

SUPPLY CHAIN REQUEST FOR SIGNATURE SHEET

To: John Young
From: Gerald Coyne
Telephone: 856-727-6219
Email: gerald.coyne@amwater.com
Date: 11-21-2007

Re: Agreement to Supply Potable Water Treatment Chemicals for 2008

I. Category Name: Water Treatment Chemicals (Bonded Chemicals, Inc.)

II. Monetary Value of Agreement (approximate annual spend or anticipated total spend for project) 300,000.00

III. Term of Agreement: 5 years for T&C's 1 year for pricing

IV. Category/Project Team Members:

Category Champion - John Young
Category Leads – Regional Directors of Operations
Supply Chain Lead – Gerald Coyne

V. Agreement Reviewed by:

Steve Robbins
Greg Samuels
Gerald Coyne

VI. Detailed summary of the attached Agreement: Water Treatment Chemical contract for 2008/2013 term.

REMINDER—BLUE INK IS REQUIRED FOR ALL SIGNATURES

CONTRACT APPROVAL FORM**Section I: General Contract Information**

CHECK THIS BOX IF THIS IS AN AMERICAN WATER STANDARD CONTRACT (NO CHANGES MADE)

1) Contract Name*: Agreement to Supply Potable Water Treatment Chemicals for 2008 Bonded Chemical, Inc..

2) Contract Number: _____

3a) Contract Owner* Gerald J Coyne

Phone number* 856-727-6219

3b) Contract Owner taking responsibility after the contract is signed (if different than original Contract Owner):

Gerald Coyne

Phone number 856-727-6219

4) Secondary contact name and phone number Righard Guyer 856-727-6205

5) Physical location of document(s) (office location and department name)*: Mount Laurel-Voorhees

6) Name of the American Water company entering into the contract*: American Water Works Service Company, Inc.

7) Other company or companies signing the contract*: _____

8) Contract description*: Chemicals and Vessels

9) Relationship to other contracts (amendment, change order with new terms, etc.)*: _____

10a) Estimated Lifetime

Contract Payments*: \$1,000,000.00

10b) Estimated Lifetime

Contract Receipts* \$ _____

Estimated Lifetime Contract Payments should be expressed in gross

11) Effective Date*: 1-1-2008

12) Renewal terms* (check one): Perpetual unless cancelled Annual automatic renewal unless cancelled
 Monthly automatic renewal unless cancelled Not renewable
 Renewable with prior notice (notice date: ____/____/____)
 Other (describe on item 15)

13) Termination Date*: 12-31-2013

14) Termination provisions* (check all that apply): At-will by either party At-will by AW only
 At-will by other party only For cause by either party
 For cause by AW For cause by other party
 No termination provisions in contract

15) Miscellaneous Note: Renewed at end of agreement

CONTRACT APPROVAL FORM

16) Contract Type* (check only one box):

NOTE: See Appendix 1 for a description of each contract type

Contract types marked with an "F" require the prior input and approval of the Finance Department

Contract types marked with an "F\$" require the prior input and approval of the Finance Department if the total value exceeds \$100,000

Contract types marked with a "P" require the prior input and approval of the Supply Chain Department

See Instructions for description of approval process

- | | | | |
|---------------------------------|--|---|--|
| <input type="checkbox"/> (F)(P) | Benefit/Pension Agreement | <input type="checkbox"/> (F) | Joint Venture Agreement |
| <input type="checkbox"/> | Billing/Shut-Off Agreement | <input type="checkbox"/> | Labor Agreement |
| <input type="checkbox"/> (F) | Debt/Securities Agreement | <input type="checkbox"/> (F\$(P) | Lease Agreement |
| <input type="checkbox"/> | Confidentiality Agreement | <input type="checkbox"/> (P) | License Agreement |
| <input type="checkbox"/> (F\$) | Construction Agreement | <input type="checkbox"/> (F) | Merger/Acquisition/Disposition Agreement |
| <input type="checkbox"/> | Developer Service/Main Extension Agreement | <input type="checkbox"/> (F) | Miscellaneous Agreement |
| <input type="checkbox"/> (F\$) | Easement Agreement | <input type="checkbox"/> (F) | Operating Agreement |
| <input type="checkbox"/> (F) | Employment Agreement | <input type="checkbox"/> (F\$(P) | Purchase/Sale Agreement |
| <input type="checkbox"/> (F) | Environmental Agreement | <input type="checkbox"/> | Rate Agreement |
| <input type="checkbox"/> (F) | Financial Agreement | <input type="checkbox"/> (F\$(P**) | Services Agreement |
| <input type="checkbox"/> | Fire Protection Agreement | <input type="checkbox"/> (F) | Settlement Agreement |
| <input type="checkbox"/> (F) | Franchise Agreement | <input checked="" type="checkbox"/> (P) | Supply Agreement |
| | | <input type="checkbox"/> (F) | Water Supply/Wastewater Agreement |

** - Only when the company is receiving the services

17) If the contract contains a payment commitment by AW in future years (such as a long-term supply agreement or lease), fill out the following schedule*:

Year	Commitment Amount (in \$'s)
2007	
2008	
2009	
2010	
2011	
2012	
2013	
2014	

Year	Commitment Amount (in \$'s)
2015	
2016	
2017	
2018	
2019	
2020	
2021	
2022 and beyond	

*Mandatory information

CONTRACT APPROVAL FORM

Section II: Approvals

Bonded Chemical

Business Unit Review:

CONTRACT OWNER*

John Young
(Name)

[Signature]
(Signature)

6-27-08
(Date)

By checking this box, Contract Owner represents he/she has reviewed the Delegation of Authority and is authorized to sign the contract:

CONTRACT SIGNER (only if Contract Owner does not have authority to sign contract pursuant to the DOA; see instructions)

(Name)

(Signature)

(Date)

Comment (use back if necessary)

Law Department Review by:

ATTORNEY*

Steve R. [Signature]
(Name)

[Signature]
(Signature)

6/24/08
(Date)

Check box if Finance Department review is not required:

Comment (use back if necessary)

Finance Department Review by:

(Name)

(Signature)

(Date)

Comment (use back if necessary)

Supply Chain Department Review by:

Gerald J Coyne
(Name)

[Signature]
(Signature)

10-22-2007
(Date)

Check box if Supply Chain Department review is not required:

Comment (use back if necessary)

*Mandatory information

CONTRACT APPROVAL FORM

Section II: Approvals

Business Unit Review:

CONTRACT OWNER*

____ (Name) _____ (Signature) _____ (Date)

By checking this box, Contract Owner represents he/she has reviewed the Delegation of Authority and is authorized to sign the contract:

CONTRACT SIGNER (only if Contract Owner does not have authority to sign contract pursuant to the DOA; see instructions)

____ (Name) _____ (Signature) _____ (Date)

Comment (use back if necessary)

Law Department Review by:

ATTORNEY*

____ (Name) _____ (Signature) _____ (Date)

Comment (use back if necessary)

Finance Department Review by:

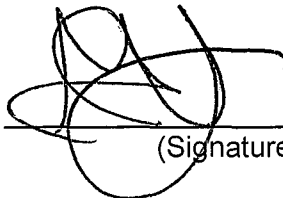
____ (Name) _____ (Signature) _____ (Date)

Check box if Finance Department review is not required:

Comment (use back if necessary)

Supply Chain Department Review by:

Gerald J Coyne (Name)

 _____ (Signature)

10-22-2007 (Date)

Check box if Supply Chain Department review is not required:

Comment (use back if necessary)

*Mandatory information

Basic Contract Approval Process

See full instructions below for definitions and explanations.

Standard Contracts:

1. The Contract Owner fills in the blanks on the standard contract form and makes no other changes to the contract.
2. The Contract Owner and other party sign the contract.
3. The Contract Owner completes and signs the Contract Approval Form. One Contract Approval Form may cover multiple contracts for a given time period (contact the regional Law Department for specific procedure).
4. The Contract Owner scans the Contract Approval Form and the contract into .pdf format and transmits both (as separate files) to the regional Law Department (contact the regional Law Department for specific procedure). If one Contract Approval Form is used to cover multiple contracts, each contract must be scanned as a separate file.
5. The original signed contract is maintained per existing document retention policies.

Non-Standard Contracts

1. The Contract Owner contacts the Law Department for assistance with negotiating and reviewing the contract.
2. The Contract Owner determines whether the Finance Department and/or the Supply Chain Department are required to review and approve the contract before it is signed (see the Contract Approval Form for contract types and required approvals).
3. The Contract Owner notifies the Finance Department and/or Supply Chain Departments if required.
4. The Contract Owner, lawyer(s) and appropriate Finance Department and/or Supply Chain Department personnel negotiate and review the contract.
5. The Contract Owner completes and signs the Contract Approval Form.
6. If the Contract Owner does not have authority to sign the contract pursuant to the Delegation of Authority, a Contract Signer must also sign the Contract Approval Form.
7. The Contract Owner distributes the Contract Approval Form and final form of agreement to the lawyer and the finance personnel and/or supply chain personnel responsible for reviewing the contract, as required.
8. The lawyer, finance personnel and supply chain personnel responsible for reviewing the contract review and approve the contract, sign the Contract Approval Form and return the signed Contract Approval Form to the Contract Owner.
9. The Contract Owner (or Contract Signer) and the other party sign the contract.
10. The Contract Owner scans the Contract Approval Form and the contract into .pdf format and transmits both (as separate files) to the regional Law Department (contact the regional Law Department for specific procedure).
11. The original signed contract is maintained per existing document retention policies.

Instructions for use of Contract Approval Form

Before any contract can be entered into on behalf of any American Water entity, this Contract Approval Form must be properly completed and signed by the persons described below. Once the contract is signed by all parties, a copy of the contract and this completed form must be scanned into .pdf format (as separate files) and sent to the Law Department for indexing. Consult with your regional Law Department with respect to filing/storage of the physical document and scanning procedures. The index will be used by the Finance Department to identify the contracts necessary to compile the company's financial statements and other disclosure obligations.

This form must be used for all contracts, amendments to existing contracts, and any "statements of work" or "change orders" that change the obligations of the parties to the contract. For example, a statement of work that describes the specific obligations of the parties that are referred to generally in the contract, but does not change the amounts or timing of any payments under the contract does not require a new Contract Approval Form and process. A statement of work that describes the specific obligations of the parties, but increases or for the first time specifies the amount of payments due under the contract, or changes the payment schedule from weekly to monthly would require a new Contract Approval Form and process.

All contracts must be reviewed and approved in accordance with the Delegation of Authority ("DOA") and the Code of Ethics. All contracts that are not pre-approved standard contracts must be reviewed by an attorney in the Law Department. All contract types marked "F" below must be reviewed by a member of the Finance Department. All contract types marked "F\$" must be reviewed by a member of the Finance Department if the total lifetime payments for the contract (item 10a below) exceeds \$100,000. All contract types marked "P" must be reviewed by a member of the Supply Chain Department.

The Law Department has created certain pre-approved standard contract forms with some terms left blank. If you are using one of these pre-approved standard contract forms and no changes are made to the form except for filling in the blanks, unless the total value of the contract exceeds \$100,000, Law Department review and approval is NOT required before the parties sign the contract. If you are not sure if the contract you are using is a pre-approved standard contract form, consult the Law Department. Standard contracts still need to be collected and sent to the Law Department. Consult the Law Department for specific transmittal procedures for standard contracts.

For purposes of American Water contract administration policies and practices, contract review requires the active participation of the Law, Finance or Supply Chain Department reviewer in establishing the terms of the contract relevant to their area of expertise. The level of involvement by a Law, Finance or Supply Chain Department reviewer, when applicable, is determined by Law, Finance and Supply Chain Department policies and practices. Only Law Department personnel are authorized to engage outside counsel to assist in the negotiation or review of a contract. Contract owners must contact the Law Department and Supply Chain Department (if Supply Chain Department review is required) before any negotiation of terms occurs to determine the extent to which those departments will be involved in the negotiation process and when that will occur. Failure to do this may result in a termination of contract negotiations. Contract owners should also contact the Finance Department early in the contracting process if the contract type requires Finance Department review and approval prior to signing the contract.

The contract owner (who is identified in item 3a) is responsible for obtaining all necessary reviews and approvals well before signing the contract. By signing the Contract Approval Form, the contract owner acknowledges that he or she: (1) has primary responsibility for negotiating and agreeing to the terms of the contract, and (2) has followed all American Water policies and practices (including the Code of Ethics) that apply regarding the subject matter of the contract. Unless otherwise indicated on the Contract Approval Form, the contract owner is responsible for managing the company's obligations under that contract. If the contract owner will not be responsible for managing the company's obligations under the contract after it is signed, the person who will have such responsibility must be named on the Contract Approval Form (see item 3b).

If the contract owner does not have authority under the DOA to sign the contract, the contract owner must obtain the approval of another employee in their business unit that has sufficient authority to sign the contract. This second employee is the "contract signer". By signing the Contract Approval Form, the contract signer

acknowledges that he or she is the proper party to approve and physically sign the contract pursuant to the DOA and all other American Water policies and practices regarding the subject matter of the contract.

The Law Department reviewer is the attorney responsible for providing advice and counsel to the contract owner regarding legal issues related to the contract. By signing the Contract Approval Form, the attorney acknowledges that he or she reviewed the contract in a manner consistent with Law Department policies and practices in that attorney's judgment. An attorney may use one Contract Approval Form to approve several standard contracts at the same time if the standard contracts comply with the Law Department's procedures established for standard contracts.

The Finance Department reviewer, if required, is responsible for providing financial advice to the contract owner and acting as an interface with the Finance Department, so that the Finance Department can take appropriate actions with respect to the completion of the contract. By signing the Contract Approval Form, the Finance Department reviewer acknowledges that he or she reviewed the contract and relayed any accounting or finance issues to the Finance Department or other required department in a manner consistent with Finance Department policies and practices.

The Supply Chain Department reviewer, if required, is responsible for confirming that the contract was negotiated and entered into in a manner consistent with Supply Chain Department policies and practices. By signing the Contract Approval Form, the Supply Chain Department employee acknowledges that he or she participated in the negotiation of the contract and that the contract was entered into in a manner consistent with Supply Chain Department policies and procedures.

EXHIBIT A**CONTRACT TYPE DEFINITIONS**

The following is the list of contract types to be used on the Contract Approval Form, along with representative examples of the types of contracts that will fit under those types. The contract types are meant to be broad categories and the descriptions and lists that follow are meant to serve as guides. Designating a contract under an inappropriate specific contract type for the sole purpose of avoiding Finance or Supply Chain Department review is strictly prohibited. If in doubt as to which contract type to use, consult with your Law Department reviewer.

All non-standard contracts must be reviewed by an attorney in the Law Department (See Instructions).

Contract types marked with an "F" require the prior input and approval of the Finance Department.

Contract types marked with an "F\$" require the prior input and approval of the Finance Department if the total value exceeds \$100,000.

Contract types marked with a "P" require the prior input and approval of the Supply Chain Department.

See Instructions for a complete description of the approval process.

<u>Contract Type</u>	<u>Description</u>
Benefit/Pension Agreement (F)(P)	All contracts relating to employee benefits, such as 401(k) management, pension management, health insurance group contracts, union benefit/pension agreements
Billing/Shut-Off Agreement	Usage data, termination and customer billing agreements
Debt/Securities Agreement (F)	Agreements relating to the issuance of debt or securities by the company to non-affiliates, generally in a capital raising or refinancing transaction; includes related underwriting and placement agreements; does not include intercompany agreements
Confidentiality Agreement	Stand-alone non-disclosure or confidentiality agreements, such as related to an RFP or acquisition transaction
Construction Agreement (F\$)	New projects; includes prime contractor and subcontractor agreements; does not include main extension agreements or outsourced maintenance or repair provider contracts
Developer Service/Main Extension Agreement	All Developer Service or Main Extension Agreements
Easement Agreement (F\$)	All Easement Agreements
Employment Agreement (F)	Individual employment agreements, termination agreements and severance agreements; does not include union/collective bargaining or pension/benefit agreements

<u>Contract Type</u>	<u>Description</u>
Environmental Agreement (F)	Agreements with governmental authorities; does not include agreements to provide remediation services, testing, consulting or professional service agreements
Financial Agreement (F)	Agreements dealing with the company's internal financing, such as intercompany loan or capital contribution arrangements, agreements to purchase or sell securities held for investment; does not include variable interest investments (FIN 46) or joint ventures
Fire Protection Agreement	All Fire Protection Agreements
Franchise Agreement (F)	Agreement or municipal ordinance under which the company receives the right or consent of a particular town or city to provide water or wastewater service to customers located in the town or city (or a part thereof)
Joint Venture Agreement (F)	Variable interest investments (FIN 46), non-consolidated investments
Labor Agreement	Union/collective bargaining contracts and related agreements; arbitration agreements/settlements; does not include union benefit/pension agreements
Lease Agreement (F\$(P)	Real estate and equipment leases, including capital leases; includes agreements where the company is either lessor/landlord or lessee/tenant
License Agreement (P)	Software and other intellectual property agreements; does not include "shrink-wrap" software licenses or licenses to software incidental to other equipment
Merger/Acquisition/Disposition Agreement (F)	Purchase or sale of businesses, including water or wastewater system assets in the aggregate, and related agreements (letters of intent, bills of sale, assignment and assumption agreements, etc.)
Miscellaneous Agreement (F)	To be used very sparingly and only if no other category is relevant
Operating Agreement (F)	O&M, Design-Build-Operate and other agreements to operate systems owned by others; does not include subcontracts with third parties to provide services to the company
Purchase/Sale Agreement (F\$(P)	Individual purchase or sale of a specific asset not related to a joint venture or merger/acquisition/disposition, such as real estate or a single piece of equipment
Rate Agreement/Stipulation	All contracts dealing with rate issues, e.g. rate orders, stipulations, rate case consultants, etc.

<u>Contract Type</u>	<u>Description</u>
Services Agreement (F\$) (P) only if company is receiving the services	Includes agreements where the company is providing specialized services to customers and agreements where the company is engaging outside consulting firms or individuals, such as law firms, architects, etc., or purchasing services such as maintenance, outsourced construction/repair, janitorial, printing, travel, etc.; does not include such agreements relating to rate cases
Settlement Agreement (F)	Settlement of legal claims, including releases and court orders; does not include settlements involving rate cases
Supply Agreement (P)	Supply agreements negotiated by Supply Chain Department
Water Supply/Wastewater Agreement (F)	Bulk purchase or sale, sale for resale and wholesale agreements; wastewater treatment agreements

TO: Gerald Coyne

**Agreement to Supply
Potable Water Treatment Chemicals
For 2008**

THIS AGREEMENT is dated as of the 1st day of January in the year 2008, by and between:

**American Water Works Service Company, Inc.
1025 Laurel Oak Road
P.O. Box 1770
Voorhees, NJ 08043**

(hereinafter called Services)

and

**BONDED CHEMICALS, INC.
2645 CHARTER ST.
COLUMBUS, OH 43228**

(hereinafter called Chemical Supplier)

Agreement to Supply Potable Water Treatment Chemicals – 2008 Recitals

- A. Services desires to purchase from time to time certain Chemicals to be used in water treatment by certain of its affiliates (Users); and
- B. Chemical Supplier agrees to provide certain chemicals set forth in Exhibit A (Chemicals) to the Users in accordance with the terms of this Agreement.

NOW, THEREFORE, Services and Chemical Supplier, in consideration of the mutual covenants hereinafter set forth, agree as follows:

ARTICLE 1. PURCHASE TERMS

- 1.1** Chemical Supplier shall supply and deliver each chemical specified in the purchase order supplied by the User locations at the prices set forth in Exhibit A or as otherwise agreed upon in an amended Exhibit A, and in such quantities as Services may from time to time specify on such purchase orders. The quantities set forth are estimates only, and Services reserves to the right to order more or less than such quantities.
- 1.2 The Chemicals provided and delivery thereof shall comply with applicable User's requirements and specifications contained in this Agreement, including but not limited to User's delivery requirements.
- 1.3 The term of this Agreement is from 01/01/2008 until 12/31/2013. Exhibit A, which is attached hereto and incorporated into this Agreement in its entirety, contains the prices of all Chemicals, as well as the period(s) of time in which the prices for such Chemicals will be valid. Any price changes will be incorporated into this Agreement in accordance with Section 10.13 of this Agreement.
- 1.4 Chemical Supplier represents and warrants that prices agreed upon shall be complete, and no additional charges of any type shall be added without Services' express written consent. All prices include, but are not limited to, charges for shipping, delivery, packaging, labeling, custom duties, taxes, storage, insurance, boxing, and crating. Chemical Supplier will not charge Services or User for any demurrage fees or cylinder deposits.
- 1.5 The terms contained in this Agreement (a) are the sole and exclusive terms governing the purchase, sale and delivery of the Chemicals, and (b) supersede any prior terms, representations and warranties relating to the purchase, sale and delivery of the Chemicals. Services and Chemical Supplier acknowledge and agree that it is essential to this Agreement that only the terms contained herein govern the purchase, sale and delivery of the Chemicals, to the exclusion of any different or additional terms contained in any forms or documents sent by either party to the other or that accompany shipment. If Chemical Supplier includes or attaches any different or additional terms in Chemical

Agreement to Supply Potable Water Treatment Chemicals

Supplier's purported acceptance, commences performance, or tenders the Chemicals, only the terms and conditions as stated herein, without inclusion of any different or additional terms and conditions, shall govern the purchase, sale and delivery of the Chemicals.

- 1.6 All Chemicals furnished must strictly conform to the Contract Documents and must be of the quality specified. No deviation or substitution is permitted without the prior written consent of Services. In the event no quality is specified, the Chemicals must be at least equal to American Water Works Association (AWWA) standards. Services shall have the right at all times during the term of this Agreement to conduct such tests and inspections as it deems necessary to assure Chemical Supplier's compliance with this Agreement. Chemical Supplier will supply to Services, as requested by Services, data, specifications, test results, quality documentation, schedules, and other documents and information relating to the Chemicals and this Agreement.

ARTICLE 2. CHEMICAL SUPPLIER'S REPRESENTATIONS AND AGREEMENTS RELATING TO THE CHEMICALS

In order to induce Services to enter into this Agreement, Chemical Supplier makes the following representations and agreements:

- 2.1 Chemical Supplier has familiarized itself with the nature and extent of the Contract Documents, site locality, all local conditions and all laws and regulations that in any manner may affect cost, progress, performance or furnishing and delivering of the Chemicals.
- 2.2 Chemical Supplier will provide an affidavit of compliance with National Sanitation Foundation (NSF) chemical certification (or equivalent) to Services upon request, as well as a "letter of guaranteed supply" by the manufacturer of the Chemicals, that will confirm that Chemical Supplier has committed sufficient quantities of Chemicals to cover Services' annual requirement as set forth in Exhibit A. Polymer suppliers must also complete the Polymer Certification Form in Exhibit B, which is attached hereto and incorporated into this Agreement in its entirety.
- 2.3 When Chemicals purchased hereunder are to be manufactured or produced outside the United States or its territories, Chemical Supplier shall furnish at Services' request documents stating the foreign manufacturers' or producers' names and addresses, and containing written assurances of compliance with U.S.A. standards.
- 2.4 Chemical Supplier has supplied a "product specification sheet", which is attached hereto as Schedule 1 and is incorporated by reference herein, that lists the chemical purity, maximum concentrations of impurities, as well as the chemical properties and physical properties of each Chemical that is to be provided hereunder. During the term of the Agreement, no deviation from that product specification sheet will be permitted, and, upon request, Chemical Supplier will provide Services with periodic quality control reports detailing Chemical quality.

Agreement to Supply Potable Water Treatment Chemicals

- 2.5 Chemical Supplier shall furnish to Services a load-specific "Certificate of Analysis" of each Chemical. Chemical Supplier must either fax a copy of the "Certificate of Analysis" to each specific User prior to delivery of the Chemicals or provide User with the "Certificate of Analysis" at each delivery. No Chemical deliveries will be accepted without a "Certificate of Analysis."
- 2.6 The cost of supplying and testing of corrosion coupons for field-testing of corrosion rates of Chemicals used for corrosion control purposes shall be included in the Chemical prices as outlined in Exhibit A.
- 2.7 Chemical Supplier shall provide the technological data required for regulatory compliance as defined by OSHA Hazard Communications Standard, 29 CFR 1910.1200; Toxic Substances Control Act Regulations, 40 CFR 710; CERCLA and SARA regulations, 40 CFR 355, 370, 372, 1990 Clean Air Act Amendments, Title III Hazardous Air Pollutants Section 112 (r) Prevention of Accidental Releases, and Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986.

