

INVITATION TO BID

ITB No. 4487

Water Treatment Chemical - Sodium Hydroxide (NaOH)



Due Date: April 19, 2017 at 10:00 A.M. (local time)

Issued By:

City of Ann Arbor
Procurement Unit
301 E. Huron Street
Ann Arbor, MI 48104

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INVITATION TO BID

City of Ann Arbor
Guy C. Larcom Municipal Building
Ann Arbor, Michigan 48107

Ladies and Gentlemen:

The undersigned, as Bidder, declares that this Bid is made in good faith, without fraud or collusion with any person or persons bidding on the same Contract; that this Bidder has carefully read and examined the bid documents, including, City Nondiscrimination and Wage requirements, Vendor Conflict of Interest Form, Instructions to Bidders, Bid, Bid Forms, Contract, Bond Forms (if any), General Conditions, Standard Specifications, Detailed Specifications, all Addenda, and the Plans (if applicable) and understands them. The Bidder declares that it is fully informed as to the nature of the work and the conditions relating to the work's performance. The Bidder also declares that it has extensive experience in successfully completing projects similar to this one.

The Bidder acknowledges that it has not received or relied upon any representations or warrants of any nature whatsoever from the City of Ann Arbor, its agents or employees, and that this Bid is based solely upon the Bidder's own independent business judgment.

In accordance with these bid documents, and Addenda numbered _____, the undersigned, as Bidder, proposes to perform all work included herein for the amounts set forth in the Bid Forms.

The Bidder declares that it has become familiar with the City Conflict of Interest Disclosure Form and certifies that the statement contained therein is true and correct.

If the Bidder enters into the Contract in accordance with this Bid, or if this Bid is rejected, then the accompanying check or Bid Bond shall be returned to the Bidder.

In submitting this Bid, it is understood that the right is reserved by the City to accept any Bid, to reject any or all Bids, to waive irregularities and/or informalities in any Bid, and to make the award in any manner the City believes to be in its best interest.

SIGNED THIS 12th DAY OF April, 2017

JCI Jones Chemicals, Inc.
Bidder's Name

18000 Payne Street Riverview, MI 48193
Official Address

734.283.0677
Telephone Number


Authorized Signature of Bidder

Pamela Nowaske - Sales Coordinator/Office Manager
(Print Name of Signer Above)

pnowaske@jcichem.com
Email Address for Award Notice

Section 1 INSTRUCTIONS TO BIDDERS

General

The City is soliciting bids for Sodium Hydroxide (NaOH). Chemical specifications are included in Section 2

Any Bid which does not conform fully to these instructions may be rejected.

Site Inspection

Prior to Thursday, April 13, 2017, a bidder may inspect the City's site and equipment. Inspections are by appointment only during business hours (8:00 a.m. to 3:00 p.m). Appointments can be scheduled by email to Larry Sanford, Assistant Manager, Water Treatment Unit at LSanford@a2gov.org. No appointments will be scheduled after April 13, 2017

Preparation of Bids

Bids should be prepared providing a straight-forward, concise description of the Bidder's ability to meet the requirements of the ITB. Bids shall be written in ink or typewritten. No erasures are permitted. Mistakes may be crossed out and corrected and must be initialed and dated in ink by the person signing the Bid.

Bids must be submitted on the "Bid Forms" provided with each blank properly filled in. If forms are not fully completed it may disqualify the bid.

Each person signing the Bid certifies that he/she is the person in the Bidder's firm/organization responsible for the decision as to the fees being offered in the Bid and has not and will not participated in any action contrary to the terms of this provision.

Questions or Clarification on ITB Specifications

All questions regarding this ITB shall be submitted via email. Emailed questions and inquires will be accepted from any and all prospective Bidders in accordance with the terms and conditions of the ITB.

All questions shall be submitted by April 12, 2017 and should be addressed as follows:
Specification/Scope of Work questions emailed to Larry Sanford, Asst. Mgr, Water Treatment Services Unit at LSanford@a2gov.org.

Bid Process and Compliance questions emailed to Colin Spencer, Purchasing Manager at CSpencer@a2gov.org.

Addenda

If it becomes necessary to revise any part of the ITB, notice of the Addendum will be posted to Michigan Inter-governmental Trade Network (MITN) www.mitn.info and/or City of Ann Arbor web site www.A2gov.org for all parties to download.

Each Bidder must in its Bid, to avoid any miscommunications, acknowledge all addenda which it has received, but the failure of a Bidder to receive, or acknowledge receipt of; any addenda shall not relieve the Bidder of the responsibility for complying with the terms thereof.

The City will not be bound by oral responses to inquiries or written responses other than written addenda.

Bid Submission

All Bids are due and must be delivered to the City of Ann Arbor Procurement Unit on or before Wednesday, April 19, 2017 by 10:00 AM. (local time). Bids submitted late or via oral, telephonic, telegraphic, electronic mail or facsimile **will not** be considered or accepted.

Each Bidder must submit one (1) original Bid and one (1) additional Bid copies in a sealed envelope clearly marked: **ITB No. 4487 – Water Treatment Chemical – Sodium Hydroxide.**

Bids must be addressed and delivered to:

City of Ann Arbor
Procurement Unit,
c/o Customer Service, 1st Floor
301 East Huron Street
Ann Arbor, MI 48107

All Bids received on or before the Due Date will be publicly opened and recorded immediately. No immediate decisions are rendered.

The following forms provided within this ITB Document must be included in submitted bids.

