1310-73-2)		
ACGIH	ACGIH Ceiling (mg/m <sup>3</sup> )	2 mg/m <sup>3</sup>
ACGIH	Remark (ACGIH)	URT, eye, & skin irr
OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	2 mg/m <sup>3</sup>

### 8.2. Exposure controls

- Appropriate engineering controls : Ensure good ventilation of the work station.
- Personal protective equipment : Gloves. Protective clothing. Safety glasses.



- Hand protection : Wear suitable gloves resistant to chemical penetration.
- Eye protection : Safety glasses.
- Skin and body protection : Wear suitable protective clothing.
- Respiratory protection : In case of insufficient ventilation, wear suitable respiratory equipment.
- Environmental exposure controls : Avoid release to the environment.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

- Physical state : Liquid
- Color : Clear
- Odor : Odorless
- Odor threshold : No data available
- pH : 14 (7.5 % solution)
- Relative evaporation rate (butylacetate=1) : No data available
- Freezing point : 12 °C (53 °F)
- Boiling point : 140 °C (284 °F)
- Flash point : No data available
- Auto-ignition temperature : No data available
- Decomposition temperature : No data available
- Flammability (solid, gas) : No data available
- Vapor pressure : 13 mm Hg @ 15 °C (60 °F)
- Relative vapor density at 20 °C : No data available
- Specific Gravity : 1.53

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Density	: 1.53 kg/l (12.76 lbs/gal)
Solubility	: Water: 100 %
Log Pow	: No data available
Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
Explosive limits	: No data available

### 9.2. Other information

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

May react with bases, copper, silver, mercury, magnesium, zinc and their alloys. Reacts with (some) metals and their compounds: release of highly flammable gases/vapours (hydrogen).

### 10.2. Chemical stability

Stable under normal conditions.

### 10.3. Possibility of hazardous reactions

Under normal conditions of storage and use, hazardous polymerization will not occur.

### 10.4. Conditions to avoid

No additional information available

### 10.5. Incompatible materials

Acids. Halogenated compounds. metals.

### 10.6. Hazardous decomposition products

Toxic. Fume.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity : Oral: Harmful if swallowed.

sodium hydroxide (1310-73-2)	
ATE US (dermal)	1,350.00 mg/kg bodyweight
sodium chloride (7647-14-5)	
LD50 oral rat	3,000.00 mg/kg (Rat; Experimental value; 3550 mg/kg bodyweight; Rat; Experimental value)
LD50 dermal rabbit	> 10,000.00 mg/kg (Rabbit; Experimental value)
ATE US (oral)	3,000.00 mg/kg bodyweight

Skin corrosion/irritation : Causes severe skin burns and eye damage.  
pH: 14.00 (7.5 % solution)

Serious eye damage/irritation : Not classified  
pH: 14.00 (7.5 % solution)

Respiratory or skin sensitisation : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

Specific target organ toxicity (single exposure) : Not classified

Specific target organ toxicity (repeated exposure) : Not classified

Aspiration hazard : Not classified

# Caustic Soda (All Grades)

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Symptoms/injuries after skin contact : Burns.  
Symptoms/injuries after eye contact : Serious damage to eyes.

### SECTION 12: Ecological information

#### 12.1. Toxicity

Ecology - general : Before neutralisation, the product may represent a danger to aquatic organisms.

sodium hydroxide (1310-73-2)	
LC50 fish 1	45.40 mg/l (LC50; Other; 96 h; Salmo gairdneri; Static system; Fresh water; Experimental value)
sodium chloride (7647-14-5)	
LC50 fish 2	5,840.00 mg/l (LC50; ASTM; 96 h; Lepomis macrochirus; Flow-through system; Fresh water; Experimental value)
Threshold limit algae 2	2430 mg/l (EC50; OECD 201: Alga, Growth Inhibition Test; 120 h; Algae; Static system; Fresh water; Experimental value)

#### 12.2. Persistence and degradability

sodium hydroxide (1310-73-2)	
Persistence and degradability	Biodegradability: not applicable. No (test)data on mobility of the substance available.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
sodium chloride (7647-14-5)	
Persistence and degradability	Biodegradability: not applicable. No (test)data on mobility of the substance available.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable

#### 12.3. Bioaccumulative potential

sodium hydroxide (1310-73-2)	
Bioaccumulative potential	No bioaccumulation data available.
sodium chloride (7647-14-5)	
Log Pow	-3.00 (Calculated)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).