ARTICLE 3. RESPONSIBILITIES OF SERVICES AND USERS

- 3.1 A User shall notify Chemical Supplier at least three (3) days in advance of required deliveries unless otherwise agreed upon in writing.
- 3.2 A User shall provide access to the appropriate locations to permit Chemical Supplier to make deliveries in accordance with the terms of this Agreement.
- 3.3 Services reserves the right of each User to test any delivery prior to unloading. The chemical truck driver is required to obtain a representative sample of Chemicals from the delivery vessel(s) prior to unloading. The delivered Chemical will be checked by the User for clarity, purity, specific gravity, and exact type of Chemical being received. Authorization to unload the Chemical shall be contingent upon this testing.
- 3.4 Services, or any User on Services' behalf, reserves the right to refuse any and all shipments if the Chemicals are not properly identified, packaged, labeled, or accompanied by the proper certificate of analysis or weight tickets, or if the Chemicals do not meet specifications.
- 3.5 If at any time in the opinion of Services or any User, the delivery is not properly lighted, barricaded and safe with respect to public travel, persons on or about the work site or public or private property, Services or such User shall have the right to order such safeguards, and the cost of implementing such safeguards shall be borne by Chemical Supplier.

ARTICLE 4. AGREEMENTS OF CHEMICAL SUPPLIER RELATING TO DELIVERIES

- 4.1 Chemical Supplier shall not delegate or assign any obligation hereunder to any third party without the prior written consent of Services. If Services consents to the use of a third party in fulfillment of this Agreement, all sections application to Chemical Supplier are

Agreement to Supply Potable Water Treatment Chemicals

applicable to the third party, and Chemical Supplier shall be responsible for the performance of such third party and shall indemnify and hold harmless Services and User from any loss, liability or damages related to this Agreement.

- 4.2 All transportation and delivery charges shall be borne by Chemical Supplier. Risk of loss of any Chemical shall not pass to Services until it is actually delivered, accepted, and secured in a User's storage facility in accordance with the terms hereof.
- 4.3 Chemical Supplier shall provide bulk liquid Chemical deliveries in transport vessels dedicated solely to the Chemical delivered and which have all appropriate licenses, permits and authorizations permitting such vessels to be used in the transport of such Chemicals in compliance with applicable environmental and transportation laws and regulations and in accordance with all additional delivery requirements contained in this Agreement. When dedicated Chemical transport vessels are not possible, the applicable User must be notified prior to delivery, and certified vessel cleaning certificates must be provided at the time of delivery. User may inspect the vehicle and/or tank car for anything unusual, such as broken seals and valves. Users may refuse the Chemical shipment if irregularities are identified.
- 4.4 Chemical Supplier shall furnish all necessary equipment to transfer from Chemical Supplier's delivery vehicles into the User's bulk storage vessels or onto the User's properties. Equipment shall include, but not be limited to, short bed delivery vehicles with tailgate lifts for unloading cylinders; dollies/hand trucks; chemical transfer hoses; and all miscellaneous fittings and connections necessary to permit the safe transfer of Chemicals to a User's facility. Chemical Supplier's transfer systems shall be so designed as to minimize the abrasion and loss of Chemicals during and after delivery. Chemical Supplier will ensure that the transfer system will be free of contaminants prior to delivery to User.
- 4.5 Chemical Supplier shall provide at least 24 hours' notice to the applicable User prior to delivery of any Chemicals, unless other arrangements are made with User and confirmed in writing. Chemical Supplier will specify the time and date of each delivery. Deliveries not in compliance with the agreed upon date and time may be refused by the User. Chemical Supplier shall also provide the following information to User via facsimile or email at least 24 hours prior to delivery of any Chemicals:

- Copy of Chemical Supplier delivery person's current driver's license;
- Chemical Supplier delivery vehicle's license plate number;
- Type and quantity of Chemical to be delivered; and
- Seal numbers (if applicable).

Upon arrival of the delivery vehicle, Users will verify the above information. Prior to acceptance of any delivery, the Chemical will be verified by User utilizing industry-accepted (such as AWWA) field tests. Deliveries with missing or inconsistent paperwork will be refused by User.

Agreement to Supply Potable Water Treatment Chemicals

- 4.6 Chemical Supplier will make deliveries to the applicable User in strict compliance with Chemical Supplier's as well as all of the specific User's Chemical delivery policies and procedures. Deliveries not completed on a timely basis may result in termination of this Agreement. Should Chemical Supplier desire to make deliveries other than during User's normal business hours, Chemical Supplier shall make delivery arrangements satisfactory to the applicable User. Each such User may decline requests for such deliveries in its sole discretion.
- 4.7 Chemical Supplier agrees that it will be responsible for the repair of any damage to property caused by Chemical Supplier in delivering the Chemicals, whether to Services' or User's property or the property of third parties, and that any and all repairs to the property of Services, User, or any third party will be made at no cost to Services, User, or that third party.
- 4.8 Chemical Supplier will comply and, if it uses third party haulers or transportation companies, cause such haulers and transporters to comply, with all container and transportation requirements of the Hazardous Materials Transportation Act, 49 U.S.C. §1801 et. seq. and its regulations at 49 C.F.R. §§ 106-107 and 171-179.
- 4.9 Chemical Supplier will ensure that bulk deliveries of Chemicals are accompanied by a certified weight ticket, which will serve as the basis for payment when applicable.
- 4.10 Chemical Supplier will furnish all labels on the Chemical containers in compliance with the Hazardous Materials Transportation Act and the hazard communication provisions of the Occupational Safety and Health Act, 29 U.S.C. §§ 651 et seq. ("OSHA"), including furnishing all complete and accurate Material Safety Data Sheets ("MSDS's") for all Chemicals to be provided hereunder.
- 4.11 Chemical Supplier shall comply with all federal, state, and local transportation regulations that apply to the shipment of "hazardous materials," as defined or regulated by the Hazardous Materials Transportation Act, onto Services' or Users' properties.
- 4.12 Chemical Supplier shall pay for the clean-up and disposal of any spills and/or leaks during Chemical deliveries caused by Chemical Supplier, at no charge to Services or any User. Chemical Supplier shall clean-up and dispose of contamination resulting from any such leaks or spills at its sole cost and expense and in compliance with all federal, state and local environmental and transportation laws and regulations, and in a manner which restores the property to its condition prior to such leaks or spills. Furthermore, Chemical Supplier must obtain any local, state, or federal permits and/or approvals required for the disposal of any wastes generated during Chemical deliveries.
- 4.13 Chemical Supplier will provide for the removal of empty containers, drums, and cylinders, including those that contain residual materials or that have contained a hazardous material or hazardous material mixtures. Neither Services nor any User will be responsible for rinsing any used drums or containers. Chemical Supplier must collect

Agreement to Supply Potable Water Treatment Chemicals

- all empty cylinders, drums and pallets on a regular basis at no charge to Services or any User.
- 4.14 Chemical Supplier shall take all reasonable precautions for the safety of, and shall provide all reasonable protection to prevent damage, injury, or loss to, employees, materials, equipment and property. During deliveries of Chemicals, Chemical Supplier will ensure that personal protective equipment shall be worn in accordance with its safety program as well as in accordance with the guidance provided on the Chemical's MSDS.
- 4.15 Services or any User may delay delivery or acceptance of any Chemicals occasioned by causes beyond its control. Chemical Supplier shall hold such Chemicals at the direction of Services and such User and shall deliver them when the cause affecting the delay has been removed. Services shall be responsible only for Chemical Supplier's direct additional transportation costs in returning the Chemicals to Chemical Supplier's facilities. Causes beyond Services' or any User's control shall include but not be limited to, acts of God or the public enemy, acts of terror or war, fire, flood, strike or other labor dispute directly affecting the obligations of the parties hereunder, civil disturbance, or omission by public authority or authorities having proper jurisdiction.

ARTICLE 5. HAZARDOUS CHEMICALS

- 5.1 In accordance with the intent of the Federal Occupational Safety and Health Administration, Standard Section 29 CFR 1910.1200, Hazard Communication with the effective date of May 25, 1986, Services hereby notifies Chemical Supplier that work is to be performed on company property where Chemical Supplier's (or its subcontractor's) employees may be exposed to hazardous materials existing on the premises. Chemical Supplier shall inform its employees and subcontractors of such conditions and ensure that they are adequately informed about the potential hazards of exposure to such Chemicals and are adequately trained to take appropriate precautions to protect against any harm or potential harm from exposure to such materials.
- 5.2 Hazardous chemicals known to be used or stored by the applicable Users are listed on Exhibit C, which is attached hereto and incorporated into this Agreement in its entirety.
- 5.3 Chemical Supplier represents and warrants that each chemical substance constituting or contained in the Chemicals sold or otherwise transferred to User hereunder is on the list of chemical substances compiled and published by the Environmental Protection Agency pursuant to the Toxic Substance Control Act, as amended. Chemical Supplier further represents and warrants that it has delivered, or at the time the first delivery of the materials is made to User Chemical Supplier agrees to deliver, to User any MSDS required to be provided to User pursuant to the applicable OSHA hazard communication standards contained in 29 CFR Chapter XVII, Part 1910.1200, as the same may be amended or supplemented from time to time.

Agreement to Supply Potable Water Treatment Chemicals

ARTICLE 6. TAXES

- 6.1 Services will provide Chemical Supplier with either a direct pay permit for sales tax, an affidavit of sales tax exemption, or an affidavit that the water treatment Chemicals are exempt from sales tax.

ARTICLE 7. PAYMENT PROCEDURES

- 7.1 Chemical Supplier shall invoice Services when the Chemicals have been delivered. Chemical Supplier will include a lien waiver with each invoice. Each invoice shall include the following information 1) User name and specific location of delivery, 2) Chemical description and type of delivery, and 3) concentration and amount of delivery. Services shall not be responsible for payment on account of any refused shipment.
- 7.2 All invoices must be mailed directly to the American Water Shared Services Center for payment processing. Chemical Supplier must invoice the appropriate Users via U.S. mail in accordance with the table below:

Billing PO Boxes	
All invoices should be sent to the following address using the appropriate PO Box:	American Water
	PO Box "Use Box # Below"
	Cherry Hill, NJ 08034
PURCHASER	PO BOX #
American Water Service Company - (Hershey, Alton, Belleville, Pensacola, AM Water Corp.)	5614
Arizona American Water	5613
California American Water	5623
Elizabethtown Water *	5615
Hawaii American Water	5622
Illinois American Water	5626
Indiana American Water	5621
Iowa American Water	5624
Kentucky American Water	5610
Long Island American Water	5611
Maryland American Water	5612
Michigan American Water	5601
Missouri American Water	5605
New Jersey American Water	5602
New Mexico American Water	5604
Ohio American Water	5603
Pennsylvania American Water	5606
Tennessee American Water	5608
Texas American Water	5607
Virginia American Water	5625
West Virginia American Water	5609
AWE	1590

Agreement to Supply Potable Water Treatment Chemicals

Payments shall be remitted to:

BONDED CHEMICALS INC. - 1125 SOLUTION CENTER / CHICAGO, IL, 60677-1001

- 7.3 If a User disputes any invoice or a portion thereof, User shall not pay the disputed portion of such invoice until the parties have resolved such dispute in accordance with the dispute resolution process delineated in Section 10.16 of this Agreement. The undisputed portion of any invoice shall be paid as set forth herein.
- 7.4 If any undisputed fees remain unpaid sixty (60) calendar days after User's receipt of an invoice, Chemical Supplier will notify User in writing of the late payments and, in Chemical Supplier's discretion, the dispute resolution procedures delineated in Section 10.16 shall begin to resolve payment of such fees. If such matter remains unresolved following completion of the dispute resolution process delineated in Section 10.16, then the parties may resolve such dispute through litigation, the losing party bearing all costs of such litigation. All claims for money due or to become due from User shall be subject to deduction or set off by User by reason of this or any other transaction with Chemical Supplier or any User.

ARTICLE 8. INSURANCE

- (a) At no expense to Services or User, Chemical Supplier shall (1) obtain and keep in force during the term of this Agreement, and any renewals or extensions hereof, and (2) require its subcontractors to obtain and keep in force during the terms of their respective contracts, the following minimum insurance limits and coverage. The insurance coverage limits stated below are minimum coverage requirements, not limitations of liability, and shall not be construed in any way as Service's acceptance of the responsibility of Chemical Supplier.

1. Commercial General liability:

- \$1,000,000 per occurrence Combined Single Limits
- \$1,000,000 General Aggregate
- \$1,000,000 Products and Completed Operations Aggregate
- CGL ISO 1996 or later Occurrence form including Premises and Operations Coverage, Products and Completed Operations, Coverage for Independent contractors, Personal Injury Coverage and Blanket Contractual Liability, and Contractors Protective Liability if the Contractor subcontracts to another all or any portion of the Work. Completed Operations shall be maintained for a period of three (3) years following Final Completion for any construction, renovation, repair and or maintenance service.

2. Workers' Compensation

- Applicable Federal or State Requirements: Statutory Minimum
- Employer's Liability
- Each Accident \$1,000,000

Agreement to Supply Potable Water Treatment Chemicals

- Each Employee – Disease \$1,000,000
 - Voluntary workers compensation insurance coverage all employees not subject to applicable workers compensation act or acts
3. Automotive Liability (including owned, hired, borrowed and non-ownership liability)
 - Bodily Injury and Property Damage \$1,000,000 each occurrence Combined Single Limits
 4. Pollution Liability
 - Bodily Injury and Property Damage \$5,000,000 each occurrence Combined Single Limits
 5. Umbrella Liability
 - \$9,000,000 each occurrence and annual aggregate in excess of Employer's Liability,
 - General Liability and Automotive Liability (no more restrictive than underlying insurance)
 6. Chemical Supplier will maintain in full force and effect public liability insurance in the amount required by 49 CFR - Part 387 Subpart A (minimum levels of Financial Responsibility for Motor Carrier of Property in the amount of 5 million dollars.). A copy of the Auto Liability Policy's Form MC-90 shall be submitted with Chemical Supplier's certificate of insurance.
- (b) The minimum liability limits required may be satisfied through the combination of the primary General Liability, Employers' Liability, and Automotive Liability limits with an Umbrella Liability policy (with coverage no more restrictive than the underlying insurance) providing excess limits at least equal to or greater than the combined primary limits.

All Commercial General Liability including completed operations-products liability coverage and Automotive liability insurance shall designate Services, its parent, affiliates and subsidiaries, its directors, officers and employees as an Additional Insured. All such insurance should be primary and non-contributory, and is required to respond and pay prior to any other insurance or self-insurance available to Services. In addition to the liability limits available, such insurance will pay on behalf or will indemnify Services for defense costs. Any other coverage available to Services applies on a contingent and excess basis. Such insurance shall include appropriate clauses pursuant to which the insurance companies shall waive its rights of subrogation against Services.

- (c) Chemical Supplier and any of its subcontractors shall furnish, prior to the start of work, certificates or adequate proof of the foregoing insurance including, if specifically requested by Services, copies of the endorsements and insurance policies naming Services as an Additional Insured. Current certificates of insurance shall be provided prior to the commencement of work and shall be maintained until completion of the Agreement. Chemical Supplier shall notify in writing, at least thirty (30) days prior to cancellation, of or a material change in a policy.

Agreement to Supply Potable Water Treatment Chemicals

- (d) Certificate holder is included as an additional insured with respect to liability arising out of the named insured's operations performed on behalf of holder. Excess policy follows form for Employers Liability, General Liability and Auto Liability Policies without exception and shall be indicated as such with an endorsement from the insurer. Waiver of Subrogation endorsement must accompany certificate of insurance and must include Workers' Compensation policies.
- (e) Carriers providing coverage will be rated by A.M. Best with at least an A-rating and a financial size category of at least Class VII. Such cancellation or material alteration shall not relieve Contractor of its continuing obligation to maintain insurance coverage in accordance with this contract. Carriers shall be licensed in state(s) where work shall be performed.
- (f) If Chemical Supplier shall fail to procure and maintain said insurance, Services, upon written notice, may, but shall not be required to, procure and maintain same, but at the expense of Chemical Supplier. In the alternative, Services may declare a default hereunder and, unless such default is timely cured, terminate the Agreement. Unless and until the default is cured, neither Chemical Supplier nor its servants, employees, or agents will be allowed to enter upon the Service's premises.
- (g) Chemical Supplier must state on its Auto/Truck Certificate of Insurance that it has "no pollution exclusion for products they are transporting in its motor vehicles." If there is no "products pollution exclusion," then the Auto/Truck Liability policy must provide for waiver of subrogation and additional insured status as to Services and its Affiliates. Auto/Truck policy must also provide either blanket contractual liability coverage for contractual liability coverage specific to the product transport contract.
- i. If the Chemical Supplier's Auto policy does contain a "pollution exclusion", then the Chemical Supplier must provide evidence on the Certificate of Insurance that it has obtained either (i) a "Hazardous Cargo Endorsement" on the current policy, or (ii) obtain a "Transporter's Environmental Impairment Liability" policy. With either of these items, the Certificate of Insurance must state that the endorsement or policy includes "loading and unloading activities."
 - ii. With respect to a Transporter's EIL policy or "Hazardous Cargo Endorsement", the limits of liability should not be less than \$2,000,000 for any one occurrence.
 - iii. The "Environmental Impairment Liability" or "Hazardous Cargo Endorsement" coverage is to be written on an "occurrence:" basis. If the coverage can only be obtained on a "claims made" basis, then the Chemical Supplier must provide either one of the two following items:
 - A contractual commitment, which becomes a part of the purchase contract that the Chemical Supplier will "renew the coverage in terms as great and as broad as presently held for at least the next five years", or
 - A commitment on the Certificate of Insurance to provide an "extended reporting provision", also known as a "tail", on the coverage for a period of at least the next five years.

Agreement to Supply Potable Water Treatment Chemicals

- (h) A waiver of subrogation shall be provided to Services and its Affiliates on the Environmental Impairment Liability coverage. Services and its Affiliates shall also be added as "additional insureds" on this same coverage. This coverage must also contain either blanket contractual liability coverage or contractual liability coverage specific to the product transport contract.

ARTICLE 9. CONTRACT DOCUMENTS

The "Contract Documents" which comprise the entire Agreement between Services and Chemical Supplier concerning the Chemicals consist of:

- 9.1 This Agreement
- 9.2 Exhibit A -- Pricing
- 9.2 Exhibit B – Polymer Certification (attached)
- 9.3 Exhibit C – Hazardous Chemicals (attached)
- 9.4 Schedule 1 – Product Specification Sheets

ARTICLE 10. GENERAL**10.1 Indemnity**

Chemical Supplier agrees to indemnify, defend, and hold harmless Services and each User, together with their respective directors, officers, employees and agents, from and against any and all claims, demands, losses, damages, actions, or liability of any kind, including attorneys' fees, arising out of or related to (i) the Chemicals provided under this Agreement or (ii) any breach of any representation or warranty or any other obligation of Chemical Supplier set forth in this Agreement by Chemical Supplier. Services or User shall (i) notify Chemical Supplier in writing about the raised claim in a timely manner; and (ii) authorize Chemical Supplier to lead and settle the legal proceedings (provided that no such settlement shall include an admission of liability or guilt by Services or User without Services' prior written consent) at Chemical Supplier's own cost, with Services and/or User providing reasonable cooperation and support as requested by Chemical Supplier.

10.2 Confidentiality

Chemical Supplier, on behalf of itself and its employees, agrees that any ideas, know-how, concepts, information, or processes received from Services or any User or created by Chemical Supplier in connection with the performance of this Agreement shall be the property of Services or User and shall be preserved in strictest confidence by Chemical Supplier and shall not be used or disclosed by Chemical Supplier to third persons except to the extent that such use or disclosure is necessary for the proper performance of this Agreement. If disclosure to third persons is necessary, Chemical Supplier shall ensure that such third persons hold such information in strictest confidence.

Agreement to Supply Potable Water Treatment Chemicals

10.3 Patents

By accepting this Agreement, Chemical Supplier agrees to defend, protect and save harmless Services and each User, and their successors and assigns, from and against any and all liability, damages, loss and expense (including reasonable attorney's fees) by reason of any claim, demand, action or litigation arising out of any alleged or actual, direct or contributory, infringement of any United States or foreign patent arising out of the purchase, sale or use of the Chemicals. Chemical Supplier agrees to notify Services of any potential illegalities connected with the Chemicals. Services and User agree to notify Chemical Supplier promptly of any such claim of which Services or User become aware and to provide Chemical Supplier all reasonable information and assistance (at Chemical Supplier's expense) as may become necessary for defense of the claim. Chemical Supplier shall pay all damages and costs, if any, which may be awarded therein. In case the claim regards the use of the Chemicals, Chemical Supplier shall at its own expense and at its option, either procure for Services and User the right to continue using said Chemicals, or replace same with a non-infringing equivalent, or remove same at Chemical Supplier's sole cost and expense, and refund the purchase price and all transportation, and other charges, duties or fees paid by Services and User in connection with the purchase thereof.

10.4 Compliance with Laws

Chemical Supplier shall, in its performance of this Agreement, procure all necessary permits, comply with all applicable federal, state, and local statutes, rules of law, ordinances, regulations, and regulatory orders, including but not limited to the Fair Labor Standards Act of 1938, as amended, Walsh-Healy Act, Robinson-Patman Act, applicable State Workers' Compensation laws, state and federal Occupational Safety and Health Acts, and all rules and regulations passed pursuant thereto, which are incorporated herein by this reference. Chemical Supplier agrees to be subject to all applicable contract clauses required by federal, state or local law, rule or regulation to be included in this Agreement.

10.5 Assignments

No assignment by Chemical Supplier of any rights under or interests in the Agreement will be binding on Services or any User without the written consent of Services; and specifically but without limitation monies that may become due and monies that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Agreement documents.

10.6 Successor and Assigns

Services and Chemical Supplier each binds itself, its partners, successors, assignees and legal representatives to the other party hereto, its partners successors, assigns and legal

Agreement to Supply Potable Water Treatment Chemicals

representatives in respect of all covenants, agreements and obligations contained in the Contract Documents.

10.7 THIS SECTION INTENTIONALLY LEFT BLANK.**10.8 Termination**

This Agreement may be terminated by Services fifteen (15) calendar days from the date of written notice for the sole convenience of Services or at any time with written notice if Chemical Supplier fails to comply with the terms of the Contract Documents. If so terminated, Services shall pay Chemical Supplier all undisputed amounts due Chemical Supplier for all Chemicals delivered up to the date of Chemical Supplier's receipt of notice of termination.

10.9 Rights and Benefits

Chemical Supplier's obligations hereunder will be performed solely for the benefit of Services and Users and not for the benefit of any other persons or entities.

10.10 Time of Completion

Time is of the essence in the performance of Chemical Supplier's obligations described in this Agreement. At the outset of any delay from any cause, Chemical Supplier shall immediately notify Services in writing of the delay or anticipated delay and shall undertake to shorten the delay by all reasonable means. Chemical Supplier shall be solely responsible for the cost of overcoming delays unless such delays are caused by Services or any User.

10.11 Governing Law; Severability

10.11.1 This Agreement shall be governed by the Uniform Commercial Code provisions applicable to transactions in goods. This Agreement shall be governed and construed in accordance with the laws of the State of New Jersey, without reference to or application of conflict of laws, rules, or principles.

10.11.2 If any one or more of the provisions contained within this Agreement is deemed invalid, illegal, or otherwise unenforceable by a court of competent jurisdiction, the provision of the Agreement will be enforced to the maximum extent permissible and the remainder of the provisions of this Agreement will remain in full force and effect. Chemical Supplier and Services or User mutually agree to substitute any invalid, illegal or unenforceable provision of this Agreement with a valid, legal, or enforceable provision which comes as close as possible to the reasonably inferred intent of the invalid, illegal, or unenforceable provision.

Agreement to Supply Potable Water Treatment Chemicals

10.12 Survival

Chemical Supplier's agreements set forth herein shall survive the termination of this Agreement.

10.13 Entire Agreement

This Agreement constitutes the entire understanding and agreement between Chemical Supplier and Services relating to the subject matter herein, and except as expressly set forth herein, supersedes any and all prior or contemporaneous agreements or understandings, whether oral or written, relating to the subject matter herein. Any waiver, modification or amendment of any provision of this Agreement will be effective only if in writing and signed by duly authorized representatives of the parties.

10.14 Waiver

Services' or Users' failure to insist on performance of any of the terms or conditions herein or to exercise any right or privilege or Services' or Users' waiver of any breach hereunder shall not thereafter waive any other terms, conditions, privileges, whether of the same or similar type.

10.15 Notices

All notices required or permitted under this Agreement from one party to another under or in connection with this Agreement shall be in writing (or shall be made by a telecommunications device capable of creating a written record), and shall be delivered to Services and Chemical Supplier at their contact addresses specified below. Notices shall be deemed received at the time they are actually received by the receiving party. Either party may change its address for notices under this Agreement by giving written notice to the other party by the means specified in this Section 10.15.

The respective addresses for giving notices hereunder are as follows:

A. **BONDED CHEMICALS, INC.**
PAUL COCHRAN
GENERAL MANAGER
2645 CHARTER ST.
COLUMBUS OH 43228
PHONE: (614) 777-9240 / FAX: (614) 777-9244
cochrampa@chemgroup.com

B. **To Services:**
Gerald J. Coyne

Agreement to Supply Potable Water Treatment Chemicals

**Senior Buyer
American Water
1025 Laurel Oak Road
Voorhees, New Jersey 08043**

10.16 Dispute Resolution

10.16.1 The intent of the parties is to identify and resolve disputes promptly after any dispute arises. Before attempting to exercise any legal or equitable remedy, each party agrees to follow the dispute resolution procedure described below. Except as provided otherwise elsewhere in this Agreement, if either party determines that following the procedure described below in this Section 10.16 could potentially be harmful or damaging to their respective businesses or third-party suppliers, that party may elect to forego the dispute resolution process and pursue injunctive relief.

10.16.2 Escalation of Dispute. If there is a dispute between the parties arising out of this Agreement, each party agrees to engage in good faith negotiations between progressively more senior representatives of each party, as follows.

<i>Level</i>	<i>Representatives of the Parties</i>	<i>Maximum Duration of Negotiations Prior to Escalation to Next Level</i>
One	Services: Chemical Buyer	5 business days
	Chemical Supplier: Bonded Chemicals, Inc – Paul Cochran	
Two	Services: Director of Supply Chain Department	5 business days
	Chemical Supplier: Bonded Chemicals, Inc.-Paul Cochran	
Three	Services: COO or American Water's designee	7 business days
	Chemical Supplier: Bonded Chemicals, Inc. – Paul Cochran	

Either party may at any time change its representative party designated above by providing written notice to the other party.

Agreement to Supply Potable Water Treatment Chemicals

If such matter remains unresolved following the negotiations and the expiration of the periods specified above in this Section 10.16.2, each party may immediately exercise or pursue any other rights or remedies available hereunder or at law or in equity, and it is acknowledged by the parties that nothing herein shall preclude, limit, or otherwise restrict any legal or equitable remedies available to either party for failure of the other party to perform its obligations under this Agreement.

10.17 Use of Logo

Chemical Supplier shall not, without Services' express written permission, (i) use Services' name, nor any trade name, logo, trademark, or service mark, whether registered or not, or the name, assumed business name, trade name, logo, trademark, or service mark, whether registered or not, of any User, in connection with publicity, advertisements, promotion or in any other connection, or (ii) identify Services or Users in any manner on customer or vendor lists or on a web site (or on any third party web site) or in any web site metatags; or (iii) disclose to any third party the existence of this Agreement or the monetary value of any Chemicals purchased hereunder. Chemical Supplier shall indemnify Services for reasonable costs and expenses incurred in connection with enforcing the provisions of this Section 10.17. All of the restrictions and obligations set forth in this Section 10.17 shall survive any termination of this Agreement.

10.18 EEOC

Chemical Supplier specifically warrants and guarantees to Services:

- (a) that it agrees to comply with Executive Order 11246 and abide by the provisions of the "Equal Opportunity Clause" at 41 CFR § 60-1.4, which is incorporated herein by reference, unless exempt pursuant to 41 CFR § 60-1.5;
- (b) that it agrees to comply with the Vietnam Era Veterans Readjustment Assistance Act of 1974, as amended, Executive Order 11701 (Employment of Veterans by Federal Agencies and Government Contractors and Subcontractors), and the provisions of the "Affirmative Action for Disabled Veterans and Veterans of the Vietnam Era Clause" at 41 CFR §60-250.5, which is incorporated herein by reference, unless exempt pursuant to 41 CFR §60-250.4.
- (c) that it agrees to comply with the Rehabilitation Act of 1973, Executive Order 11758 (Authority Under Rehabilitation Act of 1973), and the provisions of the "Affirmative Action for Workers With Disabilities Clause" at 41 CFR 60-741.5, which is incorporated herein by reference, unless exempt pursuant to 41 CFR §60-741.4;
- (d) that it agrees to comply with Executive Order 13201 (Notice of Employee Rights Concerning Payment of Union Dues or Fees) and abide by the provisions of the clause at 29 CFR § 470.2, which is incorporated herein by reference, unless exempt pursuant to 29 CFR §§ 470.3-4;

Agreement to Supply Potable Water Treatment Chemicals

(e) that it agrees to comply, where applicable, with the policies set forth in Executive Order 11625 (National Program for Minority Business Enterprises) and Executive Order 12138 (National Program for Women's Business Enterprise), the Small Business Act, 15 U.S.C. § 631, *et seq.*, and with the "Utilization of Small Business Concerns" and "Small Business Subcontracting Plan" clauses at 48 CFR § 52.219-8 and 9, respecting subcontracting with small disadvantaged, female-owned, veteran-owned, service-disabled veteran-owned, HUBZone, and other small businesses.

10.19. Standards of Personnel

10.19.1 Chemical Supplier acknowledges that the Federal Government has declared public- water systems, including Services', to be critical infrastructure essential to the continued operation of the government and the nation.

10.19.2 Chemical Supplier acknowledges that Services' water and wastewater operations are governed by numerous federal and state statutes and regulations, and subject to regulation by numerous federal and state agencies.

10.19.3 Chemical Supplier acknowledges that, among other things, Services provides retail water and wastewater service to the public, as authorized and regulated by public utility commissions, so that Services has a public-service obligation to provide safe and affordable water and wastewater service to the public.

10.19.4 Chemical Supplier will conduct, or will have conducted, a background check on each of its employees or individual subcontractors before the employee or subcontractor performs any function or activity under this Agreement that involves access to Services' confidential information or on-site work at any of Services' or Users' facilities. The background check conducted by Chemical Supplier will include at least the following:

- Previous employers and dates of employment;
- Education;
- Professional License verification;
- Military Service Verification;
- Driving record;
- Criminal history (state and federal);
- References;
- Credit history or social security number trace; and
- Personal history to the extent permitted by applicable laws and regulation.

10.19.5 Chemical Supplier's review of this information will endeavor to:

- authenticate the identity of the individual;
- insure that data is consistent with an individuals stated history and current status;
- uncover any discrepancies;
- reveal any criminal history; and
- uncover any other pertinent information tending to establish that the individual may represent a security risk to Services' personnel, facilities, or Services' responsibility for the public safety and the providing of safe and adequate utility services to its customers.

Agreement to Supply Potable Water Treatment Chemicals

- 10.19.6 Before delivering any Chemicals hereunder, Chemical Supplier will provide proof to Services that the requirements of this section have been met. Upon request, Chemical Supplier will make available for Services' review, the documentation and results of the background check with respect to any employee of Chemical Supplier performing deliveries of Chemicals under this Agreement. Services will not retain such records or documentation and any findings from its review will be confidential.

ARTICLE 11. REPRESENTATIONS AND WARRANTIES

- 11.1 Chemical Supplier represents and warrants to Services that all Chemicals will be in accordance with Services' specifications and requirements. Chemical Supplier represents and warrants that all Chemicals will conform to any statements made on the containers or labels or advertisements for such Chemicals, and that any Chemicals will be adequately contained, packaged, marked, and labeled. Chemical Supplier represents and warrants that all Chemicals furnished hereunder will be merchantable, and will be safe and appropriate for the purpose for which Chemicals of that kind are normally used. Chemical Supplier knows that such Chemicals will be used in potable water treatment and represents and warrants that such Chemicals will be fit for such purpose. Chemical Supplier represents and warrants that Chemicals furnished will conform in all respects to any samples provided to Services or Users. Inspection, test, acceptance or use of Chemicals furnished hereunder shall not affect Chemical Supplier's obligation under this warranty, and such representations and warranties shall survive inspection, test acceptance and use. All of Chemical Supplier's representations and warranties shall run to Services, the Users and their respective successors, assigns and customers. Chemical Supplier will replace or correct defects of any Chemicals not conforming to the foregoing warranties promptly, without expense to Services (including, but not limited to, any expenses relating the removal, transportation and disposal of such non-conforming and/or defective Chemicals), when notified of such nonconformity by Services or any User, provided Services or such User elects to provide Chemical Supplier with the opportunity to do so. In the event of failure of Chemical Supplier to correct defects in or replace nonconforming Chemicals promptly, Services, after reasonable notice to Chemical Supplier, may make such corrections or replace such Chemicals and charge Chemical Supplier for the cost incurred by Services in doing so.
- 11.2 Chemical Supplier represents and warrants that the cylinders and containers delivered to Services are free from defects, routinely inspected and maintained. Leaking containers will be rejected by the Services, and any cost of removal, transport, and disposal of such containers shall be borne solely by Chemical Supplier.
- 11.3 Chemical Supplier represents and warrants that: (i) it is capable in all respects of providing all Chemicals in accordance with this Agreement; and (ii) it understands the nature and scope of Chemicals to be provided hereunder.
- 11.4 Chemical Supplier represents and warrants that, as of the Effective Date, there is no pending or threatened outstanding litigation, arbitrated matter, or other dispute to which Chemical Supplier is a party, that, if decided unfavorably to Chemical Supplier, could reasonably be expected to have a potential or actual material adverse effect on Chemical

Agreement to Supply Potable Water Treatment Chemicals

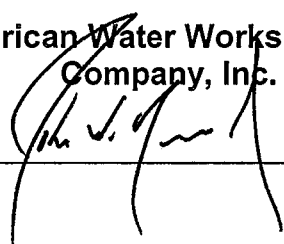
Supplier's ability to fulfill its obligations hereunder, and that Chemical Supplier knows of no basis that might give rise to any such litigation, arbitration, or other dispute in the foreseeable future. Upon becoming aware of any such basis, Chemical Supplier shall promptly notify Services thereof.

11.5 Chemical Supplier warrants that, in providing the Chemicals and in otherwise performing its obligations under this Agreement, Chemical Supplier shall comply, and, to the extent within Chemical Supplier's control, shall not prevent Services or its affiliates from complying or materially impede them in complying, with all applicable laws, regulations, and ordinances of any relevant jurisdiction, and all applicable policies of Services and its affiliates, including but not limited to those pertaining to personnel and security.

IN WITNESS WHEREOF, Services and Chemical Supplier have signed this Agreement in duplicate as of the date last signed below (the "Effective Date"). One counterpart each has been delivered to Services and Chemical Supplier.

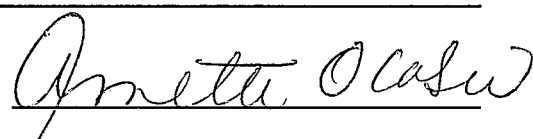
**American Water Works Service
Company, Inc.**

By: _____



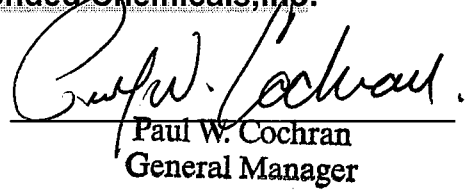
Date: 6.27.08

Attest: Amette Ocasio



Bonded Chemicals, Inc:

By: _____


Paul W. Cochran
General Manager

Date: 6/16/08

Attest: _____

EXHIBIT A – PRICING

Current Supplier	Bonded	Location	Chemical	Concentration	Annual Volume	Unit of Measure	Container Type	Shipment Quantity	Shipment Type	2008 Cost	Yearly Total
IL		Alton	Sodium Thiosulfate - Liquid	30.0%	100,000.00	wet lbs	Bulk	4000	Gallon	\$ 0.1310	\$13,100.00

Current Supplier	Bonded	Location	Chemical	Concentration	Annual Volume	Unit of Measure	Container Type	Shipment Quantity	Shipment Type	2008 Cost	Yearly Total
KY		Kentucky River Station	Sodium Thiosulfate - Liquid	30%	340,000.00	wet lbs	Bulk	4000	Gallon	\$ 0.1345	\$45,730.00
KY		Owenton Water	Sodium Hydroxide 30%	30%	50,000.00	wet lbs	Drum	10	Gallons	\$ 0.1100	\$5,500.00
KY		Owenton WWTP	Alum	48%	20,000.00	wet lbs	Drum	4	Gallons	\$ 0.1100	\$2,200.00
KY		Richmond Road Station	Sodium Thiosulfate - Dry	Neat	15,500.00	Dry lbs	50 lb bag	40	Bags	\$ 0.3300	\$5,115.00

Current Supplier	Bonded	Location	Chemical	Concentration	Annual Volume	Unit of Measure	Container Type	Shipment Quantity	Shipment Type	2008 Cost	Yearly Total
OH		Blacklick Estates WTP	Hydrofluosilicic Acid	23%	11,000.00	wet lbs	55 gallon drum	4	Drum	\$ 0.3650	\$4,015.00
OH			Sodium Tripolyphosphate Anhydrous	90% Light Density	10,000.00	dry lbs	50 lb bag	30	Bag	\$ 0.7200	\$7,200.00
OH		Huber Ridge WTP	Hydrofluosilicic Acid	23%	11,000.00	wet lbs	55 gallon drum	4	Drum	\$ 0.3500	\$3,850.00
OH			Sodium Hydroxide 50%	50%	61,000.00	wet lbs	Bulk	Max = 300 Gallons	Gallon	\$ 0.3650	\$22,265.00
OH			Sodium Tripolyphosphate Anhydrous	90% Light Density	6,000.00	dry lbs	50 lb bag	30	Bag	\$ 0.7200	\$4,320.00
OH		Huber Ridge WWTP	Sodium Thiosulfate - Liquid	30 %	17,500.00	wet lbs	55 gallon drum	3	Drum	\$ 0.2350	\$4,112.50
OH		Lake Darby Estates WWTP	Sodium Bisulfite	38%	5,900.00	wet lbs	55 gallon drum	4	Drum	\$ 0.1775	\$1,047.25
OH		Marion WTP	Soda Ash	Neat	3,000,000.00	dry lbs	Bulk	40000	Bulk	\$ 0.1365	\$409,500.00

Agreement to Supply Potable Water Treatment Chemicals

EXHIBIT B – POLYMER CERTIFICATION

**American Water Works Service Company, Inc.
TO BE SUBMITTED FOR POLYMER BIDS ONLY
Acrylamide/Epichlorohydrin Certification Sheet
For the Calendar Year 2008**

Product: _____ NO POLYMERS SUPPLIED _____

Manufacturer: _____

Supplier: _____

Please check the appropriate boxes in each applicable category of both the acrylamide and epichlorohydrin certification below, and supply the composition information where applicable.

ARTICLE 12. ACRYLAMIDE CERTIFICATION

- I certify that the above named product does not contain acrylamide, OR
- I certify that the acrylamide level in the above named product does not exceed 0.05% when added to water at a level of 1 mg/l.

OR

- I certify that the above named product contains _____% acrylamide, and that the product should not be used at a dosage rate above _____mg/l.

EPICHLOROHYDRIN CERTIFICATION

- I certify that the above named product does not contain epichlorohydrin. OR
- I certify that the epichlorohydrin level in the above named product does not exceed 0.01% when added to water at a level of 20 mg/l.

OR

- I certify that the above named product contains _____% epichlorohydrin and that the product should not be used at a dosage rate above _____mg/l.

The above information is, to the best of my knowledge, true and correct.

Name

Company

Signature

Date

EXHIBIT C – HAZARDOUS CHEMICALS

The following hazardous materials are stored on site and/or used in the water treatment process by Services:

1. Aluminum Sulfate
2. Chlorine
3. Hydrofluosilicic Acid
- 4.
- 5.
6. Sodium Metabisulfite
7. Powdered Activated Carbon
8. Orthophosphoric Acid
9. Potassium Permanganate
10. Ferric Chloride
11. Ferric Sulfate
12. Sodium Hydroxide
- 13.
14. Ammonium Sulfate
- 15.
16. Polyaluminum Chloride
17. Soda Ash
18. Sodium Hypochlorite
19. Sodium Polyphosphates

SCHEDULE 1 – PRODUCT SPECIFICATION
SHEETS

Agreement to Supply Potable Water Treatment Chemicals



> Close window to exit NSF Listings.

NSF Product and Service Listings

These Listings were Last Updated on Monday, June 16, 2008 at 4:15 AM Eastern Time.
Please [contact NSF International](#) to confirm the status of any Listing, report errors, or make suggestions.

Warning: NSF is concerned about fraudulent downloading and manipulation of website text. If you have received this listing in hard copy, always confirm this certification/listing information by going directly to <http://www.nsf.org/Certified/PwsChemicals/Listings.asp?CompanyName=Alexander+Chemical+Corporation&TradeName=Chlorine&ProductFunction=Disinfection+%26+Oxidation> for the latest most accurate information.

NSF/ANSI STANDARD 60 Drinking Water Treatment Chemicals - Health Effects

ALEXANDER CHEMICAL CORPORATION
1901 BUTTERFIELD ROAD
SUITE 120
DOWNS GROVE, IL 60515
800-445-9458
630-955-6050

Facility : KINGSBURY, IN

Chlorine[CL]

Trade Designation
Chlorine

Product Function
Disinfection & Oxidation

Max Use
30 mg/L

[CL] The residual levels of chlorine (hypochlorite ion and hypochlorous acid), chlorine dioxide, chlorate ion, chloramine and disinfection by-products shall be monitored in the finished drinking water to ensure compliance to all applicable regulations.

Number of matching Manufacturers is 1
Number of matching Products is 1
Processing time was 0 seconds

- [Search Listings](#) |
- [News Room](#) |
- [About NSF](#) |
- [Careers](#) |
- [NSF Mark](#) |
- [Client Log-In](#)

- [Privacy Policy](#) |
- [Site Map](#) |
- [Request Info](#) |
- [Contact Us](#) |
- [Copyright © 2004 NSF International.](#)

Nov-03-05 10:14 From-

+2193935364

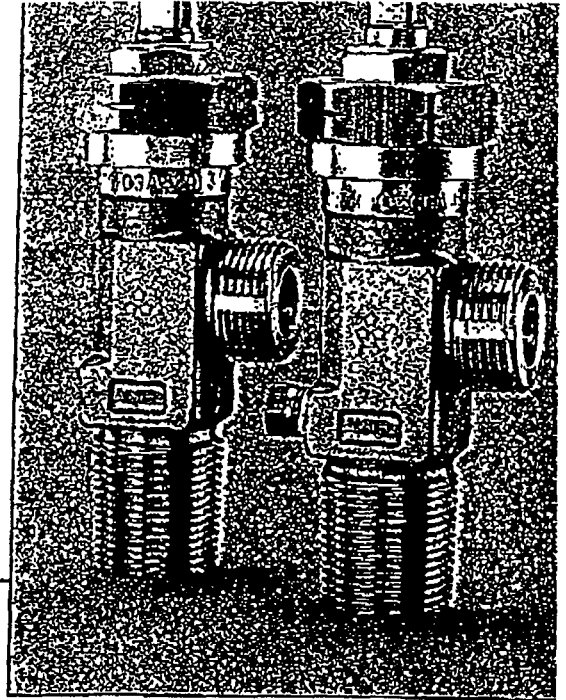
T-566 P.02/02 F-295

A New Generation...

GEODEUX Series D174

Chlorine Cylinder and Ton Container High Pressure Valves

Both Series D174 chlorine cylinder and chlorine ton container valves comply with all Chlorine Institute specifications and standards. These high pressure cylinder valves are packed with the GEODEUX 2-piece sturdy stem produced in high strength MONEL® alloy. The Series D174 chlorine cylinder and chlorine ton container valves are available with a residual pressure device. The Series D174 chlorine cylinder valve is manufactured with the fusible metal plug safety device in accordance with the CGA S-1.1 standard.



Design Features

- ◆ Spindle threads are sealed from the gas wetted area eliminating spindle thread corrosion, reducing valve maintenance, ensuring easier operation, and greatly extending valve life.
- ◆ Unique 2-piece stem design incorporates a non-rotating lower spindle which promotes lower operating torque and reduces valve body seat erosion.
- ◆ Incorporates a left hand threaded packing nut to secure the packing sealing mechanism if excessive torque is applied to spindle.
- ◆ V-ring style packings reduce packing leaks and frequent tightenings.
- ◆ Accepts standard yokes, adapters and wrenches.

Series D174 valves are available in highly corrosive-resistant aluminum silicon bronze or stainless steel.

Standard Specifications

Working Pressure pmax:	200 bar / 3000 psi
Temperature Range:	-20°C - +70°C
Helium Leak Rate:	at pmax
Internal	10 ⁻⁴ cc / sec
External	10 ⁻³ cc / sec
Flow Coefficient Cv	1.1
Seat Orifice Size	6 mm
Material	
Body	AlSiBr
Stem	MONEL® / st. steel
Packing	PTFE®

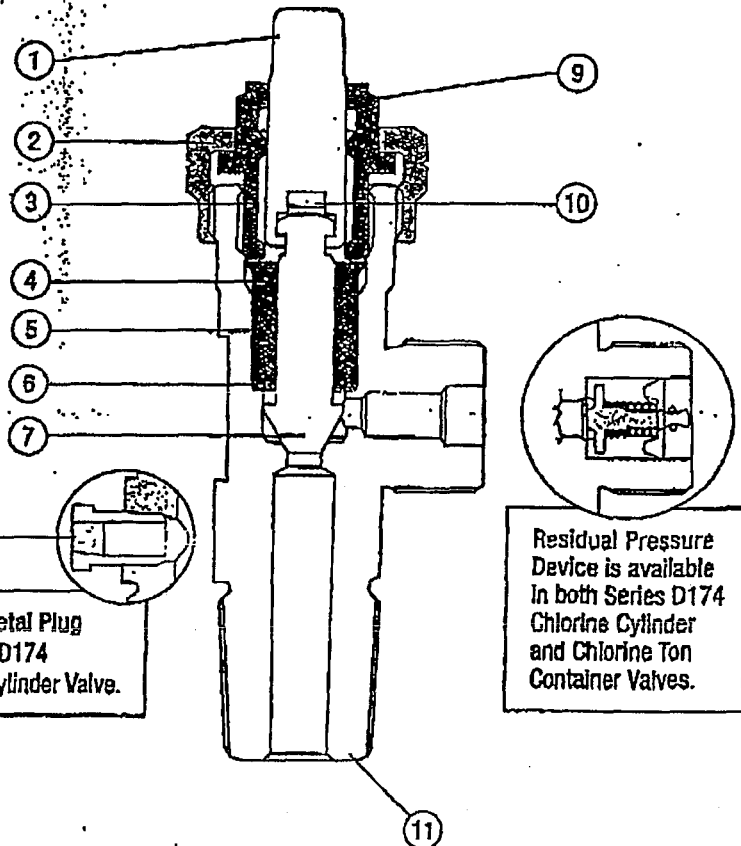
Options

- Reseating set
- Various Inlet and outlet connections and connection standards

Ordering

When ordering, please specify:

- Connections
- Safety device specifications
- Options and special features

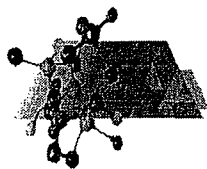


Fusible Metal Plug for Series D174 Chlorine Cylinder Valve.

Residual Pressure Device is available in both Series D174 Chlorine Cylinder and Chlorine Ton Container Valves.

Series D174 Components

- | | | |
|--------------------|--------------------|------------------------|
| 1. Spindle (upper) | 5. Packing | 9. Upper Packing Gland |
| 2. Packing Nut | 6. Washer | 10. Disc |
| 3. Gland Nut | 7. Spindle (lower) | 11. Body |
| 4. Washer | 8. Safety | |



Alexander
Chemical
Corporation

PRODUCT SPECIFICATION SHEET

Chlorine

Effective 11/7/2003

Distributed by: Bonded Chemicals, Inc

2645 Charter St. / Columbus OH 43228

(614) 777-9240

Chemical Properties:

Chemical formula:	Cl ₂
Chlorine, %:	99.50 Minimum
Moisture, ppm:	50.00 Maximum
Non-volatile residue ppm:	50.00 Maximum

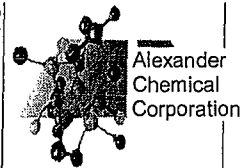
Physical Properties:

Boiling point, °F:	- 29.39
Freezing point, °F:	- 150.00 °F
Specific gravity (Gas):	2.49 @ 32 °F
Specific gravity (Liquid):	1.47 @ 32/39.2 °F
Vapor pressure, psig:	72 @ 60 °F
Appearance:	Amber, colored liquid, vaporizes to greenish yellow gas
Odor:	Sharp, suffocating, pungent

Meets ANSI/AWWA specification B301**NSF International maximum use: 30.00 milligrams per liter****Packaged by:**

Alexander Chemical Corporation
Kingsbury Industrial Park
Kingsbury, Indiana 46345
800/348-8827

Error!