#### 12.4. Mobility in soil

sodium hydroxide (1310-73-2)	
Mobility in soil	No data available

#### 12.5. Other adverse effects

Effect on ozone layer : No additional information available  
Effect on global warming : No known ecological damage caused by this product.

### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

Waste disposal recommendations : Dispose of contents/container to appropriate waste disposal facility, in accordance with local/regional/national/international regulations.

### SECTION 14: Transport information

#### Department of Transportation (DOT)

In accordance with DOT  
Transport document description : UN1824 Sodium hydroxide solution, 8, II

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UN-No.(DOT) : UN1824  
Proper Shipping Name (DOT) : Sodium hydroxide solution  
Class (DOT) : 8 - Class 8 - Corrosive material 49 CFR 173.136  
Hazard labels (DOT) : 8 - Corrosive



Packing group (DOT) : II - Medium Danger  
DOT Packaging Non Bulk (49 CFR 173.xxx) : 202  
DOT Packaging Bulk (49 CFR 173.xxx) : 242  
DOT Packaging Exceptions (49 CFR 173.xxx) : 154  
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 1 L  
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 30 L  
DOT Vessel Stowage Location : A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel  
DOT Vessel Stowage Other : 52 - Stow "separated from" acids  
Emergency Response Guide (ERG) Number : 154  
Other information : No supplementary information available.

### TDG

Refer to current TDG Canada for further Canadian regulations

### Transport by sea

UN-No. (IMDG) : 1824  
Proper Shipping Name (IMDG) : SODIUM HYDROXIDE SOLUTION  
Class (IMDG) : 8 - Corrosive substances  
Packing group (IMDG) : II - substances presenting medium danger

### Air transport

UN-No. (IATA) : 1824  
Proper Shipping Name (IATA) : Sodium hydroxide solution  
Class (IATA) : 8 - Corrosives  
Packing group (IATA) : II - Medium Danger

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

Caustic Soda (All Grades)	
EPA TSCA Regulatory Flag	Toxic Substances Control Act (TSCA): The intentional ingredients of this product are listed
CERCLA RQ	1000 lb(s) Sodium Hydroxide (final RQ)
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard

### 15.2. International regulations

#### CANADA

# Caustic Soda (All Grades)

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### WHMIS Classification



Class E - Corrosive  
Material

### EU-Regulations

No additional information available

### Classification according to Regulation (EC) No. 1272/2008 [CLP]

No additional information available

### Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

Not classified

### National regulations

#### Caustic Soda (All Grades)

DSL (Canada): The intentional ingredients of this product are listed

### 15.3. US State regulations

#### sodium hydroxide (1310-73-2)

U.S. - Massachusetts - Right To Know List  
U.S. - New Jersey - Right to Know Hazardous Substance List  
U.S. - Pennsylvania - RTK (Right to Know) List  
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List  
U.S. - Rhode Island - Hazardous Substance List

## SECTION 16: Other information

Full text of H-statements:

H290	May be corrosive to metals
H302	Harmful if swallowed
H312	Harmful in contact with skin
H314	Causes severe skin burns and eye damage

NFPA health hazard

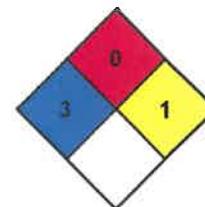
: 3 - Short exposure could cause serious temporary or residual injury even though prompt medical attention was given.

NFPA fire hazard

: 0 - Materials that will not burn.

NFPA reactivity

: 1 - Normally stable, but can become unstable at elevated temperatures and pressures or may react with water with some release of energy, but not violently.



HMIS III Rating

Health

: 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given

Flammability

: 0 Minimal Hazard - Materials that will not burn

Physical

: 1 Slight Hazard - Materials that are normally stable but can become unstable (self-react) at high temperatures and pressures. Materials may react non-violently with water or undergo hazardous polymerization in the absence of inhibitors.

Personal Protection

X - Special handling directions

SDS GHS US (GHS HazCom 2012) OWI

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*Old World Industries, LLC makes no warranty, representation or guarantee as to the accuracy, sufficiency or completeness of the material set forth herein. It is the user's responsibility to determine the safety, toxicity and suitability of his own use, handling and disposal of this product. Since actual use by others is beyond our control, no warranty, expressed or implied, is made by Old World Industries, LLC as to the effects of such use, the results to be obtained or the safety and toxicity of this product, nor does Old World Industries, LLC assume liability arising out of the use by others of this product referred to herein. The data in this SDS relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.*

**ATTACHMENT I – Emission Units Table**

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ATTACHMENT J – Emission Points Data Summary Sheet

**Attachment J  
EMISSION POINTS DATA SUMMARY SHEET**

**Table 1: Emissions Data**

Emission Point ID No. (Must match Emission Units Table & Plot Plan)	Emission Point Type <sup>1</sup>	Emission Unit Vented Through This Point (Must match Emission Units Table & Plot Plan)		Air Pollution Control Device (Must match Emission Units Table & Plot Plan)		Vent Time for Emission Unit (chemical processes only)		All Regulated Pollutants - Chemical Name/CAS <sup>3</sup>  (Speciate VOCs & HAPS)	Maximum Potential Uncontrolled Emissions <sup>4</sup>		Maximum Potential Controlled Emissions <sup>5</sup>		Emission Form or Phase  (At exit conditions, Solid, Liquid or Gas/Vapor)	Est. Method Used <sup>6</sup>	Emission Concentration <sup>7</sup> (ppmv or mg/m <sup>4</sup> )
		ID No.	Source	ID No.	Device Type	Short Term <sup>2</sup>	Max (hr/yr)		lb/hr	ton/yr	lb/hr	ton/yr			
002	Upward Vertical Stack	002	Dryer					Acetaldehyde / 75070	0.779	3.41			Gas/Vapor Solid	NACSI EE	
								Biphenyl / 92524	1.145	5.02					
								Chloroform / 67663	0.147	0.65					
								Cumene / 98828	0.101	0.44					
								Formaldehyde / 50000	0.212	0.93					
								Methanol / 67561	3.646	15.98					
								Methylene Chloride / 75092	0.129	0.56					
								Naphthalene / 91203	0.159	0.56					
								Phenol / 108952	0.454	1.99					
								Propionaldehyde / 123386	0.052	0.23					
								Toluene / 108883	0.573	2.51					
								Total HAPs	7.366	32.29					
								VOC	13.51	59.22					
								PM	4	17.52					

The EMISSION POINTS DATA SUMMARY SHEET provides a summation of emissions by emission unit. Note that uncaptured process emission unit emissions are not typically considered to be fugitive and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET. Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions). Please complete the FUGITIVE EMISSIONS DATA SUMMARY SHEET for fugitive emission activities.

<sup>1</sup> Please add descriptors such as upward vertical stack, downward vertical stack, horizontal stack, relief vent, rain cap, etc.

<sup>2</sup> Indicate by "C" if venting is continuous. Otherwise, specify the average short-term venting rate with units, for intermittent venting (ie., 15 min/hr). Indicate as many rates as needed to clarify frequency of venting (e.g., 5 min/day, 2 days/wk).

<sup>3</sup> List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. LIST Acids, CO, CS<sub>2</sub>, VOCs, H<sub>2</sub>S, Inorganics, Lead, Organics, O<sub>3</sub>, NO, NO<sub>2</sub>, SO<sub>2</sub>, SO<sub>3</sub>, all applicable Greenhouse Gases (including CO<sub>2</sub> and methane), etc. DO NOT LIST H<sub>2</sub>, H<sub>2</sub>O, N<sub>2</sub>, O<sub>2</sub>, and Noble Gases.