MATERIAL SAFETY DATA SHEET
CHLORINE
 Effective 11/7/2003
 Page - 1 of 3

Distributed by:
Bonded Chemicals, Inc.
 2645 Charter Street
 Columbus, OH 43228
 Phone: (614) 777-9240

To Order E-mail: bci-order@chemgroup.com

SECTION 1 - EMERGENCY TELEPHONE

Alexander Chemical Corporation (business hours): 800/348-8827
 Alexander Chemical Corporation (after business hours): 800/445-9458
 CHEMTREC: 800/424-9300

SECTION 2 - DISTRIBUTOR INFORMATION

Alexander Chemical Corporation	Alexander Chemical Corporation		
Kingsbury Industrial Park	6300 Trillium Trail		
Kingsbury, Indiana 46345	Mason, Michigan 48854	800/348-8827	517/676 8884

SECTION 3 - PRODUCT IDENTITY

Product name: Chlorine. Chemical name: Chlorine. Chemical formula: Cl₂.

CAS number: 007782-50-5.

Hazardous ingredients: Chlorine, greater than 99.5% by volume.

OSHA 29 CFR 1910.1200 evaluation: Hazardous.

SECTION 4 - PHYSICAL/CHEMICAL CHARACTERISTICS

Appearance and odor: Amber colored liquid; vaporizes to greenish yellow gas with pungent odor.

Boiling point: -29.39 °F. Freezing point: -150 °F.

Specific gravity: Gas = 2.49 at 32 °F; Liquid = 1.47 at 32/39.2 °F.

pH: Acidic. Solubility in water: 0.73% at 68 °F.

Vapor pressure: 4,996 mm Hg at 68 °F.

Vapor density: 2.67 pounds per cubic foot at 68 °F.

Molecular weight: 70.9. Percent volatile by volume: 100.

SECTION 5 - FIRE AND EXPLOSION HAZARD DATA

Flash point: None.

Flammable limits in air: Lower: None. Upper: None.

Autoignition temperature: Not applicable.

Fire fighting procedures / fire extinguishing media: Keep unnecessary people away; isolate hazard area and deny entry. Stay upwind and out of low area; ventilate closed area before entering. Prevent human exposure to fire, smoke, fumes, or products of combustion. Self-contained positive pressure breathing equipment, fully enclosed protective clothing and structural fire fighter's protective clothing should be used by fire fighters. Move containers from the fire zone, if they can be moved without risk. For small fires, use dry chemical, carbon dioxide, or halon fire extinguishers. Use alcohol foam for large fires. If no chlorine is escaping, use water spray to cool containers. For massive fires, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from the area and let it burn.

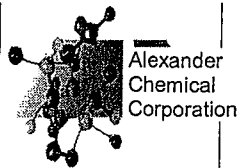
Unusual fire and explosion hazards: Strong oxidizer. Chlorine itself is non-combustible, but most combustibles will burn in chlorine as in oxygen, forming irritating and toxic gases. Chlorine may ignite other combustible materials. Chlorine reacts explosively, or forms explosive compounds, with many chemicals such as acetylene, turpentine, ether, ammonia, hydrogen and finely divided metals.

SECTION 6 - REACTIVITY DATA

Stability: Stable under normal conditions.

Hazardous polymerization: Will not occur.

Error!

**MATERIAL SAFETY DATA SHEET****CHLORINE**

Effective 11/7/2003

Page - 2 of 3

Distributed by:
Bonded Chemicals, Inc.
 2645 Charter Street
 Columbus, OH 43228
 Phone: (614) 777-9240

To Order E-mail: bci-order@chemgroup.com

Incompatibility (conditions and materials to avoid): Alkalis, reducing agents, combustible substances, finely divided metals, and organic material. Moist chlorine is highly corrosive to most metals. Chlorine reacts with most metals at high temperatures. Chlorine reacts with hydrogen sulfide and water to form hydrochloric acid; with carbon monoxide and sulfur dioxide to form phosgene and sulfuryl chloride. Chlorine is a strong oxidizer.

Hazardous decomposition products: Chlorine forms corrosive solution in water: hypochlorous acid and hydrochloric acid.

SECTION 7 - HEALTH HAZARD DATA

Primary routes of entry: Inhalation, direct contact and eye contact.

Acute health effects: Chlorine is a potent irritant to the mucous membranes of the eyes, nose and throat, and to the linings of the entire respiratory tract. The extent of injury depends upon concentration and duration of exposure. Death may occur under severe exposure. In high concentrations, chlorine may cause skin irritation, with sensations of burning and prickling, inflammation and blister formation. Liquid chlorine may cause serious direct and eye burns on contact.

Chronic health effects: Chronic exposure to chlorine gas can cause corrosion of the teeth, diseases of the lung, and may predispose the individual to lung infections, including tuberculosis.

Potential adverse chemical interactions: Persons with pre-existing lung or skin diseases may be at increased risk to the toxic effects of chlorine on these organs. Smoking activity exacerbates the pulmonary toxicity of chlorine gas.

Inhalation: May cause severe irritation to the respiratory tract followed by coughing, burning, chest pain, vomiting, headache, anxiety and feeling of suffocation. Severe exposure may cause pneumonitis and pulmonary edema. Repeated exposure to chlorine may result in reduced pulmonary capacity and dental erosion.

Direct contact: Contact with liquid chlorine may cause burns, blistering and tissue destruction.

Eye contact: Liquid and or high concentrations of chlorine gas in contact with the eyes will cause extreme irritation and or burns.

Ingestion: Ingestion is unlikely.

Carcinogens (NTP, IARC OR OSHA): No.

SECTION 8 - FIRST AID

Inhalation: Remove victim to fresh air. If not breathing, perform artificial respiration. Administer oxygen until victim breathes easily. Keep warm and at rest. Get medical attention.

Direct contact: Flush immediately with soap and water for at least fifteen (15) minutes, while removing contaminated clothing. Get medical attention, if irritation persists. Never attempt chemical neutralization. Wash clothing before re-use. Destroy contaminated shoes.

Direct eye contact: Flush immediately with water for at least fifteen (15) minutes. Forcibly hold eyelids apart to ensure complete irrigation of eye/lid tissue. Get immediate medical attention.

Ingestion: Never give anything by mouth to an unconscious person. If swallowed, do not induce vomiting. Give large quantities of water or milk. If vomiting occurs spontaneously, keep airway clear and give more water or milk. Get medical attention.

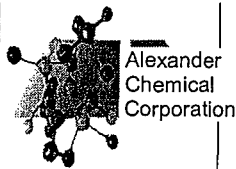
Note to physician: Treatment is symptomatic. Because there is no known antidote for chlorine gas inhalation, effective and immediate relief of symptoms is the primary goal. Steroid therapy, if given early, has been reported effective in preventing pulmonary edema.

SECTION 9 - STORAGE, HANDLING AND USE

Precautions to be taken in handling and storage: Store chlorine containers in well ventilated area of low fire potential and away from incompatible materials. Keep away from heat and sources of ignition. Protect container from weather and physical damage. Regularly test and inspect piping and containment used for chlorine service. All chlorine process equipment should be kept dry.

Steps to be taken in case material is released or spilled: If material is spilled or released to the atmosphere, keep upwind, provide ventilation, wear full protective equipment and shut off supply at source. Exclude non-essential personnel. Contain liquids and prevent discharges to streams or sewer systems; and control or stop the loss of volatile materials to the atmosphere. Large leaks may require environmental consideration and possible evacuation. Do not apply water to leak. Position container to release gas, not liquid. Chlorine can be neutralized by absorbing into an alkaline material such as caustic soda, soda ash, lime, etc. Control large spills by diking and cover the spill with foam to reduce air contamination.

Error!


**MATERIAL SAFETY DATA SHEET
CHLORINE**

Effective 11/7/2003

Page - 3 of 3

Distributed by:
Bonded Chemicals, Inc.
 2645 Charter Street
 Columbus, OH 43228
 Phone: (614) 777-9240

To Order E-mail: bci-order@chemgroup.com

Waste disposal methods: Dispose of spilled material in accordance with all local, state and federal regulations.

SECTION 10 - EXPOSURE CONTROL INFORMATION

Exposure guidelines: ACGIH TLV TWA: 0.5 part per million. OSHA PEL: 1.0 part per million ceiling.

ACGIH STEL: 1.0 part per million. ACGIH IDLH: 10.0 parts per million.

Ventilation: Provide general and local exhaust ventilation to maintain exposure levels below recommended limits.

Respiratory protection: Use NIOSH approved respirators in accordance with 29 CFR 1910.132 and 1910.134.

Skin protection: Wear impervious gloves. Boots, aprons, and chemical suits should be worn when necessary to prevent contact.

Eye protection: Carefully fitted gas-tight chemical goggles, with approved impact resistant lenses. Eyewash fountains recommended in all storage and handling areas. Do not wear contact lenses.

SECTION 11 - REGULATORY INFORMATION

S.A.R.A. Title III:

Section 302 and 304: Extremely hazardous substance.

Threshold planning quantity: 100 pounds.

Section 311 and 312 hazard categories: Acute, chronic, reactive and sudden release of pressure.

Section 313 toxic chemical: Chlorine.

C.E.R.C.L.A. reportable quantity: 10 pounds.

T.S.C.A.: Chlorine is listed.

D.O.T.:

Proper shipping name: Chlorine.

Hazard class: 2.3.

Identification number: UN 1017.

Packing group: Not applicable.

Special provision: Poison - inhalation hazard, zone B.

Other information:

Toxicity data:

Rat LC₅₀: 293 parts per million [one (1) hour].

Mouse LC₅₀: 137 parts per million [one (1) hour].

Fish (bluegill) LC₅₀: 0.4 part per million [ninety-six (96) hours].

Human LC₅₀: 874 parts per million [thirty (30) minutes].

N.F.P.A. ratings: Health = 4, Flammability = 0, Reactivity = 0, Special = Oxidizer.

Although the information contained is offered in good faith, SUCH INFORMATION IS EXPRESSLY GIVEN WITHOUT ANY WARRANTY (EXPRESS OR IMPLIED) OR ANY GUARANTEE OF ITS ACCURACY OR SUFFICIENCY and is take at the user's sole risk. User is solely responsible for determining the suitability of use in each particular situation. ACC specifically DISCLAIMS ANY LIABILITY WHATSOEVER FOR THE USE OF SUCH INFORMATION, including without limitation any recommendation which may construe and attempt to apply which may infringe or violate valid patents, licenses and/or copyright.



Online Certifications Directory

FDPH.MH26173

Drinking Water Treatment Additives

[Page Bottom](#)

[Questions?](#)

Drinking Water Treatment Additives

Guide Information

BONDED CHEMICALS INC

MH26173

2645 CHARTER ST

COLUMBUS, OH 43228 USA

Plant at: Columbus, OH

Trade Dsg	Category	Max Use Level
Hypochlorite Solution 12-15%	Disinfection and Oxidation	240 mg/L
Fluorosilicic Acid	Miscellaneous Treatment	6.0 mg/L
	Applications	
Sodium Hydroxide Solution (50%	Corrosion and Scale Control,	200

Tech)		mg/L
	Softening, Precipitation,	
	Sequestering and pH Adjustment	
Ferric Chloride Solution (37 %)	Coagulation and Flocculation	400 mg/L

[Page Top](#)

[Notice of Disclaimer](#)

[Questions?](#)

[UL Listed and Classified Products](#)

[UL Recognized Components](#)

[Products Certified for Canada](#)

This page and all contents are Copyright © 2003 by Underwriters Laboratories Inc.®

The appearance of a company's name or product in this database does not in itself assure that products so identified have been manufactured under UL's Follow-Up Service. Only those products bearing the UL Mark should be considered to be Listed and covered under UL's Follow-Up Service. Always look for the Mark on the product.

UL permits the reproduction of the material contained on UL's Website subject to the following conditions: 1. The Guide Information, Designs and/or Listings (files) must be presented in their entirety and in a non-misleading manner, without any manipulation of the data (or drawings). 2. The statement "Reprinted from the Online Certifications Directory with permission from Underwriters Laboratories Inc." must appear adjacent to the extracted material. In addition, the reprinted material must include a copyright notice in the following format: "Copyright © 2003 Underwriters Laboratories Inc.®"

Distributed by:
 Bonded Chemicals, Inc.
 2645 Charter Street
 Columbus, OH
 (614) 777-9240
 To Order E-mail: bci-order@chemgroup.com



Fluorosilicic Acid H_2SiF_6

Hydrofluorosilicic Acid

Product Data Sheet

Chemical Analysis

Assay (H_2SiF_6)
 Fluorine (F)
 Heavy Metals, as Lead (Pb)
 Hydrofluoric Acid (HF)

Typical

23.00 % Minimum
 18.22 % Minimum
 00.02 % Maximum
 Less than 1.00 %

Physical Properties

Description

Water white to straw yellow solution, meeting both the AWWA Standard B703-00 and the ANSI/NSF Standard 60 for Fluorosilicic Acid.

Color

Straw yellow shall be determined as material with a maximum of 100 units (APHA) in accordance with method 2120B, visual comparison method.

Specific Gravity

1.234 (H_2O for 25%) @ 60° F

Boiling Point for 25%

222.5° F

Freezing Point for 25%

4° F (-15.5° C)

Molecular Weight

144.08

Weight per Gallon for 25%

10.29 lbs / gal

Viscosity for 23%

6.5 cps

Containers

Distributed by:
Bonded Chemicals, Inc.
2645 Charter Street
Columbus, OH
(614) 777-9240
To Order E-mail: beci-order@chemgroup.com

Bulk Rail Cars	100 tons net weight (approximate)
Bulk Tank Trucks	20 - 25 tons net weight (approximate)

Freight Description

DOT Shipping Classification	Class 8 (Corrosive)
DOT Shipping Name	Fluorosilicic Acid
Packing Group II	Placard: Corrosive
DOT/UN Number	1778

CAS NUMBER: 16961-83-4

Properties

Fluorosilicic Acid is a 20 to 35 percent aqueous solution. It is a colorless to straw yellow, transparent, fuming, corrosive liquid. It has a pungent odor and irritating action on the skin.

Manufacture

Fluorosilicic acid (Hydrofluorosilicic Acid) is manufactured by two different processes, resulting in products with different characteristics. The product can be manufactured from the reaction of Apatite and/or Fluorite (fluorspar) with Sulfuric Acid.

Uses

- > Sterilization of equipment
- > Electroplating
- > Tanning of animal hides
- > Ceramics and glass: Glass etching
- > Commercial Laundry: As a neutralizer for alkalis
- > Hardening of cement
- > Oil well acidizing
- > Rust and stain removal for textiles
- > Wood preservative
- > Water fluoridation

The information presented herein is based on data considered to be accurate and that reflects the requirements of the OSHA Hazard Communication Standards in effect as of the date of preparation of the Product Specification Sheet. However, no warranty or representation, express or implied, is made as to the accuracy or completeness of the foregoing data and safety information. In addition, no responsibility can be assumed by vendor for any damage or injury resulting from abnormal use, from any failure to adhere to recommended practices or from any hazards inherent in the nature of the product.

Distributed by:
Bonded Chemicals, Inc.
2645 Charter Street
Columbus, OH 43228
Phone: (614) 777-9240
To Order E-mail: bci-order@chemgroup.com

This Information
is provided for
your protection
by:

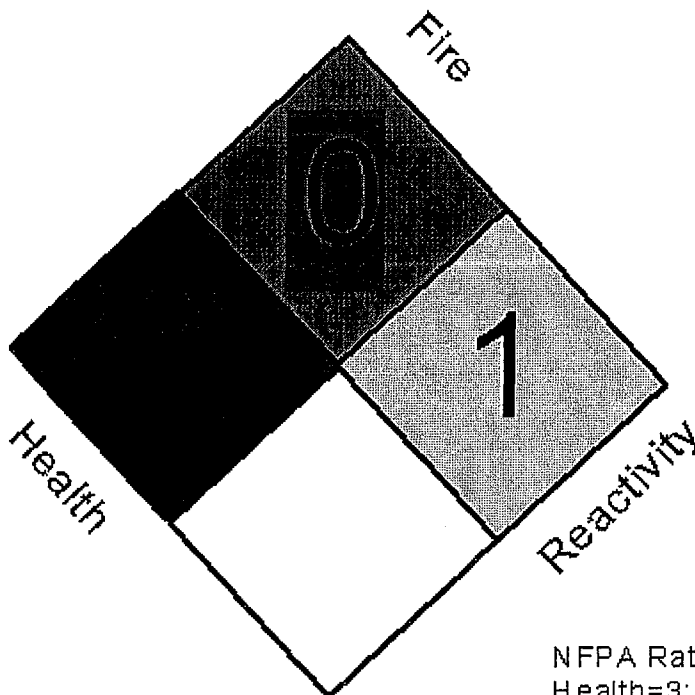
LCI LTD

THE FLUORIDE SPECIALISTS

904-241-1200



Order • Responsibility • Security



For 24 Hour
Emergency
Assistance
Call:



800-424-9300

NFPA Ratings (Scale 0-4)
Health=3; Fire=0; Reactivity=1

MATERIAL SAFETY DATA SHEET

This information is provided for your protection by:

LCI, Ltd.
P. O. Box 49000
Jacksonville Beach, FL 32240-9000
904-241-1200

24 Hour Emergency Assistance:
Chemtrec: 1-800-424-9300

Fluorosilicic Acid

Section I	Product Name and Description
Section II	Personal Protection Information
Section III	Health Information
Section IV	Emergency and First Aid Procedures
Section V	Ingredients
Section VI	Physical Data

Distributed by:
 Bonded Chemicals, Inc.
 2645 Charter Street
 Columbus, OH 43228
 Phone: (614) 777-9240

To Order E-mail: bcj-order@chemgroup.com

Section VII	Reactivity
Section VIII	Fire and Explosion Hazards
Section IX	Storage and Special Precautions
Section X	Transportation Requirements
Section XI	Emergency Action - Spill or Leak

Section I

PRODUCT NAME AND DESCRIPTION

DOT Chemical Name:	Fluorosilicic Acid	
Synonyms:	Hydrofluosilicic Acid, Fluosilicic Acid, Hexafluosilicic Acid	
Chemical Family:	Inorganic Acid	Formula: H_2SiF_6
CAS Number: 16961-83-4		NIOSH Number: V V 8225000

Note: N/A indicates Not Applicable where shown.

Section II

PERSONAL PROTECTION INFORMATION

Respiratory Protection: A NIOSH approved cartridge respirator with full-face shield. Chemical cartridge should provide protection against acid fumes (Hydrogen Fluoride). For concentrations greater than 20ppm, a NIOSH approved self-contained breathing apparatus with full-face shield should be used.

Eye and Face Protection: Use tight-fitting chemical splash goggles and a full-face shield, 8 inch minimum. Contact lenses should not be worn.

Hand, Arm and Body Protection: Prevent contact with skin by use of acid-proof clothing, gloves and shoes. Use a NIOSH approved acid proof suit and boots where liquid or high vapor concentration is possible.

Other Protective Clothing and Equipment: Eye wash and emergency shower facilities should be available in handling area.

Distributed by:
Bonded Chemicals, Inc.
2645 Charter Street
Columbus, OH 43228

Phone: (614) 777-9240

To Order E-mail: bci-order@chemgroup.com

Engineering Controls: General or local exhaust systems sufficient to maintain vapors below 2.5 mg/m³ (as F).

Section III

HEALTH INFORMATION

OSHA Permissible Exposure Limit (PEL): 2.5mg/m³(as F)

ACGIH Threshold Limit Value (TLV): 2.5mg/m³(as F)

Listing in the following:

Department of Transportation Hazardous Material Regulations (49CFR)

Massachusetts Hazardous Substance List

toxic Substances Control Act Inventory of toxic Substances (TSCA)

OSHA Health Hazard Classification: Corrosive

Primary Route(s) of Entry: Eye and skin contact, inhalation

Symptoms of Exposure:

Acute: Liquid or vapors can cause severe irritation and burns which may not be apparent for hours. Can cause severe irritation to the lungs, nose and throat if swallowed, can cause severe damage to throat and stomach.

Chronic: Prolonged exposure could result in bone changes, corrosive effect on mucous membranes including ulceration of nose, throat and bronchial tubes, cough, shock, pulmonary edema, Fluorosis, coma and death.

Aggravated Medical Condition: Any skin condition and/or pre-existing respiratory disease including asthma and emphysema.

Toxic Data: LD₅₀200 mg/kg (Oral - Guinea Pig)

Section IV

EMERGENCY AND FIRST AID PROCEDURES

Inhalation: Remove exposed person to an uncontaminated area immediately. If breathing has stopped, start artificial respiration at once. Oxygen should be provided for an exposed person having difficulty breathing (but only by an authorized person) until exposed person is able to

Distributed by:
 Bonded Chemicals, Inc.
 2645 Charter Street
 Columbus, OH 43228
 Phone: (614) 777-9240
 To Order E-mail: bci-order@chemgroup.com

breathe easily by themselves. Exposed person should be examined by a physician.

Eye Contact: Flush eyes for at least 15 minutes with large amounts of water. Eyelids should be held apart during the flushing to insure contact of water with all accessible tissue of the eyes and lids. Medical attention should be given as soon as possible.

Skin Contact: Exposed person should be removed to an uncontaminated area and subjected immediately to a drenching shower of water for a minimum of 15 to 20 minutes. Remove all contaminated clothing while under shower. Medical attention should be given as soon as possible for all burns, regardless of how minor they seem.

Ingestion: If conscious, give the exposed person large quantities of water immediately to dilute the acid. Do NOT induce vomiting. Milk may be given for its soothing effect. A physician should be contacted immediately.

Note to Physician: Beware of late onset of pulmonary edema for up to 48 hours. Treat severe burns similar to Hydrofluoric Acid exposure.

Section V

INGREDIENTS

Composition	Percentage
H ₂ SiF ₆	25.0 +/- 2%
H ₂ O	75.0 +/- 2%

Section VI

PHYSICAL DATA

Boiling Point: 222°F (105°C)

Specific Gravity(H₂O=1): 1.234 @ 25%

Percent Volatile by Volume: N/A

Solubility in Water: Complete

Physical State: Fuming Liquid

Bulk Density: 10.29 lbs/gal @ 25%

Appearance and Odor: Water white to straw yellow, burning liquid, with pungent odor

Freezing Point: 4°F(-15.5°C)

Vapor Pressure(mm Hg): 24 @ 77° F

Vapor Density (Air=1): N/A

Evaporation Rate: N/A

Molecular Weight: 144.08

pH (1% Solution): 1.2

Distributed by:
Bonded Chemicals, Inc.
2645 Charter Street
Columbus, OH 43228
Phone: (614) 777-9240
To Order E-mail: bci-order@chemgroup.com

Section VII

REACTIVITY

Stability: Stable.

Hazardous Polymerization: Will not occur.

Conditions and Materials to Avoid: Metal, glass, stoneware, alkali and strong concentrated acids.

Hazardous Decomposition Products: When heated to decomposition (222°F) it emits highly toxic and corrosive fumes of Hydrogen Fluoride, Silicon Tetra-fluoride and Hydrogen Gas.

Section VIII

FIRE AND EXPLOSION HAZARDS

Flash Point and Method Used: N/A

Flammable Limits - % Volume in Air: Lower N/A Upper N/A

Extinguishing Media: Use agent which is appropriate for surrounding fire.

Special Fire Fighting Procedures and Precautions: Wear NIOSH approved self-contained acid suits.

Auto Ignition Temperature: N/A

Unusual Fire and Explosion Hazards: Reacts with many metals to produce flammable and explosive hydrogen gas. Keep container cool with water, using fog nozzles, as decomposition will occur above 222°F and produce toxic and corrosive fumes of fluoride.

Section IX

STORAGE AND SPECIAL PRECAUTIONS

Handling and Storing Precautions: Store in containers in cool, dry, well ventilated area away from sources of heat or ignition. Do NOT store in glass or stoneware. Use non-sparking tools. Keep separate from alkali metals, oxidizing agent, combustible solids and organic peroxides.

Distributed by:
Bonded Chemicals, Inc.
2645 Charter Street
Columbus, OH 43228
Phone: (614) 777-9240
To Order E-mail: bci-order@chemgroup.com

Ventilation: Provide adequate general and/or local exhaust to maintain vapors below 2.5 mg/m³ (as F).

Other Precautions: Do not inhale fumes and prevent skin contact. If pungent, irritating odor can be detected, workers are being over-exposed. Eye wash and safety shower should be available in all acid handling areas.