<sup>4</sup> Give maximum potential emission rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

<sup>5</sup> Give maximum potential emission rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

<sup>6</sup> Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).

<sup>7</sup> Provide for all pollutant emissions. Typically, the units of parts per million by volume (ppmv) are used. If the emission is a mineral acid (sulfuric, nitric, hydrochloric or phosphoric) use units of milligram per dry cubic meter (mg/m<sup>3</sup>) at standard conditions (68 °F and 29.92 inches Hg) (see 45CSR7). If the pollutant is SO<sub>2</sub>, use units of ppmv (See 45CSR10).

**Attachment J**

**EMISSION POINTS DATA SUMMARY SHEET**

Table 2: Release Parameter Data								
Emission Point ID No. <i>(Must match Emissions Units Table)</i>	Inner Diameter (ft.)	Exit Gas			Emission Point Elevation (ft)		UTM Coordinates (km)	
		Temp. (°F)	Volumetric Flow <sup>1</sup> (acfm) <i>at operating conditions</i>	Velocity (fps)	Ground Level <i>(Height above mean sea level)</i>	Stack Height <sup>2</sup> <i>(Release height of emissions above ground level)</i>	Northing	Easting
002	6.0	88.4	74,500	NA	927	76	4375.10	575.30

<sup>1</sup> Give at operating conditions. Include inerts.  
<sup>2</sup> Release height of emissions above ground level.

**ATTACHMENT L – Emissions Unit Data Sheet(s)**

**Attachment L**  
**EMISSIONS UNIT DATA SHEET**  
**GENERAL**

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.

Identification Number (as assigned on *Equipment List Form*): 002

<p>1. Name or type and model of proposed affected source:</p> <p>ABB Flakt Dryer</p>
<p>2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.</p>
<p>3. Name(s) and maximum amount of proposed process material(s) charged per hour:</p> <p>45.8 tons per hour of wet pulp and 401,500 tons per year of wet pulp</p>
<p>4. Name(s) and maximum amount of proposed material(s) produced per hour:</p> <p>540 ADMT (Air Dried Metric Tons) per day of finished product and 249,000 ADTFP (Air Dried Tons of Finished Product) per year</p>
<p>5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:</p>

\* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.

6. Combustion Data (if applicable):

(a) Type and amount in appropriate units of fuel(s) to be burned:

Not applicable

(b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:

NA

(c) Theoretical combustion air requirement (ACF/unit of fuel):

@ NA °F and psia.

(d) Percent excess air: NA

(e) Type and BTU/hr of burners and all other firing equipment planned to be used:

NA

(f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired:

NA

(g) Proposed maximum design heat input: NA × 10<sup>6</sup> BTU/hr.

7. Projected operating schedule:

Hours/Day	24	Days/Week	7	Weeks/Year	8760
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8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used:

@	88.4	°F and	psia
a. NO <sub>x</sub>		lb/hr	grains/ACF
b. SO <sub>2</sub>		lb/hr	grains/ACF
c. CO		lb/hr	grains/ACF
d. PM <sub>10</sub>	4.0	lb/hr	grains/ACF
e. Hydrocarbons		lb/hr	grains/ACF
f. VOCs	13.51	lb/hr	grains/ACF
g. Pb		lb/hr	grains/ACF
h. Specify other(s)			
Acetaldehyde	0.779		
Biphenyl	1.145	lb/hr	grains/ACF
Chloroform	0.147		
Cumene	0.101		
Formaldehyde	0.212	lb/hr	grains/ACF
Methanol	3.646		
Methylene Chloride	0.129		
Naphthalene	0.129	lb/hr	grains/ACF
Phenol	0.454		
Propionaldehyde	0.052		
Toluene	0.573	lb/hr	grains/ACF
Total HAPs	7.366		

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.

(2) Complete the Emission Points Data Sheet.

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing  
 Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

**MONITORING**

Material throughput and hours of operation monthly

**RECORDKEEPING**

Material throughput and hours of operation monthly

**REPORTING**

**TESTING**

**MONITORING.** PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

**RECORDKEEPING.** PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

**REPORTING.** PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

**TESTING.** PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty

ATTACHMENT N – Supporting Emissions Calculations

# ATTACHMENT N

## Dryer Potential to Emit

### Dryer Criteria Pollutants

PM	lb/hr	hours/year	lbs/year	tons/year
	4	8760	3.50E+04	17.52

VOC	NACSI EF	Production Tonnage	lbs/year	tons/year	lb/hr
	0.295	401500	1.18E+05	59.22	13.51

Maximum Hourly Production Rate = 45.8 tons/hour

### Dryer HAPs

CAS No.	Pollutant	Emission Factor	Production Tonnage	lbs/year	tons/year	lb/hr
75070	Acetaldehyde	1.70E-02	401500	6.83E+03	3.41	0.779
92524	Biphenyl	2.50E-02	401500	1.00E+04	5.02	1.145
67663	Chloroform	3.22E-03	401500	1.29E+03	0.65	0.147
98828	Cumene	2.21E-03	401500	8.87E+02	0.44	0.101
50000	Formaldehyde	4.63E-03	401500	1.86E+03	0.93	0.212
67561	Methanol	7.96E-02	401500	3.20E+04	15.98	3.646
75092	Methylene Chloride	2.81E-03	401500	1.13E+03	0.56	0.129
91203	Naphthalene	2.81E-03	401500	1.13E+03	0.56	0.129
108952	Phenol	9.92E-03	401500	3.98E+03	1.99	0.454
123386	Propionaldehyde	1.14E-03	401500	4.58E+02	0.23	0.052
108883	Toluene	1.25E-02	401500	5.02E+03	2.51	0.573
TOTAL HAPs					32.29	7.366

PM lb/hr emission rate from manufacturer based on 4.28 lb/ADMT (no change from current permitted limits)

HAP and VOC emission factors from NCASI Technical Bulletin 973 - Compilation of "Air Toxic" and Total Hydrocarbon Emissions Data for Pulp and Paper Mill Sources; Table 10.1 Summary of Air Toxic Emissions from 100% Secondary Fiber Furnish Paper Machines (lb/ADTFP)

PTE based on maximum annual production of 401,500 tons of product or 45.8 tons per hour (1,100 tons per day)

Pounds per hour based on annual maximum production divided by 8,760 hours per year.

# ATTACHMENT N

## Net Emissions Change

Pollutant	Proposed Emissions (lb/hr)	Permitted Emissions (lb/hr)	Difference (lb/hr)
Particulate Matter	4	4	0
VOC	13.51	8.39	5.12
Acetaldehyde	0.78	0.49	0.29
Biphenyl	1.15	0.71	0.44
Chloroform	0.15	0.09	0.06
Cumene	0.10	0.06	0.04
Formaldehyde	0.21	0.13	0.08
Methanol	3.65	2.26	1.39
Methylene Chloride	0.13	0.08	0.05
Naphthalene	0.13	0.08	0.05
Phenol	0.45	0.28	0.17
Propionaldehyde	0.05	0.03	0.02
Toluene	0.57	0.36	0.21
Total HAPs	7.37	4.57	2.80

Pollutant	Proposed Emissions (tpy)	Permitted Emissions (tpy)	Difference (tpy)
Particulate Matter	17.52	17.52	0
VOC	59.22	36.73	22.49
Acetaldehyde	3.41	2.12	1.29
Biphenyl	5.02	3.11	1.91
Chloroform	0.65	0.4	0.25
Cumene	0.44	0.28	0.16
Formaldehyde	0.93	0.58	0.35
Methanol	15.98	9.91	6.07
Methylene Chloride	0.56	0.33	0.23
Naphthalene	0.56	0.35	0.21
Phenol	1.99	1.24	0.75
Propionaldehyde	0.23	0.14	0.09
Toluene	2.51	1.56	0.95
Total HAPs	32.29	20.02	12.27

**ATTACHMENT P – Public Notice**

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**AIR QUALITY PERMIT NOTICE**  
**Notice of Application**

Notice is given that ND Fairmont LLC has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a Modification Permit for a recycled paper mill located at 702 AFR Drive, near Hoult Road, in Fairmont, Marion County, West Virginia. The latitude and longitude coordinates are: 39.52422 north latitude and -80.12640 west longitude.