Section X

TRANSPORTATION REQUIREMENTS

DOT Proper Shipping Name: Fluorosilicic Acid

DOT Hazard Class: 8 (Corrosive)

Identification Number: UN 1778

EPA Hazardous Substance: No

RCRA Status of Unused Material if Discarded: Not Listed

Waste Disposal Method: Disposer must comply with federal, state and local disposal or discharge laws.

Additional Comments: For International transportation, Fluorosilicic Acid is regulated by the International Maritime Organization (IMO) and the International Air Transport Association (IATA) for vessel and air movement as a Class 8. Packaging, marking, labelling and shipping paper descriptions must precisely reflect the regulation for export movement.

Packing Group: II

Subsidiary Hazard Class: N/A

Placarding Requirement: Corrosive

Reportable Quantity: N/A

Section XI

EMERGENCY ACTION - SPILL OR LEAK

Emergency Action: Keep unnecessary people away. Stay upwind, keep out of low areas. Isolate hazard area and deny entry. We recommend that the user establish a spill prevention, control and countermeasure plan. This plan should include procedures for proper storage as well as containment and clean-up of spills and leaks. The procedures should conform to safe practices and provide for proper recovery and disposal in accordance with federal, state and local regulation. Contact Chemtrec at 1-800-424-9300 for 24-hour emergency assistance.

Small Spills: Any personnel in area should wear a NIOSH approved air supplied acid suit. Dike area to contain material. Do not allow solution to enter sewers or surface water. Neutralize the spill with water and lime (hydrated lime). Take up with sand or non-combustible absorbent material and place in containers for later disposal. Provide ventilation and be wary of hydrogen generation upon reaction with some metals. Contact Chemtrec at 1-800-424-9300 for 24-hour

Distributed by:
Bonded Chemicals, Inc.
2645 Charter Street
Columbus, OH 43228
Phone: (614) 777-9240
To Order E-mail: bci-order@chemgroup.com
emergency assistance.

Large Spills: Contact Chemtrec at 1-800-424-9300 for 24-hour emergency assistance. Any personnel in area should wear a NIOSH approved air supplied acid suit. Dike area ahead of spill to contain material. Do not allow solution to enter sewers or surface water. Neutralize the spill with water and lime (hydrated lime). Provide ventilation and be wary of hydrogen generation upon reaction with some metals. Notify the National Response Center, if required.

DISCLAIMER

The information presented herein is based on data considered to be accurate and that reflects the requirements of the OSHA Hazard Communication Standards in effect as of the date of preparation of this Material Safety Data Sheet. However, no warranty or representation, express or implied, is made as to the accuracy or completeness of the foregoing data and safety information. In addition, no responsibility can be assumed by vendor for any damage or injury resulting from abnormal use, from any failure to adhere to recommended practices, or from any hazards inherent in the nature of the product.



**Underwriters
Laboratories Inc.**

Northbrook Division

UL Underwriters Laboratories
Northbrook • 60062-2098 USA
www.ul.com
Tel: 847.442.2800
Fax: 847.442.2100
E-Mail: ul@ul.com • 1.877.554.2527

November 2, 2005

Wego Chemical & Mineral Corp.
Attn: Adam Cohen
239 Great Neck Rd.
Great Neck, NY 11021

Our Reference: MH25941, 05NK16294

Subject: ANSI/NSF 60 CERTIFICATION

Dear Mr. Cohen:

We have completed our engineering evaluation under project 05NK16294 and find the product complies with the applicable requirements for UL Classification in accordance with ANSI/NSF Standard 60. Shortly, related documentation (Engineering Report, Follow-Up Service Procedure, and Classification Information Page showing your products as they will appear in the UL Directory and on UL's website at www.ul.com/eph) will be issued. UL's Accounting Department is being advised that project 05NK16294 is being closed and will send you an invoice for the remaining, associated charges.

In the near future a local UL Field Representative will contact the manufacturing location(s) to arrange for an Initial Production Inspection visit. Upon successful completion of the Initial Production Inspection the products described below will be eligible to bear the UL Classification Mark:

Sichuan Linchen Enterprise Group Co., Ltd.
Hanwang Town
Mianzhu, Sichuan

Product	Maximum Use Level, mg/L
Wegophos-SHMP	11.9
Wegophos-STPP	12.9

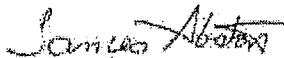
We wish to remind you that your submittal of a draft of new or revised UL Marks for UL review is a prerequisite for their use on products eligible to bear them. If you have not already done so, please submit to me at your earliest convenience your draft of artwork showing the UL Mark, the Classified Company name, product designation, factory identification (if applicable), and all product use restrictions specified above. The UL Classification Mark should not be used on or in association with the aforementioned products until this artwork has been reviewed and a copy stamped by UL confirming its authorization has been returned to you.



Products produced that bear the UL Mark shall be identical to those that were evaluated by UL and found to comply with the applicable requirements. If changes in construction or formulation are discovered, authorization to use the UL Mark may be withdrawn and products that bear the UL Mark may have to be revised (in the field or at the manufacturer's facility), where this is possible, to bring them into compliance with those requirements.


If you have any questions about the product evaluation we conducted or the information in this letter, please feel free to contact us. We look forward to working with you in the future.

Sincerely,



James D. Abston (x 41270)
Chemist Project, 3608AWTR
UL Environmental Sciences Group
E-mail: james.abston@us.ul.com

Reviewed by:



Douglas Frederick (x 42231)
Senior Project Chemist, 3618AWTR
UL Environmental Sciences Group
E-mail: Douglas.S.Frederick@us.ul.com

WEGO CHEMICAL & MINERAL CORP.

239 GREAT NECK ROAD ~ GREAT NECK, NY 11021

TEL: (516) 487-3510 FAX: (516) 487-3794

E-MAIL: sales@wegochem.com Website: www.wegochemical.com**TECHNICAL DATA****Sodium Tripolyphosphate, Technical Grade,
Light Density**

	Full Specification	Typical Results
Purity	94%min	95.7%
P2O5	56.5%min	57.3%
Water Insoluble Matter	0.10%max	0.02%
Fe	0.010%max	0.004%
PH Value (1% sol)	9.2~10.0	9.7
Whiteness	85%min	90%
Bulk Density	0.55g/cm ³ ~0.64g/cm ³	0.61g/cm ³
Phase I	10~30%	22%

Packaging:

In 50lbs net kraft paper bags, every 40-44bags per pallet.

In 1100kgs or 2400lbs super sacks, each sack per pallet, total 20bags x 20'ft container.

The information set forth herein is offers as a service to our customers and is not intended to relieve a customer from its responsibility to determine the suitability of this information or of the materials described herein for purchaser's purposes, to investigate other sources of information, to comply with all laws and procedures regarding safe use of these materials; and to use these materials in a safe manner. No warranty is made of the merchantability or fitness of any product, and nothing herein waives any of the Seller's conditions of sale. 11/05HBXF



ONLINE CERTIFICATIONS DIRECTORY

FDPH.MH45015
Drinking Water Treatment Chemicals

Page Bottom

Drinking Water Treatment Chemicals

See General Information for Drinking Water Treatment Chemicals

HAIFA CHEMICALS
SUITE 2605
2605 DOUGLAS AVE
ALTAMONTE SPRINGS, FL 32714 USA

MH45015

ANSI/NSF STANDARD 60

Plant at: Haifa Bay

Trade Dsg	Category	Max Use Level (mg/L)
Disodium Phosphate Anhydrous, Food Grade, Granular	Corrosion and Scale Control	14.9
Disodium Phosphate Anhydrous, Food Grade, Spray dried powder	Corrosion and Scale Control	14.9
Disodium Phosphate Anhydrous, Technical Grade Spray dried powder	Corrosion and Scale Control	14.9
Disodium Phosphate Anhydrous, Technical Grade, Granular	Corrosion and Scale Control	14.9
Monosodium Phosphate Anhydrous, Food Grade Granular	Corrosion and Scale Control	12.6
Monosodium Phosphate Anhydrous, Food Grade, Spray dried powder	Corrosion and Scale Control	12.6
Monosodium Phosphate Anhydrous, Technical Grade Granular	Corrosion and Scale Control	12.6
Monosodium Phosphate Anhydrous, Technical Grade Spray dried powder	Corrosion and Scale Control	12.6
Sodium Acid Pyrophosphate, Food Grade	Corrosion and Scale Control	11.7
Sodium Acid Pyrophosphate, Technical Grade	Corrosion and Scale Control	11.7
Sodium Tripolyphosphate, Food Grade	Corrosion and Scale Control	12.9
Sodium Tripolyphosphate, Technical Grade	Corrosion and Scale Control	12.9
Tetrapotassium Pyrophosphate, Food Grade	Corrosion and Scale Control	17.4
Tetrapotassium Pyrophosphate, Technical Grade	Corrosion and Scale Control	17.4
Tetrasodium Pyrophosphate, Food Grade	Corrosion and Scale Control	14.0
Tetrasodium Pyrophosphate, Technical Grade	Corrosion and Scale Control	14.0

Plant at: Mishor Rotem

Trade Dsg	Category	Max Use Level (mg/L)
Disodium Phosphate Anhydrous, Food Grade, Granular	Corrosion and Scale Control	14.9
Disodium Phosphate Anhydrous, Food Grade, Spray dried powder	Corrosion and Scale Control	14.9
Disodium Phosphate Anhydrous, Technical Grade Spray dried powder	Corrosion and Scale Control	14.9
Disodium Phosphate Anhydrous, Technical Grade, Granular	Corrosion and Scale Control	14.9
Monosodium Phosphate Anhydrous, Food Grade Granular	Corrosion and Scale Control	12.6

Monosodium Phosphate Anhydrous, Food Grade, Spray dried powder	Corrosion and Scale Control	12.6
Monosodium Phosphate Anhydrous, Technical Grade Granular	Corrosion and Scale Control	12.6
Monosodium Phosphate Anhydrous, Technical Grade Spray dried powder	Corrosion and Scale Control	12.6
Sodium Acid Pyrophosphate, Food Grade	Corrosion and Scale Control	11.7
Sodium Acid Pyrophosphate, Technical Grade	Corrosion and Scale Control	11.7
Sodium Tripolyphosphate, Food Grade	Corrosion and Scale Control	12.9
Sodium Tripolyphosphate, Technical Grade	Corrosion and Scale Control	12.9
Tetrapotassium Pyrophosphate, Food Grade	Corrosion and Scale Control	17.4
Tetrapotassium Pyrophosphate, Technical Grade	Corrosion and Scale Control	17.4
Tetrasodium Pyrophosphate, Food Grade	Corrosion and Scale Control	14.0
Tetrasodium Pyrophosphate, Technical Grade	Corrosion and Scale Control	14.0

Last Updated on 2006-06-09

[Questions?](#)

[Notice of Disclaimer](#)

[Page Top](#)

Copyright © 2007 Underwriters Laboratories Inc.®

The appearance of a company's name or product in this database does not in itself assure that products so identified have been manufactured under UL's Follow-Up Service. Only those products bearing the UL Mark should be considered to be Listed and covered under UL's Follow-Up Service. Always look for the Mark on the product.

UL permits the reproduction of the material contained in the Online Certification Directory subject to the following conditions: 1. The Guide Information, Designs and/or Listings (files) must be presented in their entirety and in a non-misleading manner, without any manipulation of the data (or drawings). 2. The statement "Reprinted from the Online Certifications Directory with permission from Underwriters Laboratories Inc." must appear adjacent to the extracted material. In addition, the reprinted material must include a copyright notice in the following format: "Copyright © 2007 Underwriters Laboratories Inc.®"

An independent organization working for a safer world with integrity, precision and knowledge.





Close window to exit NSF Listings.

NSF Product and Service Listings

These Listings were Last Updated on **Monday, June 16, 2008** at 4:15 AM Eastern Time.
Please contact NSF International to confirm the status of any Listing, report errors, or make suggestions.

Warning: NSF is concerned about fraudulent downloading and manipulation of website text. If you have received this listing in hard copy, always confirm this certification/listing information by going directly to <http://www.nsf.org/Certified/PwsChemicals/Listings.asp?CompanyName=hydrite&TradeName=sodium+bisulfite> for the latest most accurate information.

NSF/ANSI STANDARD 60 Drinking Water Treatment Chemicals - Health Effects

HYDRITE CHEMICAL CO.
300 N. PATRICK BOULEVARD
BROOKFIELD, WI 53045
262-792-1450

Facility : TERRE HAUTE, IN

Sodium Bisulfite

Trade Designation

Sodium Bisulfite 40%[1]

Sodium Bisulfite 40% FG[1]

Product Function

Dechlorination

Dechlorination

Max Use

46mg/L

46mg/L

[1] This product contains sulfite.

Sulfites have been known to cause potentially lethal allergic reactions in sulfite-sensitive individuals.

The maximum recommended allowable

residual sulfite level in the finished drinking water is 100 ppb (0.1 mg/L).

Facility : WATERLOO, IA

Sodium Bisulfite

Trade Designation

Sodium Bisulfite 40%[1]

Product Function

Dechlorination

Max Use

46mg/L

[1] This product contains sulfite.

Sulfites have been known to cause potentially lethal allergic reactions in sulfite-sensitive individuals.

The maximum recommended allowable

residual sulfite level in the finished drinking water is 100 ppb (0.1 mg/L).

Number of matching Manufacturers is 1

Number of matching Products is 3

Processing time was 0 seconds

SODIUM BISULFITE SOLUTION 40%

PRODUCT INFORMATION

**PRODUCT
DESCRIPTION**

Sodium Bisulfite 40% is a yellow to green tinted liquid with a sulfur dioxide odor.

**USES &
APPLICATIONS**

Textile Industry - Antichlor to reduce deterioration of cotton and other Cellulosic fibers in chlorine bleaching.

Leather Industry - Reducing agent for bichromate in chrome tanning. Reagent used in making tanning extracts.

Food Industry - Preservative in fruit and vegetable food products and juices. Steeping agent for wet corn milling.

Fermentation Industry - Sterilization of barrels, tanks and equipment.

Chemical Industry - Sulfonation agent for olefins, ketones and nitro groups and a splitting agent for epoxy compounds in detergents.

Pulp & Paper Industry - Antichlor following hypochlorite bleach and reducing agent to eliminate residual peroxide.

Metal Finishing and Electropolishing Industry - An economical and convenient reducing agent for treatment of wastes containing hexavalent chromium.

Photographic Industry - Reducing agent for silver halides.

Pharmaceutical Industry - Stabilizer for solutions.

**TYPICAL
VALUES**

pH, as is:	4
Specific Gravity @ 25°C:	1.33
Lbs/gal @ 25°C:	11.08
Freezing Point (°F):	45
Sodium Bisulfite (wt%):	40
Iron (ppm):	3 Max
SO ₂ Content (%):	24.2 - 25.1
Caustic Soda Content as Anhydrous NaOH (wt%):	15.0 - 16.0



Sodium Bisulfite Solution 40%

Page 2

**STORAGE &
HANDLING**

Sodium Bisulfite Solution 40% tends to yellow when stored or handled in equipment constructed of ordinary iron or steel. Lead, type 316-L Stainless Steel, Polyethylene and Fiberglass are materials that can be safely used for the storage of Sodium Bisulfite Solution 40%.

Polyester tanks and piping are resistant to 220°F and high-density polyethylene is resistant to 140°F. For piping, polyvinyl chloride has been successfully used up to 140°F. Under normal storage conditions, the oxidation loss of a solution of Sodium Bisulfite should be about 3% per year.

PRECAUTIONS

Product safety information and handling precautions are contained on the product label and Material Safety Data Sheet (MSDS).

**READ AND UNDERSTAND LABEL AND MATERIAL SAFETY
DATA SHEET BEFORE PRODUCT USE.**

SO0033
3/1/05
Rev. 8

Distributed by:
Bonded Chemicals, Inc.
2645 Charter Street
Columbus, Ohio 43228
614-777-9240

5307, 5305

Material Safety Data Sheet

SODIUM BISULFITE SOLUTION 40%

Page 1 of 7

Revised 2002-07-19 09:29:25

Replaces 2000-08-28 14:00:18

As of 2005-09-30 11:08:21

MSDS ID: SO0033

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : SODIUM BISULFITE SOLUTION 40%
MSDS ID : SO0033
CHEMICAL NAME SYNONYMS : Sodium Acid Sulfite; Sodium hydrogen Sulfite
CAS NUMBER : 7631-90-5
CHEMICAL FAMILY : Sulfite Reducing Agent
FORMULA : 40% NaHSO₃

DISTRIBUTED BY:
Hydrite Chemical Co.
300 N. Patrick Blvd.
Brookfield, WI 53008-0948
(262) 792-1450

EMERGENCY RESPONSE NUMBERS:
24 Hour Emergency # - (414) 277-1311
CHEMTREC Emergency # - (800) 424-9300

MANUFACTURED BY: HYDRITE CHEMICAL CO.

2. COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENT	CAS NUMBER	OSHA HAZARD	% BY WT.
Water	7732-18-5	NO	60 %
Sodium Bisulfite	7631-90-5	YES	40 %

3. HAZARDS IDENTIFICATION

PHYSICAL STATE: Liquid.
COLOR : Clear. Yellow.
ODOR : Sulfur dioxide odor.

EMERGENCY OVERVIEW: DANGER! CORROSIVE. Causes severe burns to eyes, skin, and respiratory tract. Harmful if swallowed. Harmful if inhaled. May cause an allergic reaction to skin, respiratory tract or if swallowed.

POTENTIAL HEALTH EFFECTS

ROUTES OF EXPOSURE:
Eyes. Skin. Inhalation. Ingestion.

TARGET ORGANS:
Eyes. Skin. Respiratory System. Kidneys. Bones. Cardiovascular System.
Gastrointestinal Tract.

EYE CONTACT:
CORROSIVE-Causes severe irritation and burns.
May cause: tissue destruction. permanent eye damage. blindness.

SKIN CONTACT:
CORROSIVE-Causes severe irritation and burns.
Contact may cause: redness. itching. dermatitis (inflammation of the skin). blistering. pain. tissue destruction.

SKIN ABSORPTION:
May be harmful if absorbed through skin.

INHALATION:
CORROSIVE-Causes severe irritation and burns.
May irritate: nose. throat. mucous membranes. May cause: coughing.. chest pain. bronchospasms. difficulty breathing. pulmonary edema. death.

Material Safety Data Sheet

SODIUM BISULFITE SOLUTION 40%

Page 2 of 7

Revised 2002-07-19 09:29:25

Replaces 2000-08-28 14:00:18

As of 2005-09-30 11:08:21

MSDS ID: SO0033

May cause damage to the: upper respiratory tract. lungs. Effects will depend on concentration and length of time of exposure.

INGESTION:

CORROSIVE-Causes severe irritation and burns.

Ingestion can cause very serious damage to the mouth, esophagus, stomach, and other tissues with which contact is made, and may be fatal. May cause: headache. abdominal pain. nausea. vomiting. diarrhea. perforation of the intestinal tract. Effects may be delayed.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE TO PRODUCT:

Asthma.

OTHER:

SULFUR DIOXIDE GIVEN OFF BY THIS PRODUCT HAS BEEN SHOWN TO CAUSE BREATHING DIFFICULTIES IN ASTHMATICS. May cause severe allergic reaction in some asthmatics and sulfite sensitive individuals.

CANCER INFORMATION:

This product does not contain greater than 0.1% of the known or potential carcinogens listed in NTP, IARC, or OSHA.

POTENTIAL ENVIRONMENTAL EFFECTS:

See Section 12.

4. FIRST AID MEASURES

EYE CONTACT:

Immediately flush eyes with plenty of water for at least 15 minutes while holding eyelids open. Tilt head to avoid contaminating unaffected eye. Get immediate medical attention.

Remove contact lens if worn.

SKIN CONTACT:

Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Do not reuse clothing and shoes until cleaned.

Do not apply oils or ointments unless ordered by the physician. Discard footwear which cannot be decontaminated.

INHALATION:

Remove to fresh air. If breathing is difficult, administer oxygen. If not breathing, give artificial respiration, preferably mouth-to-mouth. GET MEDICAL ATTENTION IMMEDIATELY.

INGESTION:

If fully conscious, drink a quart of water. DO NOT induce vomiting. CALL A PHYSICIAN IMMEDIATELY. If unconscious or in convulsions, take immediately to a hospital or a physician. NEVER induce vomiting or give anything by mouth to an unconscious victim. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs.

5. FIRE FIGHTING MEASURES

FLASH POINT: N.A.

Material Safety Data Sheet

SODIUM BISULFITE SOLUTION 40%

Page 3 of 7

Revised 2002-07-19 09:29:25

Replaces 2000-08-28 14:00:18

As of 2005-09-30 11:08:21

MSDS ID: SO0033

FLAMMABILITY LIMITS: LEL: N.A.
AUTOIGNITION TEMPERATURE: No Data

UEL: N.A.

EXTINGUISHING MEDIA:

For fires in area use appropriate media. For example: Water spray. Dry chemical. Carbon dioxide. Foam.

FIRE FIGHTING METHODS:

Evacuate area of unprotected personnel. Wear protective clothing including NIOSH-approved self-contained breathing apparatus. Remain upwind of fire to avoid hazardous vapors and decomposition products. Use water spray to cool fire-exposed containers.
Run-off from fire control may cause pollution.

FIRE AND EXPLOSION HAZARDS:

None known.

HAZARDOUS COMBUSTION PRODUCTS:

Toxic vapors. Sulfur oxides. Sulfur Dioxide gas will be released at a rate increasing with temperature.

6. ACCIDENTAL RELEASE MEASURES

SPILL CLEAN-UP PROCEDURES:

CORROSIVE MATERIAL. Evacuate unprotected personnel from area. Maintain adequate ventilation. Follow personal protective equipment recommendations found in Section 8. Never exceed any occupational exposure limit. Contain spill, place into drums for proper disposal. Flush remaining area with water and neutralize with Soda Ash or Lime and dispose of properly. Sulfur dioxide and carbon dioxide may be released during neutralization. Avoid direct discharge to sewers and surface waters. Notify authorities if entry occurs.

7. HANDLING AND STORAGE

STORAGE:

CORROSIVE MATERIAL. Store in a cool, well ventilated area, out of direct sunlight. Store in a dry location away from heat. Keep away from incompatible materials. Keep containers tightly closed. Do not store in unlabeled or mislabeled containers.
Do not freeze. Relieve pressure in drums weekly.

HANDLING:

Avoid contact with eyes, skin, and clothing. Use with adequate ventilation. Do not swallow. Avoid breathing vapors, mists, or dust. Do not eat, drink, or smoke in work area. Wash thoroughly after handling. Empty containers retain product residue (vapor, dust, or liquid) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCE OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS:

Local exhaust ventilation, process enclosures, or other engineering controls are imperative when handling or using this product to avoid overexposure. Avoid creating dust or mist. Maintain adequate ventilation. Do not use in closed or confined spaces. Keep levels below exposure limits. To determine exposure levels, monitoring should be performed regularly.

Material Safety Data Sheet

SODIUM BISULFITE SOLUTION 40%

Page 4 of 7

Revised 2002-07-19 09:29:25

Replaces 2000-08-28 14:00:18

As of 2005-09-30 11:08:21

MSDS ID: SO0033

RESPIRATORY PROTECTION:

Respiratory protection must be worn when handling this product. If exposure limits are exceeded, wear: NIOSH-Approved respirator for dusts, mists, and/or SO₂ vapors as conditions indicate. NIOSH-Approved air-purifying respirator with: Acid gas cartridge. NIOSH-Approved self-contained breathing apparatus. NIOSH-Approved positive pressure supplied air respirator. DO NOT exceed limits established by the respirator manufacturer. All respiratory protection programs must comply with OSHA 29 CFR 1910.134 and ANSI Z88.2 requirements and must be followed whenever workplace conditions require a respirator's use.

EYE/FACE PROTECTION:

Wear chemical safety goggles and a full face shield while handling this product.
Do not wear contact lenses.

SKIN PROTECTION:

Prevent contact with this product. Wear gloves and protective clothing depending on condition of use.
Protective gloves: Impervious. Neoprene. Rubber (latex). Polyvinyl chloride.

OTHER PROTECTIVE EQUIPMENT:

Eye-wash station. Safety shower. Rubber apron. Chemical safety shoes. Rubber boots. Protective clothing.

GENERAL HYGIENE CONSIDERATIONS:

Wash with soap and water before meal times and at the end of each work shift. Good manufacturing practices require gross amounts of any chemical be removed from skin as soon as practical, especially before eating or smoking.

EXPOSURE GUIDELINES:

COMPONENT	-----OSHA-----		-----ACGIH-----	
	PEL	STEL/C	TWA	STEL/C
Water	Not Estab.	Not Estab.	Not Estab.	Not Estab.
Sodium Bisulfite	5 mg/m ³ +	Not Estab.	5 mg/m ³	Not Estab.

NOTE: + Vacated 1989 OSHA PEL(s). Sulfur Dioxide gas may be released. The Exposure Limits for Sulfur Dioxide are: 5 ppm-TWA (OSHA); 2 ppm-TWA, 5 ppm-STEL (ACGIH) (Vacated 1989 OSHA PELs).

9. PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT (DEG. F) : ~219	SPECIFIC GRAVITY: 1.33 @ 25C
FREEZING POINT (DEG. F): 45	% VOLATILE (WT%): N.D.
MELTING POINT (DEG. F) : N.D.	EVAPORATION RATE: N.D.
VAPOR PRESSURE (MM HG) : ~9@20C (SO ₂)	(nBuAc=1)
VAPOR DENSITY (AIR=1) : N.D.	VOC (WT%) : N.A.
SOLUBILITY IN WATER : Complete	VOC (LBS/GAL) : N.A.
pH : 4	

10. STABILITY AND REACTIVITY**STABILITY:**

Stable under normal conditions.

CONDITIONS TO AVOID:

Avoid contact with heat, sparks, electric arcs, other hot surfaces, and open flames.

Material Safety Data Sheet

SODIUM BISULFITE SOLUTION 40%

Page 5 of 7

Revised 2002-07-19 09:29:25

Replaces 2000-08-28 14:00:18

As of 2005-09-30 11:08:21

MSDS ID: SO0033

INCOMPATIBILITY:

Acids. Strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS:

Sulfur dioxide gas. Sodium sulfide. Toxic vapors.

HAZARDOUS POLYMERIZATION:

Will not occur under normal conditions.

11. TOXICOLOGICAL INFORMATION

LD50 ORAL : Rat: 2000 mg/kg (Anhydrous)
 LD50 SKIN : No Data
 LC50 INHALATION: No Data

This product has been shown to be positive in mutagenicity assays.
 Pregnant women and the fetus may be at an increased risk from exposure to
 this product.

12. ECOLOGICAL INFORMATION**ECOTOXICOLOGICAL INFORMATION:**

No data available.

CHEMICAL FATE INFORMATION:

No data available.

13. DISPOSAL CONSIDERATIONS

HAZARDOUS WASTE NUMBER: N.A.

DISPOSAL METHOD:

Dispose of in a permitted hazardous waste management facility following all
 local, state and federal regulations.
 If approved, neutralize material and flush to sewer. DO NOT pressurize,
 cut, weld, solder, drill, grind or expose empty containers to heat, flame,
 sparks or other sources of ignition.

14. TRANSPORT INFORMATION (Not meant to be all inclusive)**DOT (Department of Transportation):**

Proper Shipping Name : BISULFITES, AQUEOUS SOLUTIONS, N.O.S (CONTAINS
 SODIUM BISULFITE)
 Hazard Class : 8
 Identification Number : UN2693
 Packing Group : III
 Label Required : CORROSIVE
 Reportable Quantity (RQ): 5000# (Sodium Bisulfite)

15. REGULATORY INFORMATION**FEDERAL REGULATIONS:****TSCA INVENTORY STATUS:**

This product or all components of this product are listed on the EPA/TSCA
 Inventory of Chemical Substances.

SARA TITLE III SECTION 311/312 CATEGORY:

IMMEDIATE (ACUTE) HEALTH HAZARD : YES
 DELAYED (CHRONIC) HEALTH HAZARD : NO
 FIRE HAZARD : NO
 SUDDEN RELEASE OF PRESSURE HAZARD: NO
 REACTIVE HAZARD : YES

Material Safety Data Sheet

SODIUM BISULFITE SOLUTION 40%

Page 6 of 7

Revised 2002-07-19 09:29:25

Replaces 2000-08-28 14:00:18

As of 2005-09-30 11:08:21

MSDS ID: SO0033

SARA SECTION 302/304/313/HAP:

COMPONENT	RQ (LBS) (*1)	RQ (LBS) (*2)	TPQ (LBS) (*3)	SEC 313 (*4)	HAP (*5)
Water	N.A.	N.A.	N.A.	NO	NO
Sodium Bisulfite	5000	N.A.	N.A.	NO	NO

FOOTNOTES

- *1 = CERCLA Reportable Quantity *3 = SARA EHS Threshold Planning Quantity
 *2 = SARA Reportable Quantity *4 = SARA 313 Toxic Chemical/Category
 *5 = U.S. EPA Hazardous Air Pollutant

This product contains one or more components designated as hazardous substances or toxic pollutants pursuant to the Federal Clean Water Act (40 CFR 116.4 Table A; 40 CFR 401.15). Any unpermitted introduction of this product into a facility stormwater or wastewater discharge may constitute a violation of the Clean Water Act. Facilities must notify the appropriate permitting agency prior to introducing this product into the aforementioned discharges.

ANSI/NSF Standard 60 Maximum Use Level = 46 mg/L.

STATE REGULATIONS:

CALIFORNIA--The following components are listed under Prop 65:
 None Known.

WISCONSIN--The following components are listed as a Wisconsin HAP:
 Sodium Bisulfite.

16. OTHER INFORMATION

HMIS RATING SYSTEM

Health : 3
 Flammability: 0
 Reactivity : 1
 * = Chronic Health Hazard

NFPA RATING SYSTEM

Health : 3
 Flammability : 0
 Reactivity : 1
 Special Hazard: None

MSDS ABBREVIATIONS: N.A. = Not Applicable
 N.D. = Not Determined
 HAP = Hazardous Air Pollutant
 VOC = Volatile Organic Compound
 C = Ceiling Limit
 N.E./Not Estab. = Not Established

MSDS PREPARED BY: NAO

REASON FOR REVISION: Change made in Section 15.

** ** ** ** **
 The data in this Material Safety Data Sheet relates only to the specific material designated and does not relate to its use in combination with any other material or process. The data contained is believed to be correct. However, since conditions of use are outside our control it should not be taken as a warranty or representation for which HYDRITE CHEMICAL CO. assumes

Material Safety Data Sheet

SODIUM BISULFITE SOLUTION 40%

Page 7 of 7

Revised 2002-07-19 09:29:25

Replaces 2000-08-28 14:00:18

As of 2005-09-30 11:08:21

MSDS ID: SO0033

legal responsibility. This information is provided solely for your consideration, investigation, and verification.

** ** ** ** **



Close window to
exit NSF Listings.

NSF Product and Service Listings

These Listings were Last Updated on **Monday, June 16, 2008** at 4:15 AM Eastern Time.
Please contact NSF International to confirm the status of any Listing, report errors, or make suggestions.

Warning: NSF is concerned about fraudulent downloading and manipulation of website text. If you have received this listing in hard copy, always confirm this certification/listing information by going directly to <http://www.nsf.org/Certified/PwsChemicals/Listings.asp?CompanyName=Occidental+Chemical+Corporation&TradeName=Caustic+Soda&> for the latest most accurate information.

NSF/ANSI STANDARD 60 Drinking Water Treatment Chemicals - Health Effects

OCCIDENTAL CHEMICAL CORPORATION

OXY TOWER
5005 LBJ FREEWAY
DALLAS, TX 75244-6119
972-404-3918

Facility : CONVENT, LA

Sodium Hydroxide

Trade Designation

Caustic Soda - Liquid All Grades

Product Function

Corrosion & Scale Control

Max Use

200 mg/L

NOTE: All Listed products from this facility are NSF Certified, whether or not they bear the NSF Mark.

Facility : HAHNVILLE, LA

Sodium Hydroxide

Trade Designation

Caustic Soda - Liquid All Grades

Product Function

Corrosion & Scale Control

Max Use

200 mg/L

NOTE: All Listed products from this facility are NSF Certified, whether or not they bear the NSF Mark.

Facility : NIAGARA FALLS, NY

Sodium Hydroxide

Trade Designation

Product Function

Max Use

Caustic Soda - Liquid All Grades Corrosion & Scale Control 200 mg/L

NOTE: All Listed products from this facility are NSF Certified, whether or not they bear the NSF Mark.

Facility : DEER PARK, TX

Sodium Hydroxide

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Caustic Soda - Liquid All Grades	Corrosion & Scale Control	200 mg/L

NOTE: All Listed products from this facility are NSF Certified, whether or not they bear the NSF Mark.

Facility : GREGORY, TX

Sodium Hydroxide

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Caustic Soda - Liquid All Grades	Corrosion & Scale Control	200 mg/L

NOTE: All Listed products from this facility are NSF Certified, whether or not they bear the NSF Mark.

Facility : LA PORTE, TX

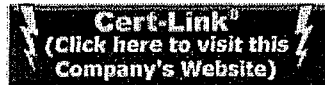
Sodium Hydroxide

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Caustic Soda - Liquid All Grades	Corrosion & Scale Control	200 mg/L

NOTE: All Listed products from this facility are NSF Certified, whether or not they bear the NSF Mark.

OCCIDENTAL CHEMICAL CORPORATION

5005 LBJ FREEWAY
 DALLAS, TX 75244
 972-404-3918



Facility : WICHITA, KS

Sodium Hydroxide

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Caustic Soda Liquid, 50% - Diaphragm Grade	Corrosion & Scale Control	200mg/L
Caustic Soda Liquid, 50% - Low Salt Grade	Corrosion & Scale Control	200mg/L
Caustic Soda, 50% - Membrane Grade	Corrosion & Scale Control	200mg/L
Caustic Soda, 50% - Rayon Grade	Corrosion & Scale Control	200mg/L

NOTE: All Listed products from this facility are NSF Certified, whether or not they bear the NSF Mark.

Facility : GEISMAR, LA

Sodium Hydroxide

Trade Designation

Product Function

Max Use

Caustic Soda Liquid, 50% - Diaphragm Grade

Corrosion & Scale Control

200mg/L

Caustic Soda Liquid, 50% - Low Salt Membrane
Grade

Corrosion & Scale Control

200mg/L

Caustic Soda, 50% - Membrane Grade

Corrosion & Scale Control

200mg/L

NOTE: All Listed products from this facility are NSF Certified, whether or not they bear the NSF Mark.

Number of matching Manufacturers is 2

Number of matching Products is 13

Processing time was 0 seconds

- [Search Listings](#) |
- [News Room](#) |
- [About NSF](#) |
- [Careers](#) |
- [NSF Mark](#) |
- [Client Log-In](#)

- [Privacy Policy](#) |
- [Site Map](#) |
- [Request Info](#) |
- [Contact Us](#) |
- [Copyright © 2004 NSF International.](#)



Responsible Care
Good Chemistry at Work

OxyChem[®] A Division of Occidental Petroleum Corporation

50% Caustic Soda Diaphragm

Sales Specification

Component	Basis	Specification
Total Alkalinity (as Na ₂ O)	wt. %	38.10 min. - 39.60 max.
Hydroxide Alkalinity (as NaOH)	wt. %	49.00 min. - 51.00 max.
Na ₂ CO ₃	wt. %	0.20 max.
NaCl	wt. %	1.10 max.*
NaClO ₃	wt. %	0.30 max.
Na ₂ SO ₄	wt. %	0.050 max.
Fe	ppm by wt.	9.0 max.
Cu	ppm by wt.	0.20 max.
Ni	ppm by wt.	3.00 max.

*Material shipped from OxyChem's Niagara Falls, NY plant and all terminals will adhere to a 1.20% maximum NaCl specification.

Refer to OxyChem's 50% Diaphragm West Coast specification for west coast shipments.

Meets Food Chemicals Codex (FCC) test requirements

EC-CS-07 7/03



Occidental Chemical Corporation
Basic Chemicals Group
Occidental Tower
5005 LBJ Freeway
Dallas, Texas 75244
800-752-5151

Important! The information presented herein, while not guaranteed, was prepared by technical personnel and is true and accurate to the best of our knowledge. No warranty or guaranty, express or implied, is made regarding performance, stability or otherwise. This information is not intended to be all-inclusive as the manner and conditions of use, handling storage and other factors may involve other or additional safety or performance considerations. While our technical personnel will be happy to respond to questions regarding safe handling and use procedures, safe handling and use remains the responsibility of the customer. No suggestions for use are intended as, and nothing herein shall be construed as a recommendation to infringe any existing patents or to violate any Federal, State or local laws.

OxyChem[®]**MATERIAL SAFETY DATA SHEET**

SECTION 1 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Occidental Chemical Corporation**5005 LBJ Freeway****P.O. Box 809050****Dallas, Texas 75380-9050****24 HOUR EMERGENCY TELEPHONE:****1-800-733-3665 or 1-972-404-3228 (U.S.);****32.3.575.55.55 (Europe);****1800-033-111 (Australia)****TO REQUEST AN MSDS:****1-866-295-5278 or 1-615-399-5148****CUSTOMER SERVICE:****1-800-752-5151 or 1-972-404-3800****MSDS NUMBER: M32415****SUBSTANCE: CAUSTIC SODA LIQUID (ALL GRADES)****TRADE NAMES:**

Caustic Soda Diaphragm Grade 10%, 15%, 18%, 20%, 25%, 30%, 35%, 40%, 50%; Caustic Soda Rayon Grade 18%, 20%, 25%, 30%, 50%; 50% Caustic Soda Rayon Grade 0S; Caustic Soda Membrane 6%, 18%, 20%, 25%, 48%, 50%; 50% Caustic Soda Membrane 0S; 50% Caustic Soda Diaphragm 0S; 50% Caustic Soda Purified; 50% Caustic Soda Purified 0S; Caustic Soda Liquid 70/30; Membrane Blended; 50% Caustic Soda Membrane (Northeast)

SYNONYMS:

Sodium hydroxide solution

PRODUCT USE: metal finishing, cleaner, process chemical, petroleum industry**REVISION DATE:** Jul 22 2003

SECTION 2 COMPOSITION, INFORMATION ON INGREDIENTS

COMPONENT: WATER**CAS NUMBER: 7732-18-5****PERCENTAGE: 48.5-94.5****COMPONENT: SODIUM HYDROXIDE**

CAS NUMBER: 1310-73-2
PERCENTAGE: 5.5-51.5

COMPONENT: SODIUM CHLORIDE
CAS NUMBER: 7647-14-5
PERCENTAGE: 0-1.3

SECTION 3 HAZARDS IDENTIFICATION

NFPA RATINGS (SCALE 0-4): HEALTH=3 FIRE=0 REACTIVITY=0

HMS RATINGS (SCALE 0-4): HEALTH=3 FLAMMABILITY=0 REACTIVITY=0

EMERGENCY OVERVIEW:

COLOR: colorless

PHYSICAL FORM: liquid

ODOR: odorless

MAJOR HEALTH HAZARDS: MAY CAUSE BURNS TO THE RESPIRATORY TRACT, SKIN, EYES AND GASTROINTESTINAL TRACT. MAY CAUSE PERMANENT EYE DAMAGE.

POTENTIAL HEALTH EFFECTS:

INHALATION:

SHORT TERM EXPOSURE: irritation (possibly severe), burns, pulmonary edema

LONG TERM EXPOSURE: to our knowledge, no effects are known

SKIN CONTACT:

SHORT TERM EXPOSURE: irritation (possibly severe), burns

LONG TERM EXPOSURE: dermatitis

EYE CONTACT:

SHORT TERM EXPOSURE: irritation (possibly severe), burns, eye damage, blindness

LONG TERM EXPOSURE: visual disturbances

INGESTION:

SHORT TERM EXPOSURE: irritation (possibly severe), burns, nausea, vomiting

LONG TERM EXPOSURE: to our knowledge, no effects are known

CARCINOGEN STATUS:

OSHA: No

NTP: No

IARC: No

SECTION 4 FIRST AID MEASURES

INHALATION: If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. If respiration or pulse has stopped, have a trained person administer Basic Life Support (Cardio-Pulmonary Resuscitation/Automatic External Defibrillator) and CALL FOR EMERGENCY SERVICES IMMEDIATELY.

SKIN CONTACT: Immediately flush contaminated areas with water. Remove contaminated clothing, jewelry, and shoes immediately. Wash contaminated areas with soap and water. Thoroughly clean and

dry contaminated clothing before reuse. Discard contaminated leather goods. GET MEDICAL ATTENTION IMMEDIATELY.

EYE CONTACT: Immediately flush eyes with a directed stream of water for at least 15 minutes, forcibly holding eyelids apart to ensure complete irrigation of all eye and lid tissues. Washing eyes within several seconds is essential to achieve maximum effectiveness. GET MEDICAL ATTENTION IMMEDIATELY.

INGESTION: Never give anything by mouth to an unconscious or convulsive person. If swallowed, do not induce vomiting. Give large amounts of water. If vomiting occurs spontaneously, keep airway clear. Give more water when vomiting stops. GET MEDICAL ATTENTION IMMEDIATELY.

NOTE TO PHYSICIAN: The absence of visible signs or symptoms of burns does NOT reliably exclude the presence of actual tissue damage.

SECTION 5 FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARDS: Negligible fire hazard.

EXTINGUISHING MEDIA: Use extinguishing agents appropriate for surrounding fire.

FIRE FIGHTING: Move container from fire area if it can be done without risk. Cool containers with water.

SENSITIVITY TO MECHANICAL IMPACT: Not sensitive

SENSITIVITY TO STATIC DISCHARGE: Not sensitive

FLASH POINT: not flammable

SECTION 6 ACCIDENTAL RELEASE MEASURES

OCCUPATIONAL RELEASE:

Shovel dry material into suitable container. Liquid material may be removed with a vacuum truck. Flush spill area with water, if appropriate. Keep out of water supplies and sewers. This material is alkaline and may raise the pH of surface waters with low buffering capacity. Releases should be reported, if required, to appropriate agencies. Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA).

SECTION 7 HANDLING AND STORAGE

STORAGE: Store and handle in accordance with all current regulations and standards. Keep container tightly closed and properly labeled. Do not store in aluminum container or use aluminum fittings or transfer lines, as flammable hydrogen gas may be generated. Keep separated from incompatible substances.

HANDLING: Avoid breathing vapor or mist. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. When mixing, slowly add to water to minimize heat generation and spattering.

SECTION 8 EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE LIMITS:

SODIUM HYDROXIDE:

2 mg/m³ OSHA TWA
2 mg/m³ OSHA ceiling (vacated by 58 FR 35338, June 30, 1993)
2 mg/m³ ACGIH ceiling
2 mg/m³ MEXICO peak

VENTILATION: Provide local exhaust ventilation where dust or mist may be generated. Ensure compliance with applicable exposure limits.

EYE PROTECTION: Wear chemical safety goggles with a faceshield to protect against skin contact when appropriate. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

CLOTHING: Wear chemical resistant clothing and rubber boots when potential for contact with the material exists. Contaminated clothing should be removed, then discarded or laundered.

GLOVES: Wear appropriate chemical resistant gloves.

PROTECTIVE MATERIAL TYPES: butyl rubber, natural rubber, neoprene, nitrile, polyvinyl chloride (PVC), Tychem(R)

RESPIRATOR: A NIOSH approved respirator with N95 (dust, fume, mist) filters may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits, or when symptoms have been observed that are indicative of overexposure.

A half facepiece air-purifying respirator may be used in concentrations up to 10X the acceptable exposure level and a full facepiece air-purifying respirator may be used in concentrations up to 50X the acceptable exposure level.

Supplied air should be used when the level is expected to be above 50X the acceptable level, or when there is a potential for uncontrolled release.

A respiratory protection program that meets 29 CFR 1910.134 must be followed whenever workplace conditions warrant use of a respirator.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: liquid

APPEARANCE: clear

COLOR: colorless

ODOR: odorless

BOILING POINT: 230-291 F (110-144 C)

FREEZING POINT: -26 to 59 F (-32 to 15 C)

VAPOR PRESSURE: 13-135 mmHg @ 60 C

VAPOR DENSITY: Not available

SPECIFIC GRAVITY (water=1): 1.11-1.53 @ 15.6 C
DENSITY: 9.27-12.76 lbs/gal @ 15.6 C
WATER SOLUBILITY: 100%
PH: 14.0 (7.5% solution)
VOLATILITY: Not available
ODOR THRESHOLD: Not available
EVAPORATION RATE: Not available
COEFFICIENT OF WATER/OIL DISTRIBUTION: Not available

SECTION 10 STABILITY AND REACTIVITY

REACTIVITY: Stable at normal temperatures and pressure.

CONDITIONS TO AVOID: Carbon monoxide gas may form upon contact with reducing sugars, food and beverage products in enclosed spaces.

INCOMPATIBILITIES: acids, halogenated compounds, prolonged contact with aluminum, brass, bronze, copper, lead, tin, zinc or other alkali sensitive metals or alloys

HAZARDOUS DECOMPOSITION:
Thermal decomposition products: None known.

POLYMERIZATION: Will not polymerize.

SECTION 11 TOXICOLOGICAL INFORMATION

CAUSTIC SODA LIQUID (ALL GRADES):

TOXICITY DATA: The severity of the tissue damage is a function of its concentration, the length of tissue contact time, and local tissue conditions. After exposure there may be a time delay before irritation and other effects occur. This material is a strong irritant and is corrosive to the skin, eyes, and mucous membranes. This material may cause severe burns and permanent damage to any tissue with which it comes into contact. Inhalation will cause severe irritation, possible burns with pulmonary edema, which may lead to pneumonitis. Skin contact with this material may cause severe irritation and corrosion of tissue. Eye contact can cause severe irritation, corrosion with possible corneal damage and blindness. Ingestion may cause irritation, corrosion/ulceration, nausea, and vomiting. In general, chronic effects are due to long-term irritation. This material may cause dermatitis on the skin, or recurrent corneal ulceration and visual disturbances of vision. In rare cases reports have noted long-term inhalation causes bronchial inflammatory reaction or obstructive airway dysfunction.

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY DATA:

FISH TOXICITY: This material has exhibited moderate toxicity to aquatic organisms. For sodium hydroxide: 100 ppm LC50 Daphnia; 25 ppm 24 hours LC50 Brook trout; 48 ppm LC50 King salmon; 33 - 100 ppm 48 hours LC50 Shrimp; 330 - 1000 ppm 48 hours LC50 Cockle

FATE AND TRANSPORT:

BIODEGRADATION: This material is inorganic and not subject to biodegradation.

PERSISTENCE: This material is believed to exist in the disassociated state in the environment.

BIOCONCENTRATION: This material is believed not to bioaccumulate.

OTHER ECOLOGICAL INFORMATION: This material has exhibited slight toxicity to terrestrial organisms.

SECTION 13 DISPOSAL CONSIDERATIONS

Reuse or reprocess if possible. Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D002.

SECTION 14 TRANSPORT INFORMATION

U.S. DOT 49 CFR 172.101:

PROPER SHIPPING NAME: Sodium hydroxide solution

ID NUMBER: UN1824

HAZARD CLASS OR DIVISION: 8

PACKING GROUP: II

LABELING REQUIREMENTS: 8

DOT HAZARDOUS SUBSTANCE(S):

Sodium hydroxide 1000 lb(s) (454 kg(s))

CANADIAN TRANSPORTATION OF DANGEROUS GOODS:

SHIPPING NAME: SODIUM HYDROXIDE SOLUTION

UN NUMBER: UN1824

CLASS: 8

PACKING GROUP/RISK GROUP: II

SECTION 15 REGULATORY INFORMATION

U.S. REGULATIONS:

CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4):

SODIUM HYDROXIDE: 1000 LBS RQ

SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.30):
Not regulated.

SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370.21):

ACUTE: Yes

CHRONIC: No

FIRE: No

REACTIVE: No

SUDDEN RELEASE: No

SARA TITLE III SECTION 313 (40 CFR 372.65): Not regulated.

OSHA PROCESS SAFETY (29CFR1910.119): Not regulated.

STATE REGULATIONS:

California Proposition 65: Not regulated.

NEW JERSEY WORKER AND COMMUNITY RIGHT TO KNOW:

REPORTING REQUIREMENT:

WATER 7732-18-5 48.5-94.5%

SODIUM HYDROXIDE 1310-73-2 5.5-51.5%

SODIUM CHLORIDE 7647-14-5 0-1.3%

RIGHT TO KNOW HAZARDOUS SUBSTANCE LIST:

SODIUM HYDROXIDE 1310-73-2 5.5-51.5%

SPECIAL HEALTH HAZARD SUBSTANCE LIST:

SODIUM HYDROXIDE 1310-73-2 5.5-51.5%

PENNSYLVANIA RIGHT TO KNOW:

REPORTING REQUIREMENT:

WATER 7732-18-5 48.5-94.5%

SODIUM HYDROXIDE 1310-73-2 5.5-51.5%

HAZARDOUS SUBSTANCE LIST:

SODIUM HYDROXIDE 1310-73-2 5.5-51.5%

ENVIRONMENTAL HAZARDOUS SUBSTANCE LIST:

SODIUM HYDROXIDE 1310-73-2 5.5-51.5%

SPECIAL HAZARDOUS SUBSTANCE LIST:

Not regulated.