The applicant estimates the increased potential to discharge the following Regulated Air Pollutants will be:

Volatile Organic Compounds	22.49
Acetaldehyde	1.29
Biphenyl	1.91
Chloroform	0.25
Cumene	0.16
Formaldehyde	0.35
Methanol	6.07
Methylene Chloride	0.23
Naphthalene	0.21
Phenol	0.75
Propionaldehyde	0.09
Toluene	0.95

Startup of operation will begin on or about the 1st day of March, 2019. Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57<sup>th</sup> Street, SE, Charleston, WV 25304, for at least 30 calendar days from the date of publication of this notice.

Any questions regarding this permit application should be directed to the DAQ at (304) 926-0499, extension 1250, during normal business hours.

Dated this the 7th day of February, 2019.

By: ND Fairmont LLC  
Steven Demyon  
General Manager  
702 AFR Road  
Fairmont, WV 26554

ATTACHMENT S – Title V Permit Revision Information

## Attachment S

### Title V Permit Revision Information

<b>1. New Applicable Requirements Summary</b>	
Mark all applicable requirements associated with the changes involved with this permit revision:	
<input type="checkbox"/> SIP	<input type="checkbox"/> FIP
<input checked="" type="checkbox"/> Minor source NSR (45CSR13)	<input type="checkbox"/> PSD (45CSR14)
<input type="checkbox"/> NESHAP (45CSR15)	<input type="checkbox"/> Nonattainment NSR (45CSR19)
<input type="checkbox"/> Section 111 NSPS (Subpart(s) _____)	<input checked="" type="checkbox"/> Section 112(d) MACT standards (Subpart(s) <u>DDDDD, S</u> _____)
<input type="checkbox"/> Section 112(g) Case-by-case MACT	<input type="checkbox"/> 112(r) RMP
<input type="checkbox"/> Section 112(i) Early reduction of HAP	<input type="checkbox"/> Consumer/commercial prod. reqts., section 183(e)
<input type="checkbox"/> Section 129 Standards/Reqts.	<input type="checkbox"/> Stratospheric ozone (Title VI)
<input type="checkbox"/> Tank vessel reqt., section 183(f)	<input type="checkbox"/> Emissions cap 45CSR§30-2.6.1
<input type="checkbox"/> NAAQS, increments or visibility (temp. sources)	<input type="checkbox"/> 45CSR27 State enforceable only rule
<input type="checkbox"/> 45CSR4 State enforceable only rule	<input type="checkbox"/> Acid Rain (Title IV, 45CSR33)
<input type="checkbox"/> Emissions Trading and Banking (45CSR28)	<input type="checkbox"/> Compliance Assurance Monitoring (40CFR64) <sup>(1)</sup>
<input type="checkbox"/> NO <sub>x</sub> Budget Trading Program Non-EGUs (45CSR1)	<input type="checkbox"/> NO <sub>x</sub> Budget Trading Program EGUs (45CSR26)
<p><sup>(1)</sup> If this box is checked, please include <b>Compliance Assurance Monitoring (CAM) Form(s)</b> for each Pollutants Specific Emission Unit (PSEU) (See Attachment H to Title V Application). If this box is not checked, please explain why <b>Compliance Assurance Monitoring</b> is not applicable:</p> <p style="padding-left: 40px;">Emissions are below the levels required for CAM</p>	

<b>2. Non Applicability Determinations</b>
<p>List all requirements, which the source has determined not applicable to this permit revision and for which a permit shield is requested. The listing shall also include the rule citation and a rationale for the determination.</p> <p style="padding-left: 40px;">45CSR27 – Toxic Air Pollutants do not exceed action levels.</p>
<p><input checked="" type="checkbox"/> <b>Permit Shield Requested</b> <i>(not applicable to Minor Modifications)</i></p>

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

### 3. Suggested Title V Draft Permit Language

Are there any changes involved with this Title V Permit revision outside of the scope of the NSR Permit revision?  Yes  No If Yes, describe the changes below.

Also, please provide **Suggested Title V Draft Permit language** for the proposed Title V Permit revision (including all applicable requirements associated with the permit revision and any associated monitoring /recordkeeping/ reporting requirements), OR attach a marked up pages of current Title V Permit. Please include appropriate citations (Permit or Consent Order number, condition number and/or rule citation (e.g. 45CSR§7-4.1)) for those requirements being added / revised.

### 4. Active NSR Permits/Permit Determinations/Consent Orders Associated With This Permit Revision

Permit or Consent Order Number	Date of Issuance	Permit/Consent Order Condition Number
R13-1525D	12/11/2018	6.1
	/ /	
	/ /	

### 5. Inactive NSR Permits/Obsolete Permit or Consent Orders Conditions Associated With This Revision

Permit or Consent Order Number	Date of Issuance	Permit/Consent Order Condition Number
None	MM/DD/YYYY	
	/ /	
	/ /	

### 6. Change in Potential Emissions

Pollutant	Change in Potential Emissions (+ or -), TPY
Acetaldehyde	+1.29
Biphenyl	+1.91
Chloroform	+0.25
Cumene	+0.16
Formaldehyde	+0.35
Methanol	+6.07

Methylene Chloride	+0.23
Naphthalene	+0.21
Phenol	+0.75
Propionaldehyde	+0.09
Toluene	+0.95
VOC	+22.49

*All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.*

**7. Certification For Use Of Minor Modification Procedures (Required Only for Minor Modification Requests)**

*Note:* This certification must be signed by a responsible official. Applications without a signed certification will be returned as incomplete. The criteria for allowing the use of Minor Modification Procedures are as follows:

- i. Proposed changes do not violate any applicable requirement;
- ii. Proposed changes do not involve significant changes to existing monitoring, reporting, or recordkeeping requirements in the permit;
- iii. Proposed changes do not require or change a case-by-case determination of an emission limitation or other standard, or a source-specific determination for temporary sources of ambient air quality impacts, or a visibility increment analysis;
- iv. Proposed changes do not seek to establish or change a permit term or condition for which there is no underlying applicable requirement and which permit or condition has been used to avoid an applicable requirement to which the source would otherwise be subject (synthetic minor). Such terms and conditions include, but are not limited to a federally enforceable emissions cap used to avoid classification as a modification under any provision of Title I or any alternative emissions limit approved pursuant to regulations promulgated under § 112(j)(5) of the Clean Air Act;
- v. Proposed changes do not involve preconstruction review under Title I of the Clean Air Act or 45CSR14 and 45CSR19;
- vi. Proposed changes are not required under any rule of the Director to be processed as a significant modification;

Notwithstanding subparagraph 45CSR§30-6.5.a.1.A. (items i through vi above), minor permit modification procedures may be used for permit modifications involving the use of economic incentives, marketable permits, emissions trading, and other similar approaches, to the extent that such minor permit modification procedures are explicitly provided for in rules of the Director which are approved by the U.S. EPA as a part of the State Implementation Plan under the Clean Air Act, or which may be otherwise provided for in the Title V operating permit issued under 45CSR30.

**Pursuant to 45CSR§30-6.5.a.2.C., the proposed modification contained herein meets the criteria for use of Minor permit modification procedures as set forth in Section 45CSR§30-6.5.a.1.A. The use of Minor permit modification procedures are hereby requested for processing of this application.**

(Signed): Steven Demyon Date: 02 / 04 / 2019  
*(Please use blue ink)* *(Please use blue ink)*

Named (typed): Steven Demyon Title: General Manager

**Note: Please check if the following included (if applicable):**

<input type="checkbox"/>	Compliance Assurance Monitoring Form(s)
<input type="checkbox"/>	Suggested Title V Draft Permit Language

*All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.*