CANADIAN REGULATIONS:

WHMIS CLASSIFICATION: E.

NATIONAL INVENTORY STATUS:

U.S. INVENTORY (TSCA): All the components of this substance are listed on or are exempt from the inventory.

TSCA 12(b) EXPORT NOTIFICATION: Not listed.

CANADA INVENTORY (DSL/NDL): All components of this product are listed on the DSL.

SECTION 16 OTHER INFORMATION

IMPORTANT: The information presented herein, while not guaranteed, was prepared by competent technical personnel and is true and accurate to the best of our knowledge. **NO WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE, OR WARRANTY OR GUARANTY OF ANY OTHER KIND, EXPRESS OR IMPLIED, IS MADE REGARDING PERFORMANCE, SUITABILITY, STABILITY OR OTHERWISE.** The

information included herein is not intended to be all-inclusive as to the appropriate manner and/or conditions of use, handling and/or storage. Factors pertaining to certain conditions of storage, handling, or use of this product may involve other or additional safety or performance considerations. While our technical personnel will be happy to respond to questions regarding safe handling and use procedures, safe handling and use remains the responsibility of the customer. No suggestions for use are intended to, and nothing herein shall be construed as a recommendation to, infringe any existing patents or violate any laws, rules, regulations or ordinances of any governmental entity.



Online Certifications Directory

FDPH.MH26173

Drinking Water Treatment Additives

[Page Bottom](#)

[Questions?](#)

Drinking Water Treatment Additives

Guide Information

BONDED CHEMICALS INC

MH26173

2645 CHARTER ST

COLUMBUS, OH 43228 USA

Plant at: Columbus, OH

Trade Dsg	Category	Max Use Level
Hypochlorite Solution 12-15%	Disinfection and Oxidation	240 mg/L
Fluorosilicic Acid	Miscellaneous Treatment	6.0 mg/L
	Applications	
Sodium Hydroxide Solution (50%)	Corrosion and Scale Control,	200

Tech)		mg/L
	Softening, Precipitation,	
	Sequestering and pH Adjustment	
Ferric Chloride Solution (37 %)	Coagulation and Flocculation	400 mg/L

[Page Top](#)

[Notice of Disclaimer](#)

[Questions?](#)

[UL Listed and Classified Products](#)

[UL Recognized Components](#)

[Products Certified for Canada](#)

This page and all contents are Copyright © 2003 by Underwriters Laboratories Inc.®

The appearance of a company's name or product in this database does not in itself assure that products so identified have been manufactured under UL's Follow-Up Service. Only those products bearing the UL Mark should be considered to be Listed and covered under UL's Follow-Up Service. Always look for the Mark on the product.

UL permits the reproduction of the material contained on UL's Website subject to the following conditions: 1. The Guide Information, Designs and/or Listings (files) must be presented in their entirety and in a non-misleading manner, without any manipulation of the data (or drawings). 2. The statement "Reprinted from the Online Certifications Directory with permission from Underwriters Laboratories Inc." must appear adjacent to the extracted material. In addition, the reprinted material must include a copyright notice in the following format: "Copyright © 2003 Underwriters Laboratories Inc.®"

Distributed By:**Bonded Chemicals, Inc**

2645 Charter Street

Columbus, Ohio 43228 Phone: (614) 777-9244

BleachTech, LLC

8929 Ryan Road, Seville, Ohio 44273

PRODUCT	BleachTech 12.5% Solution, Sodium Hypochlorite
GRADE	Technical
DATE	3-31-05
SUPERCEDES	1-26-05
APPROVAL	<i>Hamza Kfan</i>

Sodium Hypochlorite is a clear yellow liquid that is a strong oxidizer. It is highly corrosive and should be mixed with water. Mixing this product with chemicals will release chlorine gas, which is an irritant to eyes, lungs, and mucous membranes.

PROPERTIES	Minimum	Maximum	Typical
Assay (wt %)	12.500		13.1 - 13.3
Available Chlorine (vol%)	14.500		15.0 - 15.2
Excess Sodium Hydroxide (wt.%)		0.9	0.30
Specific Gravity @ 60°			1.205
Iron (ppm)		0.01	.0004
pH	11.000	14.00	12.5

APPLICATIONS:

Food Processing

Laundry Compounds

Anti-microbial Compounds

Disinfectant

Water Treatment – Certified to NSF Standard 60 for Drinking Water

OBSERVATIONS:

- Sodium Hypochlorite will slowly decompose with heat or light.
- The boiling point for Sodium Hypochlorite is approximately 95° Celsius.

HANDLING, STORAGE, FIRST AID & DISPOSAL

Refer to MSDS for specific instructions.

Emergency Contact: CHEMTREC – Phone: 800-424-9300

Distributed By:

Bonded Chemicals, Inc.
2645 Charter Street
Columbus, Ohio 43228 Phone: (614) 777-9240

MATERIAL SAFETY DATA SHEET

REVISED 6/21/04

SECTION I CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

BleachTech LLC
8929 Ryan Rd.
Seville, Ohio 44273
1-330-769-5000

SUBSTANCE: SODIUM HYPOCHLORITE
TRADE NAME: BleachTech 12.5% Solution
CHEMICAL NAME/SYNONYMS: Sodium Hypochlorite Solution, Bleach Solution, Bleach Liquor, Hypo-solution, Bleach, and Liquid Bleach.
CAS NUMBER: 7681-52-9
CHEMICAL FAMILY: Alkali
FORMULA: NaOCl
DOT PROPER SHIPPING NAME: Hypochlorite Solution
DOT HAZARD CLASS: 8 (Corrosive) PG III; PG II (For solutions greater than 16% available chlorine)
DOT IDENTIFICATION NO: UN1791
RQ: 100 pounds
DOT EMERGENCY GUIDE NO: 154

SECTION II COMPOSITION, INFORMATION ON INGREDIENTS

INGREDIENT(S):	
Sodium Hypochlorite (NaOCl)	10.0 - 20.0% wt
Sodium Hydroxide (NaOH)	0.1 - 0.4% wt
Inerts (water and NaCl)	79.7 - 89.9% wt

SECTION III HAZARDS IDENTIFICATION

NFPA CLASSIFICATION (SCALE 0-4): Health=2Fire=0 Reactivity=1
EC CLASSIFICATION (ASSIGNED): C (Corrosive)

EMERGENCY OVERVIEW

COLOR: Yellow PHYSICAL FORM: Liquid ODOR: Chlorine Odor
MAJOR HEALTH HAZARDS: Respiratory Tract Burns, Skin Burns, Mucous Membrane Burns, and Eye Irritation
HAZARDOUS MIXTURES WITH OTHER LIQUIDS, SOLIDS, OR GASES: Reacts violently with acids liberating chlorine gas. Also reacts with organic substance. When heated, gives off oxygen that may increase fire hazard.

POTENTIAL HEALTH EFFECTS

INHALATION:

- SHORT TERM EXPOSURE: Irritation to respiratory tract. May have same as effects reported in other routes of exposure, burns, blisters, nausea, difficulty breathing, and lung congestion.
- LONG TERM EXPOSURE: Same as effects reported in short term exposure.

SKIN CONTACT:

- SHORT TERM EXPOSURE: Irritant, reddening of the skin. May have burns, blisters, and itching
- LONG TERM EXPOSURE: Same as effects reported in short term exposure.

EYE CONTACT:

- SHORT TERM EXPOSURE: Irritation (possibly severe), possible eye damage
- LONG TERM EXPOSURE: Same as effects reported in short term exposure.

INGESTION:

- SHORT TERM EXPOSURE: Burns, vomiting stomach pain, disorientation, bluish skin color, convulsions, coma
- LONG TERM EXPOSURE: Same as effects reported in short term exposure.

CARCINOGEN STATUS

OSHA: N

NTP: N

IARC: N

SECTION IV FIRST AID MEASURES

INHALATION: Remove from exposure and get fresh air. Use bag valve mask or similar device to perform artificial respiration (rescue breathing) if needed. Keep warm and at rest. Get medical attention immediately if artificial respiration required.

SKIN CONTACT: Remove contaminated clothing, jewelry, and shoes immediately. Flush affected area with large amounts of water, preferably a safety shower. Use soap or mild detergent and large amounts of water until no evidence of chemical remains (at least 15-20 minutes). For burns, cover affected area securely with sterile, dry, loose fitting dressing. If skin is burned, get medical attention immediately.

EYE CONTACT: Wash eyes immediately with large amounts of water, occasionally lifting upper and lower lids, until no evidence of chemical remains (at least 15 minutes). Continue irrigating with a normal saline solution until ready to transport to physician. Cover with sterile bandages. Get medical attention immediately.

INGESTION: Rinse mouth with water. Drink large quantities of milk (water if no milk is available). Milk of magnesia may be helpful. **DO NOT USE ACIDIC ANTIDOTES SUCH AS SODIUM BICARBONATE.** When vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, do not induce vomiting and turn their head to the side. Never make an unconscious person vomit or drink fluids. Get medical attention.

NOTE TO PHYSICIAN: For inhalation, consider oxygen. For ingestion, avoid gastric lavage, emesis, sodium bicarbonate and acid solutions. Consider the use of antacids.

SECTION V FIRE FIGHTING MEASURES

FLASH POINT: Non-flammable FLAMMABLE LIMITS: Non-flammable

FIRE AND EXPLOSION HAZARDS: Negligible fire hazard. Oxidizer. This material will react with some metals and cause liberation of oxygen. May ignite or explode on contact with combustible materials. Toxic fumes can be liberated by contact with acid or heat.

EXTINGUISHING MEDIA: Regular dry chemical, carbon dioxide, water, or foam suitable for surrounding fire. For large fires, use regular foam or flood with fine water spray.

FIRE FIGHTING: Wear self-contained breathing apparatus and full protective clothing. Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. Use extinguishing agents appropriate for surrounding fire. Do not get water directly on material. For large fires, flood with fine water spray. Reduce vapors with water spray. Apply water from a protected location or from a safe distance. Avoid body contact or inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

SECTION VI ACCIDENTAL RELEASE MEASURES

OCCUPATIONAL RELEASE: Do not touch spilled material. Stop leak if possible without personal risk. For small spills, collect spilled material in appropriate container for disposal and consider absorbing with sand or other non-combustible material (e.g., do not use sawdust or other combustible material). Be advised, however, that the use of absorbing material is creating hazardous waste and this absorbing material must now be disposed of properly. Collect spilled material in appropriate container for disposal. For small dry spills, move containers away from spill to a safe area. For large spills, dike for later disposal. If possible, do not allow material to enter sewers, streams, ponds or storm conduits as concentrated solutions will seriously injure aquatic life. Keep unnecessary people away, isolate hazard area and deny entry. Contain in as small an area as possible, such as a holding area for dilution and neutralization. Contain spill in plastic drums when available. Dispose of in accordance with Federal, State, and local regulations. Personnel engaged in cleanup operations must be equipped with NIOSH approved respirator protection, rubber boots, gloves, and clothing to avoid body contact. Reportable Quantity (RQ): 100 pounds. Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802(USA) or (202) 426-2675 (USA).

ADVANCE PLANNING: Plan in advance for an occupational release and have necessary equipment and neutralization agents on-site. Contact BleachTech for assistance.

SECTION VII HANDLING AND STORAGE

Store in vented, closed containers that provide protection from direct sunlight. Keep separated from incompatible substances and do not store near acids, heat, or oxidizable materials or organics. When handling, do not mix with other cleaning agents that may liberate chlorine gas vapors (e.g., acidic agents).

Store and handle in accordance with all current regulations and standards including NFPA 430 Code for the Storage of Liquid and Oxidizing Materials.

SECTION VIII EXPOSURE CONTROLS AND PERSONNEL PROTECTION

EXPOSURE LIMITS: 2 mg/m³ AIHA recommended STEL 15 minute(s) for Sodium Hypochlorite
VENTILATION: Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.

EYE PROTECTION: Splash goggles are preferred to a faceshield. Another option is to wear splash resistant safety goggles with a faceshield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

CLOTHING: It is recommended to wear appropriate chemical resistant clothing to avoid body contact such as a rubber apron or rain suit. Boots are preferred for footwear.

GLOVES: Wear appropriate chemical resistant gloves.

RESPIRATOR: Under conditions of frequent use or heavy exposure, respiratory protection may be needed. Respiratory protection is ranked in order from minimum to maximum. Consider warning properties before use.

- Any chemical cartridge respirator with organic vapor cartridge(s).
- Any chemical cartridge respirator with a full facepiece and organic vapor cartridge(s)
- Any air-purifying respirator with a full facepiece and an organic vapor canister
- Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply (Use for Unknown Concentrations or those that may be Immediately Dangerous to Life or Health)
- Any self-contained breathing apparatus with a full facepiece (Use for High Concentrations or those which are immediately Dangerous to Life or Health)

SECTION IX PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL APPEARANCE: Liquid APPEARANCE AND ODOR: Clear - Chlorine odor like household bleach. COLOR: Greenish - Yellowish cast MOLECULAR WEIGHT: 74.44
 MOLECULAR FORMULA: Na-O-Cl
 BOILING POINT: Degrades at 230 Degrees Fahrenheit FREEZING POINT: 7 Degrees Fahrenheit
 SPECIFIC GRAVITY: 1.15 - 1.17 at 60 Degrees Fahrenheit PH: Approximately 11 - 13
 VAPOR PRESSURE (mm HG): Vapor Pressure of water + decomposition product Vapor Pressure
 VAPOR DENSITY: Not Available SOLUBILITY IN WATER: Complete VOLATILITY: Not Available
 EVAPORATION RATE: >1 COEFFICIENT OF WATER /OIL DISTRIBUTION: Not Available

SECTION X STABILITY AND REACTIVITY

REACTIVITY: Stable at normal temperatures and pressure.
 CONDITIONS TO AVOID: Avoid heat, flames, sparks and other sources of ignition. Dangerous gases may accumulate in confined spaces. May ignite or explode on contact with combustible materials.
 INCOMPATIBLES: Acids, metals, amines, combustible materials, reducing agents. Specific reactions with sodium hypochlorite include the following:
 ACIDS: Violent reaction. ALUMINUM: Corrosive action. AMINES: Form explosive chloramines. AMMONIA: Form explosive chloramines. AMMONIUM SALTS: May form explosive product.
 BENZYL CYANIDE (ACIDIFIED): Explosive reaction. CELULOSE: Violent reaction
 ETHYLENEIMINE: Forms explosive 1-chloroethyleneimine. FORMIC ACID: Explosive mixture.
 METHANOL: May form explosive compound. NITROGEN COMPOUNDS: Forms explosive N-chloro compounds.
 ORGANIC AND COMBUSTIBLE MATERIALS: Fire and explosion hazard. OXALIC ACID: Intense reaction
 REDUCING AGENTS: Fire and explosion hazard ZINC: Corrosive
 HAZARDOUS DECOMPOSITION: Thermal decomposition products - Chlorine and Hydrochloric Acid Vapors. Decomposition Products - Hypochlorous Acid Vapors POLYMERIZATION: Will not polymerize.

SECTION XI SODIUM HYPOCHLORITE TOXICOLOGICAL INFORMATION

IRRITATION DATA: 10 mg eyes - rabbit moderate
 TOXICITY DATA:
 1gm/ kg oral-woman; TDLo; 45mg/kg intravenous-man TDLo; 5800 mg/ kg oral-mouse LD50; 140 mg/ kg/9 week(s) continuous oral-rat TDLo
 CARCINOGEN STATUS: According to the IARC, animal inadequate evidence, human no adequate data, Group 3 (Hypochlorite salts)
 LOCAL EFFECTS:
 Corrosive: inhalation, skin contact, eye, ingestion hazards
 ACUTE TOXICITY LEVEL:
 Slightly Toxic if ingested
 MUTAGENIC DATA:
 Mutation in micro organisms - Salmonella typhimurium 1mg / plate (-S9); DNA repair - Escherichiacoli 20ug/ disc; DNA damage - Escherichiacoli 420 umol/L; phage inhibition capacity - Escherichiacoli 103 ug/ well; micronucleus test - non-mammalian species multiple 200 ppb; cytogenetic analysis - non-mammalian species multiple 120 ug/ L; cytogenetic analysis - human lymphocyte 100 ppm 24hour(s); sister chromatid exchange - human embryo 149 mg/ L; cytogenetic analysis - hamster lung 100 mg/ L
 HEALTH EFFECTS:

INHALATION

ACUTE EXPOSURE: May cause severe bronchial irritation, sore throat with possible blistering, coughing, stomatitis, nausea, labored breathing, shortness of breath and pulmonary edema. 10-20 mg/m³ causes burning of the nose and throat; 40-60 mg/m³ may be fatal. If sufficient amounts are absorbed, may cause effects as detailed in acute ingestion.
 CHRONIC EXPOSURE: No data available.

SKIN CONTACT

ACUTE EXPOSURE: Extent of damage depends on concentration, pH, volume of solution & time of contact. May cause redness, pain, blistering, itchy eczema & chemical burns. Sensitization reactions possible in previously exposed persons.

CHRONIC EXPOSURE: Effects depend on concentration and duration of exposure. Repeated or prolonged contact with corrosive substances may result in dermatitis or effects similar to acute exposure. Allergic dermatitis has also been reported.

EYE CONTACT

ACUTE EXPOSURE: May cause redness, pain, & blurred vision. Solutions of 5% splashed in human eyes have caused a burning sensation and later only slight superficial disturbance of the corneal epithelium which cleared completely in the next day or two without special treatment. However, one animal study reports a 5% solution causing only moderate irritation with clearing within 7 days. A higher concentration of 15% tested on rabbit eyes caused immediate severe pain, hemorrhages, rapid onset of ground-glass appearance of the corneal epithelium, moderate bluish edema of the whole cornea, chemosis and discharge for several days. Such eyes have sometimes healed in 2-3 weeks with slight or no residual corneal damage but they had neovascularization of the conjunctiva and distortion of the nictitating membrane by scarring.

CHRONIC EXPOSURE: Depending on concentration and time of exposure, symptoms may be as those of acute exposure.

INGESTION

ACUTE EXPOSURE: May cause irritation and erosion of the mucous membranes, vomiting (possibly bloody) and abdominal pain and spasms. A drop in blood pressure, shallow respiration, edema (possibly severe) of pharynx, larynx, and glottis, confusion, convulsions, delirium and coma may occur. Cyanosis and circulatory collapse are possible. Esophageal or gastric perforation and strictures are rare. Death may occur, usually due to complications of severe local injury such as toxemia, shock, perforations, hemorrhage, infection and obstruction. Massive ingestions may produce fatal hyperchloremic metabolic acidosis or aspiration pneumonitis.

CHRONIC EXPOSURE: Sensitization reactions are reported in individuals who are exposed in small amounts through their water supply. High doses have caused sperm abnormality in mice.

SECTION XII ECOLOGICAL INFORMATION**ECOTOXICITY DATA:**

FISH TOXICITY: 94.0 ug/L 96h hour(s) LC50 (Mortality) Cutthroat trout (*Oncorhynchus clarki*)

INVERTEBRATE TOXICITY: 31.6 ug/L 7 hour(s) 1C50 (Species Diversity) Protozoan phylum (Protozoa)

ALGAL TOXICITY: 90 ug/L 96 hour(s) LC50 (Mortality) Algae, phytoplankton, algal mat (Algae)

PHYTOTOXICITY: 230 ug/L 35 hour(s) (Biomass) Curled pondweed (*Potamogeton crispus*)

OTHER TOXICITY: 2.1 ug/L 28 day(s) (Chlorophyll) Aquatic community (Aquatic community)

ENVIRONMENTAL SUMMARY: Highly toxic to aquatic life.

SECTION XIII DISPOSAL CONSIDERATIONS

Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001. Dispose in accordance with all applicable regulations.

SECTION XIV TRANSPORT INFORMATION

U.S. DOT 49 CFR 172.101 SHIPPING NAME-UN NUMBER: Sodium Hypochlorite) - UN1791

U.S. DOT 49 CER 172.101 HAZARD CLASS OR DIVISION: 8

U.S. DOT 49 CFR 172.101 PACKING GROUP: III (less than 16% available chlorine) / II (16% or more available chlorine)

U.S. DOT 49 CFR 172.101 AND SUBPART E LABELING REQUIREMENTS: Corrosive

U.S. DOT 49 CFR 172.101 PACKAGING AUTHORIZATIONS:

EXCEPTIONS: 49 CFR 173.154

NON- BULK PACKAGING: 49 CFR 173.203 (less than 16% available chlorine) / 49 CFR 173.202 (16% or more available chlorine)

BULK PACKAGING: 49 CFR 173.241 (less than 16% available chlorine) / : 49 CFR 173.242 (16% or more available chlorine)

U.S. DOT 49 CFR 172.101 QUANTITY LIMITATIONS:

PASSENGER AIRCRAFT OR RAILCAR: 5 LITERS / (less than 16% available chlorine) / 1 LITERS (16% or more available chlorine)

CARGO AIRCRAFT ONLY: 60 LITERS / (less than 16% available chlorine) / 30 LITERS (16% or more available chlorine)

SECTION XV REGULATORY INFORMATION

U.S. REGULATIONS

TSCA INVENTORY STATUS: Y TSCA 12(b) EXPORT NOTIFICATION: Not listed.
 CERCLA SECTION 103 (40CFR302.4): Y SODIUM HYPOCHLORITE: 100 LBS RQ
 SARA SECTION 302 (40CFR355.30) : N SARA SECTION 304 (40CFR355.40) : N
 SARA SECTION 313 (40CFR372.65) : N
 SARA HAZARD CATEGORIES, SARA SECTIONS 311/312 (40CFR370.21):
 ACUTE: Y CHRONIC: N FIRE: N REACTIVE: N SUDDEN RELEASE: N
 OSHA PROCESS SAFETY (29CFR1910.119): N
 STATE REGULATIONS: California Proposition 65: N
 EUROPEAN REGULATIONS: EC NUMBER (BINECS) : 231-668-3

EC RISK AND SAFETY PHRASES:

R 31 Contact with acids liberates toxic gas.

R 34 Causes burns.

S ½

Keep locked-up and out of reach of children.

S 28b After contact with skin, wash immediately with plenty of soap and water.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible)

S 50 Do not mix with incompatible materials.

CONCENTRATION LIMITS:

C>10%	C	R 31-34
5%<=C<=10%	Xi	R 31-36/38

GERMAN REGULATIONS: WATER HAZARD CLASS (WGK) : 2 (Official German Classification)

SECTION XVI OTHER INFORMATION

For additional information, contact our technical service department.

Information contained in this MSDS refers only to the specific material designated and does not relate to any process or use involving other materials. This information is based on data believed to be reliable, and the Product is intended to be used in a manner that is customary and reasonably foreseeable. Since actual use and handling are beyond our control, no warranty, express or implied, is made and no liability is assumed by BleachTech LLC in connection with the use of this information.

Distributed by:
 Bonded Chemicals, Inc.
 2645 Charter Street
 Columbus, OH 43228
 Phone: (614) 777-9240
 To Order E-Mail: bci-order@chemgroup.com

NSF Product and Service Listings

ings were Last Updated on **Thursday 24, 2008** at 4:15 AM Eastern Time.
 ctact [NSF International](#) to confirm the status of any Listing, report errors, or make suggestions.

NSF is concerned about fraudulent downloading and manipulation of website text. If you have received this listing in hard copy, always
 ation/listing information by going directly to
www.nsf.org/Certified/PwsChemicals/Listings.asp?CompanyName=General+Chemical&TradeName=Soda+Ash&ProductFunction=pH+Ad
 st most accurate information.

NSF/ANSI STANDARD 60 Drinking Water Treatment Chemicals - Health Effects

**GENERAL CHEMICAL
 CORPORATION**
 90 EAST HALSEY ROAD
 PARSIPPANY, NJ 07054
 800-631-8050
 973-515-1840

Facility : # 1 GREEN RIVER, WY

Sodium Carbonate

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Sodium Carbonate (Soda Ash - Dense)	Corrosion & Scale Control pH Adjustment	100 mg/L

Facility : # 2 GREEN RIVER, WY

Sodium Carbonate

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Sodium Carbonate (Soda Ash-Dense)	Corrosion & Scale Control	100 mg/L

Distributed by:
Bonded Chemicals, Inc.
2645 Charter Street
Columbus, OH 43228
Phone: (614) 777-9240
To Order E-Mail: bcj-order@chemgroup.com

pH Adjustment

Facility : COLUMBUS, OH

Sodium Carbonate

Trade Designation

Soda Ash - Dense

Product Function

Corrosion & Scale Control

pH Adjustment

Max Use

100 mg/L

Number of matching Manufacturers is 1

Number of matching Products is 3

Processing time was 0 seconds


[Home](#) | [About NSF](#) | [Contact NSF](#) | [Site Map](#) | [Search](#) | [News](#) | [Marks](#)

[Copyright © 2002 NSF International](#)

Distributed by:
 Bonded Chemicals, Inc.
 2645 Charter Street
 Columbus, OH 43228
 Phone: (614) 777-9240
 To Order E-Mail: bci-order@chemgroup.com

TECHNICAL DATA

SODA ASH

 **General Chemical**
Industrial Products

DENSE ASH
 098-0140

CHARACTERISTICS

General Chemical Dense soda ash, or sodium carbonate (CAS Name: disodium carbonate), is a white, granular, alkaline material.

PROPERTIES*

Chemical Formula	Na ₂ CO ₃
Molecular Weight	105.99
Absolute density, g/cm ³ @ 25°C	2.533
Melting Point, °C	851
Solubility, max % @ 35.4°C	33.2
pH of 1% solution @ 25°C	11.34

* Properties of pure sodium carbonate

** See graph on back for solubility at other temperatures

PHYSICAL PROPERTIES

TYPICAL

SPECIFICATION

Sodium Carbonate (Na ₂ CO ₃) %	99.9	99.5 Min
Bulk Density: lb/ft ³	64.4	62.4 - 68.6
GPL	1034	1000-1100
Screen Analysis, cumulative weight%		
On US 30 (600 µm)	1.2	4 Max
US 100 (150 µm)	92.3	85 Min
Thru US 200 (75 µm)	1.0	2 Max

CHEMICAL PROPERTIES

Contamination - Pad	0.4	5 max
NaCl weight %	0.0066	0.02 max
SiO ₂ %	0.012	0.02 max
Organic Matter as C %	0.0038	0.02 max

PRODUCT MARKETS & USES

- Glass
- Chemical intermediates
- Soap and detergent formulations
- Water treatment
- Flue Gas Desulfurization

MEETS REQUIREMENTS:

- AWWA B201-98
- ANSI/ASTM 0458-85 (1998)
- Federal Spec. O-S-571G (11/13/97)
- Standard 60 (Plant Certified 9/90)
- NF19

Distributed by:
 Bonded Chemicals, Inc.
 2645 Charter Street
 Columbus, OH 43228
 Phone: (614) 777-9240
 To Order E-Mail: bci-order@chemgroup.com

- Pulp and Paper
- Foods
- NSF Certified
- Food Chemical Codex
- Kosher
- ISO/QS 9002

GRADES, FORMS & SHIPPING CONTAINERS

- Dense Ash*

Bulk hopper cars and trucks
50lb.(22.7 kg) bags
One-ton Super sacks

*Suitable for water treatment in accordance with AWWA Standard B201-92 for soda ash.

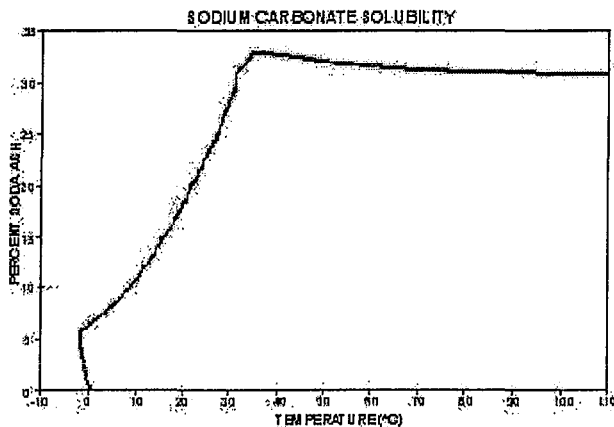
PRODUCING/SHIPPING LOCATION

Green River, WY

SHIPPING REGULATIONS

Not regulated

SOLUBILITY IN WATER



PRODUCT SAFETY INFORMATION

Soda ash may cause eye injury and skin irritation. May be harmful if swallowed.

As with any chemical, soda ash requires care in handling. Anyone responsible for the procurement, use or disposal of this product should familiarize himself and those handling it with the appropriate safety and handling precautions. This information is available in the Material Safety Data Sheet, which may be obtained by contacting our Customer Service or Technical Service groups (see information below).

In the event of an emergency with this product, call the 24-hour General Chemical emergency number: (800)631-8050.

HOW TO ORDER

To obtain additional information*, place an order, obtain samples or pricing, or check on availability, call us toll-free at (800)631-8050, or send written inquiries to our address below.

*Soda ash Product Bulletin (NO. GC1000P)

All information, statements, data, advice and/or recommendations, including, without limitation, those relating to storage, loading/unloading, piping and transportation (collectively referred to herein as "information") are believed to be accurate and reliable. However, no representative or warranty, express or implied, is made as to its completeness, accuracy, fitness for a particular purpose or any other matter including without limitation, that the practice or application of any such information is free of patent infringement or other intellectual property misappropriation. General Chemical is not engaged in the business of providing technical, operational engineering or safety information for a fee, and, therefore, any such provided herein has been furnished as an accommodation and without charge. All information provided herein is intended for use by persons having requisite knowledge, skill, and experience in the chemical industry. General Chemical shall not be responsible or liable for the use, application or implementation of the information provided herein, and all such information is to be used at the risk, and in the sole judgment and discretion, of such persons, their employees, advisors and agents.

General Chemical Industrial Products
 90 East Halsey Road



Material Safety Data Sheet

SODA ASH

A. GENERAL INFORMATION

TRADE NAME (COMMON NAME): SODA ASH		CAS NUMBER: 497-19-8	
CHEMICAL NAME AND/OR SYNONYM: Sodium Carbonate			
FORMULA: Na ₂ CO ₃		MOLECULAR WEIGHT: 105.99	
MANUFACTURER/ADDRESS: GENERAL CHEMICAL CORPORATION 90 East Halsey Road, P.O. Box 389 Parsippany, NJ 07054			
CONTACT: Manager of Product Safety	PHONE NUMBER: (973) 515-1840	LAST ISSUE DATE: August, 1996	CURRENT ISSUE DATE: May, 2001

B. FIRST AID MEASURES

		EMERGENCY PHONE NUMBER: (800) 631-8050
EYES:	Flush with plenty of water for at least 15 minutes and get medical attention.	
SKIN:	Wash with plenty of water.	
INHALATION:	Remove to fresh air.	
INGESTION:	Drink large quantities of water to dilute the material. Do not induce vomiting. Get medical attention for irritation, ingestion or discomfort from inhalation.	

C. HAZARDS INFORMATION

INHALATION: Inhalation of product dust may irritate nose, throat, and lungs.		
INGESTION: Although low in toxicity, ingestion can be harmful – consult a physician. May irritate mouth, esophagus, stomach, etc., LD ₅₀ (rat): 2.8 gm/kg. See reference (a).		
SKIN: May cause skin irritation from prolonged contact.		
EYES: Can irritate or burn eyes.		
PERMISSIBLE CONCENTRATION: AIR (SEE SECTION J)	BIOLOGICAL	
No TLV established.	Not established	None.
UNUSUAL CHRONIC TOXICITY: None known.		

C. HAZARDS (Cont.)

FLASH POINT: Not flammable	° C	AUTO IGNITION TEMPERATURE NA	° C	FLAMMABLE LIMITS IN AIR (% BY VOL.) LOWER - NA	UPPER - NA
OPEN CUP <input type="checkbox"/>	CLOSED CUP <input type="checkbox"/>	UNUSUAL FIRE AND EXPLOSION HAZARDS None.			

D. PRECAUTIONS/PROCEDURES

FIRE EXTINGUISHING AGENTS RECOMMENDED: NA
FIRE EXTINGUISHING AGENTS TO AVOID: NA
SPECIAL FIREFIGHTING PRECAUTIONS: NA
VENTILATION: Local exhaust if dusty condition prevails.
NORMAL HANDLING: Avoid eye contact or prolonged skin contact. Avoid breathing dusts. When dissolving, add to water cautiously and with stirring; solutions can get hot.
STORAGE: Store in a cool, dry area away from acids. Prolonged storage may cause product to cake from atmospheric moisture.
SPILL OR LEAK (ALWAYS WEAR PERSONAL PROTECTIVE EQUIPMENT – SECTION E) Shovel up dry chemical into an empty container with a cover. Flush residue with plenty of water. (See Section I for disposal methods).
SPECIAL: PRECAUTIONS/PROCEDURES/LABEL INSTRUCTIONS: Avoid simultaneous exposure to soda ash and lime dust. In the presence of moisture the two materials combine to form caustic soda (NaOH), which may cause burns.
SIGNAL WORD - WARNING!

E. PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY PROTECTION: Where required, use a respirator approved by NIOSH for product dusts.
EYES AND FACE: Wear hard hat (or other head covering) and chemical safety goggles. Do not wear contact lenses.
HANDS, ARMS, AND BODY: Wear long-sleeve shirt and trousers, and impervious gloves for routine product use. Cotton gloves are sufficient for dry product; wear impervious gloves when handling solutions.
OTHER CLOTHING AND EQUIPMENT: Eyewash is recommended.

F. PHYSICAL DATA

MATERIAL IS AT NORMAL CONDITIONS: LIQUID <input type="checkbox"/> SOLID <input checked="" type="checkbox"/> GAS <input type="checkbox"/> <input type="checkbox"/> _____		APPEARANCE AND COLOR: White powder, Odorless.	
BOILING POINT: °C MELTING POINT: 854 °C	SPECIFIC GRAVITY: (H ₂ O = 1) 2.533	VAPOR DENSITY: (AIR = 1) NA	
SOLUBILITY IN WATER: (% BY WEIGHT) 17% solution at 20C	pH: 1% solution; pH = 11.3	VAPOR PRESSURE: (mm Hg @ 20°C) <input type="checkbox"/> (PSIG) <input type="checkbox"/> NA	
EVAPORATION RATE: (Butyl acetate=1) <input type="checkbox"/> (Ether = 1.0) <input type="checkbox"/> NA	% VOLATILES BY VOLUME: (AT 20°C) NA		

G. REACTIVITY DATA

STABILITY: UNSTABLE <input type="checkbox"/> STABLE <input checked="" type="checkbox"/>	CONDITIONS TO AVOID: None.
INCOMPATIBILITY (MATERIALS TO AVOID): Contact with acids will release carbon dioxide gas. When mixed with lime dust and water, corrosive caustic soda may be produced.	
HAZARDOUS DECOMPOSITION PRODUCTS: See above	
HAZARDOUS POLYMERIZATION: MAY OCCUR <input type="checkbox"/> WILL NOT OCCUR <input checked="" type="checkbox"/>	CONDITIONS TO AVOID: None.

H. HAZARDOUS INGREDIENTS (MIXTURES ONLY)

MATERIAL OR COMPONENT/C.A.S. #	WT. %	HAZARD DATA (See Sect. J)
NA		

I. ENVIRONMENTAL

DEGRADABILITY/AQUATIC TOXICITY: ND		OCTANOL/WATER PARTITION COEFFICIENT ND
EPA HAZARDOUS SUBSTANCE? (CLEAN WATER ACT SECT. 311) YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> IF SO, REPORTABLE QUANTITY:		40 CFR 116-117
WASTE DISPOSAL METHODS (DISPOSER MUST COMPLY WITH FEDERAL, STATE AND LOCAL DISPOSAL OR DISCHARGE LAWS): If permitted by applicable disposal regulations, bury in a solid waste landfill or dissolve and neutralize as follows: Dissolve in water using caution as solution can get hot. Neutralize with acid and flush to sewer with plenty of water. Good ventilation is required during neutralization due to release of CO ₂ gas. Neutralized waste may have to be disposed of by an approved contractor.		
RCRA STATUS OF <u>UNUSED</u> MATERIAL IF DISCARDED: Not a hazardous waste.	HAZARDOUS WASTE NUMBER: (IF APPLICABLE) --	40 CFR 261

J. REFERENCES

PERMISSIBLE CONCENTRATIONS REFERENCES: None.		
REGULATORY STANDARDS	DOT CLASSIFICATION: Not regulated.	49 CFR 173
None additional cited.		
GENERAL: (a) General Chemical Corporation data, unpublished.		

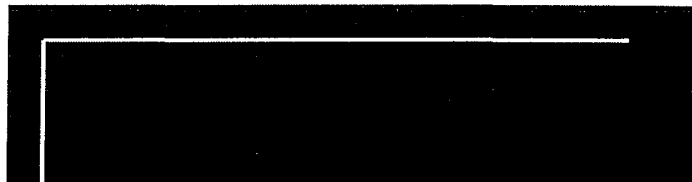
K. ADDITIONAL INFORMATION

This product is not for use as a food or drug additive.

GC-1000

THIS MATERIAL SAFETY DATA SHEET IS OFFERED SOLELY FOR YOUR INFORMATION, CONSIDERATION AND INVESTIGATION.

GENERAL CHEMICAL CORPORATION PROVIDES NO WARRANTIES, EITHER EXPRESS OR IMPLIED, AND ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OR COMPLETENESS OF THE DATA CONTAINED HEREIN.



AQUA MAG® C-10 blended phosphate is an effective corrosion inhibitor and sequestrant for use in potable and industrial water systems. The product is a liquid concentrate of exceptional purity, clarity, and stability, utilizing a broad spectrum of phosphates for better sequestration and corrosion control.

BENEFITS OF AQUA MAG® C-10

- Inhibits corrosion of steel distribution system water lines, iron and galvanized piping, and lead and copper plumbing.
- Decreases iron tuberculation, which can extend the life of the distribution system.
- Inhibits lead and copper leaching, which results in lower lead and copper in the delivered potable water.
- Lessens the occurrence of microbial-influenced corrosion, providing longer system life.
- Controls iron and manganese, minimizing rusty and dirty water in the system.
- Reduces discoloration, staining, and mineral build-up, resulting in fewer customer complaints.
- Diminishes calcium scale deposits typically seen in hot water lines and heaters.
- Lowers chlorine demand and improves disinfection.
- Saves money by reducing corrosion and scale, lowering chlorine demand, and decreasing hydrant flushing, leaks, and failures.

PROPERTIES AND CERTIFICATIONS

- | | |
|--|-------------------------------------|
| • Clear homogenous liquid | • Specific Gravity 1.37 ± 0.03 |
| • Viscosity < 2 cps at 70° F | • Total Phosphate 36% ± 1% |
| • Totally soluble and freeze/thaw stable | • pH (neat) 6.0 ± 0.3 |
| • NSF maximum feed rate 28 mg/L | • Ratio ortho/polyphosphate 0/100 |
| • Freezing Point < 23° F | • Bulk Density 11.4 lbs. per gallon |
| • Shelf Life (neat) 2 years | • Conforms to ANSI/NSF Standard 60 |

SHIPPING AND HANDLING

AQUA MAG® C-10 blended phosphate is packaged in 1, 5, 15, 30 & 55 gallon containers and is available in bulk quantities from the manufacturing facility, local warehouses, and bulk terminals. The product is shipped in safety-sealed, food-grade containers or certified tankers. Each container is identified by a lot number.

APPLICATION

AQUA MAG® C-10 blended phosphate is applied using a chemical metering pump. In most applications, AQUA MAG® C-10 blended phosphate is fed as a concentrate without the necessity of dilution. For dosage rates or answers to technical questions, please call Carus Chemical Company (800) 435-6856.



Responsible Care®
Good Chemistry at Work

AQUA MAG® blended phosphate is a registered trademark of Carus Corporation
Responsible Care® is a service mark of the American Chemistry Council.
Form #PH 1352

CARUS CHEMICAL COMPANY
315 Fifth Street • Peru, IL 61354
Tel: (815) 223-1500 Fax: (815) 224-6697

Web: www.caruschem.com • E-Mail: salesmkt@caruschem.com

AQUA MAG[®] C-10**MATERIAL SAFETY DATA SHEET**

Information: 815-223-1500

Emergency: 800-435-6856

CHEMTREC: 800-424-9300

I. IDENTIFICATION

PRODUCT NAME:	Aqua Mag C-10 [®]	REVISION DATE: 5/30/01			
CHEMICAL NAME:	Sodium Polyphosphate	FORMULA: Proprietary			
SYNONYMS:	Sodium Polyphosphates, Glassy	PACKING GROUP: NA			
D.O.T. HAZARD CLASS:	Non-Hazardous	UN NO.	NA	CAS NO.	NA
D.O.T. SHIPPING NAME:	Not Regulated	CAS NAME		NA	

II. PHYSICAL DATA

PHYSICAL STATE: Clear liquid	SPECIFIC GRAVITY: 1.37	pH: 6.0
BOILING POINT, °C: > 100°C (212°F)	SOLUBILITY IN WATER: Soluble in all proportions.	
FREEZING POINT, °C: -5° C (23°F)	VOLATILES VOLUME %: NA	
VAPOR PRESSURE AT 20^oc. Mm Hg: NA	EVAPORATION RATE: NA	

III. HAZARDOUS COMPONENTS GREATER THAN 1%

MATERIAL	PEL	TLV	CAS.NO.	%
This product contains no toxic chemicals subject to the reporting requirements of Section 313 – Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.				
CARCINOGENICITY: Not listed by NTP, IARC, or OSHA				

IV. FIRE AND EXPLOSIVE HAZARD DATA

FLAMMABILITY:	Non-flammable
NORMAL EXTINGUISHING AGENT:	Suitable for surrounding materials.
SPECIAL FIRE FIGHTING PROCEDURES:	Not Applicable
USUAL FIRE AND EXPLOSION HAZARDS:	None known

V. REACTIVITY DATA

STABILITY:	Stable	CONDITIONS TO AVOID:	Heat
INCOMPATIBILITY (materials to avoid):	No specific data		
HAZARDOUS COMBUSTION / DECOMPOSITION PRODUCTS:	May liberate oxides of sodium or phosphorus if involved in fire.		

CARUS CHEMICAL MUNICIPAL

DIVISION OF CARUS CORPORATION



Responsible Care[®]
Good Chemistry at Work

continued

PRODUCT NAME: Aqua Mag® C-10

VI. HEALTH HAZARD DATA

ACUTE EFFECTS OF EXPOSURE	
INGESTION:	May cause irritation to mouth and throat, or nausea and vomiting.
SKIN CONTACT:	May cause skin irritation.
INHALATION:	May cause irritation to the respiratory tract.
EYE CONTACT:	May cause eye injury.
CHRONIC EFFECTS OF EXPOSURE:	No specific information.
OTHER HEALTH DATA:	No specific information. Maximum use level per NSF Standard 60: 28mg/L

EMERGENCY AND FIRST AID PROCEDURES

INGESTION:	Burning of mouth area may be reduced or eliminated through continued rinsing with water. Do not induce vomiting. Drink large quantities of water. Consult a physician.
SKIN :	Flush exposed area with water. Rinse thoroughly. Consult a physician.
INHALATION:	Remove to fresh air. Consult a physician.
EYES:	Flush eyes with copious amounts of water for at least 15 minutes. Consult a physician.

VII. SPILL OR LEAK PROCEDURES

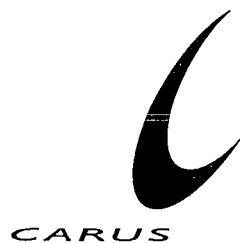
STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:	Contain all spills and dispose of properly. Flush area with large amounts of water.
WASTE DISPOSAL METHOD:	Disposal of all materials shall be in full and strict compliance with all federal, state, and local regulations pertaining to phosphates..

VIII. SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:	Approved NIOSH/MSHA mist respirator.		
PROTECTIVE GLOVES:	Chemical resistant	EYE PROTECTION:	Chemical safety goggles
VENTILATION	Well ventilated area	SPECIAL EQUIPMENT:	Impervious apron, eyewash fountain, safety shower

IX. SPECIAL PRECAUTIONS

HANDLING AND STORAGE:	Store in cool, dry place. Protect container from physical damage and freezing.
OTHER:	None known



Division of Carus Corporation
 315 Fifth Street
 PO Box 599
 Peru, IL 61354
 Tel (815) 223-1500
 Fax (815) 224-6697

The information contained herein is accurate to the best of our knowledge. However, data, safety standards and government regulations are subject to change, and the conditions of handling, use or misuse of the product are beyond our control. Carus Chemical Company makes no warranty, either express or implied, including any warranties of merchantability and fitness for a particular purpose. Carus also disclaims all liability for reliance on the completeness or confirming accuracy of any information included herein. Users should satisfy themselves that they are aware of all current data relevant to their particular users.

Responsible Care® is a service mark of the American Chemistry Council. Aqua Mag® is a registered trademark of Carus Corporation.
 Copyright 1998

SOUTHERN IONICS INCORPORATED
MATERIAL SAFETY DATA SHEET

MSDS. NO. 037
 Effective Date: September 10, 2002

PRODUCT NAME: SODIUM THIOSULFATE SOLUTION

Transportation Emergencies, Call (800) 424-9300 (CHEMTREC)
 Health Emergencies, contact Your Local Poison Center
Caution: Causes irritation. Avoid contact with skin, eyes or clothing.

I. PRODUCT INFORMATION

Product Name: Sodium Thiosulfate Solution **Formula:** See Below
Chemical Name:
CAS Number: 7772-98-7

II. COMPONENT DATA

Typical Composition	CAS #'s	%
Na ₂ S ₂ O ₃	7772-98-7	29-31
Water	7732-18-5	Balance

Exposure Standard: Not Found

Hazard Ratings: Health = 2 Flammability = 0 Reactivity = 2
 0 = Least; 1 = Slight; 2 = Moderate; 3 = High; 4 = Extreme;

III. PHYSICAL DATA

Appearance and Odor: Clear colorless to amber solution. Sulfur like odor.

Boiling Point: 217°F

Melting Point: N/A

Vapor Density (air = 1): N/A

Vapor Pressure: N/A

Solubility in water: 100%

Specific Gravity (H₂O = 1): 1.28

pH: 8 – 10.5

Other (i.e. wt. per gallon): 10.8 lb/gallon typical

MSDS No. 037

Page 2

VI. FIRE AND EXPLOSION INFORMATION**Flash Point:** N/A**Flammable Limits:** N/A**Extinguishing Media:** N/A**Special Firefighting Procedures:** For fires involving this material wear SCBA.**VII. REACTIVITY DATA****Stability:** Stable**Conditions To Avoid:** Sulfur dioxide may be released if allowed to contact strong acids or if dried material is overheated.**Incompatibility:** Strong acids.**Hazardous Decomposition****Products:** If dried material is overheated, sulfur dioxide is given off.**Hazardous Polymerization:** Will not occur.**VIII. PERSONAL PROTECTIVE EQUIPMENT RECOMMENDATIONS****Ventilation:** Use in well ventilated areas.**Eye:** Goggles or full face shield.**Skin:** Appropriate clothing/rubber or plastic gloves. Avoid contact with skin.**Respiratory:** None required under normal conditions.**VIII. HEALTH AND FIRST AID****PHYSIOLOGICAL & HEALTH EFFECTS****Routes of Entry:****Eyes:** May cause slight irritation.**Skin:** Moderate to low irritant.**Inhalation:** N/A**Ingestion:** Up to 12 grams of sodium thiosulfate can be taken daily by mouth with no ill effects except catharsis.

MSDS No. 037

Page 3

Toxicity: Large doses internally have a cathartic action.

EMERGENCY & FIRST AID PROCEDURES

Eyes: Flush with water for at least 15 minutes. Contact a physician.

Skin: Wash thoroughly with water. If irritation persists, contact physician.

Inhalation: Not found.

Ingestion: If gross amounts are swallowed, induce vomiting. Contact a physician.

VII. SPILL AND LEAK PROCEDURES

Precaution if Spilled or Released: Flush small spills with water. For larger spills, recover as much as possible then flush area with water. Comply with all federal, state and local regulations when disposing of waste.

Neutralizing Chemicals: None.

Waste Disposal Methods: Comply with federal, state and local regulations.

Reportable Quantities: N/A

IX. TRANSPORTATION REGULATIONS

DOT Proper Shipping Name: Sodium Thiosulfate Solution

DOT Classification: Non hazardous

UN/NA Identification Number: N/A

Packing Group: N/A

Other Labels: N/A

X. SPECIAL PRECAUTIONS

Handling and Storage Precautions: Use general safe work practices when handling this chemical.

MSDS No. 037

Page 4

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

The information on this Material Safety Data Sheet is believed to be accurate but is not warranted to be so. Protective equipment, health effects, and other related safety measures are based on intended and anticipated product use. Recipients are advised to confirm in advance of need that the information is applicable and suitable to their circumstances.