- **Vendor Conflict of Interest Disclosure Form**
- **City of Ann Arbor Non-Discrimination Ordinance Declaration of Compliance**

Bids that fail to provide these completed forms listed above upon bid opening will be rejected as non-responsive and will not be considered for award.

Hand delivered Bids will be date/time stamped/signed by the Procurement Unit at the address above in order to be considered. Normal business hours are 9:00 a.m. to 3:00

p.m. Monday through Friday, excluding Holidays. The City will not be liable to any Bidder for any unforeseen circumstances, delivery or postal delays. Postmarking to the Due Date will not substitute for receipt of the Bid. Each Bidder is responsible for submission of their Bid.

Additional time for submission of bids past the stated due date and time will not be granted to a single Bidder; however, additional time may be granted to all Bidders when the City determines in its sole discretion that circumstances warrant it.

Award

The City intends to award a Contract(s) to the lowest responsible Bidder(s). For unit price bids, the contract will be awarded based upon the unit prices and the lump sum prices stated by the bidder. If the City determines that the unit price for any item is materially different for the work item bid than either other bidders or the general market, the City, in its sole discretion, in addition to any other right it may have, may reject the bid as not responsible or non-conforming.

The City intends to issue a purchase order to the selected Bidder. The City Purchase Order terms and conditions have been included. The contract term is to start approximately July 1, 2017 and continue through June 30, 2018 (twelve-month period). The City reserves the right to renew the contract with the selected Bidder for up to three (3) one-year periods provided that by sixty (60) days prior to the end of the original contract term or renewal term (as applicable) written notice of the City's exercise of its extension rights is provided to the Vendor. Extension to be under the same terms and conditions.

Official Documents

The City of Ann Arbor officially distributes bid documents from the Procurement Unit or through the Michigan Intergovernmental Trade Network (MITN). Copies of the bid documents obtained from any other source are not Official copies. Addenda and other bid information will only be posted to these official distribution sites. If you obtained City of Ann Arbor Bid documents from other sources, it is recommended that you register on www.MITN.info and obtain an official Bid.

Withdrawal of Bids

After the time of opening, no Bid may be withdrawn for the period of sixty (60) days.

Human Rights Information

All contractors proposing to do business with the City shall satisfy the contract compliance administrative policy adopted by the City Administrator in accordance with the Section 9:158 of the Ann Arbor City Code. Breach of the obligation not to discriminate as outlined in the General Conditions section herein shall be a material breach of the contract. Contractors are required to post a copy of Ann Arbor's Non-Discrimination Ordinance at

all work locations where its employees provide services under a contract with the City.

Disclosures

After bids are opened, all information in a submitter's bid is subjected to disclosure under the provisions of Michigan Public Act No. 442 of 1976, as amended (MCL 15.231 et seq.) known as the "Freedom of Information Act." The Freedom of Information Act also provides for the complete disclosure of contracts and attachments thereto except where specifically exempted.

Bid Protest

All Bid protests must be in writing and filed with the Purchasing Agent within five (5) business days of the award action. The Bidder must clearly state the reasons for the protest. If a Bidder contacts a City Service Area/Unit and indicates a desire to protest an award, the Service Area/Unit shall refer the Bidder to the Purchasing Agent. The Purchasing Agent will provide the Bidder with the appropriate instructions for filing the protest. The protest shall be reviewed by the City Administrator or designee whose decision shall be final.

Reservation of Rights

The City of Ann Arbor reserves the right to accept any bid or alternative bid proposed in whole or in part, to reject any or all bids or alternatives bids in whole or in part and to waive irregularity and/or informalities in any bid and to make the award in any manner deemed in the best interest of the City.

**SECTION 2
CITY OF ANN ARBOR
STANDARD SPECIFICATIONS
FOR
SODIUM HYDROXIDE**

This specification pertains to sodium hydroxide (NaOH) for use in the treatment of municipal water supplies. Chemicals supplied under this specification must meet or exceed the requirements of ANSI/AWWA B501-93 and NSF/ANSI Standard 60.

PART 1: General Information

Part 1.1 Definitions

The following definitions shall apply in this specification:

Manufacturer: Any party that produces Sodium hydroxide (caustic soda) as covered by this specification.

Purchaser: Any party that enters into a contract, either written or verbal, to purchase sodium hydroxide in accordance with the provisions of this specification.

Vendor: Any party that enters into a contract, either written or verbal, to supply sodium hydroxide for purchase in accordance with this specification.

Part 1.2 Affidavit of Compliance

The purchaser requires an affidavit from the manufacturer or vendor that the sodium hydroxide furnished under the purchaser's orders conforms to NSF/ANSI Standard 60 and meets or exceeds the specifications of this standard.

Part 1.3 Rejection

Notice of Nonconformance. If the sodium hydroxide does not meet the requirements of this standard, a notice of nonconformance shall be provided by the purchaser to the vendor within 10 working days of receipt of the shipment at its point of destination. The results of the purchaser's test shall prevail unless the vendor notifies the purchaser within five working days of receipt of the notice of nonconformance that a retest is desired. On receipt of the request for a retest, the purchaser shall forward to the vendor one of the sealed samples taken in accordance to section 4.1 of this standard. In the event that the retest results do not agree with the test results of the purchaser, the other sealed sample shall be forwarded to a referee laboratory agreed upon by both parties for analysis. The results of the referee laboratory's analysis shall be considered final. If the shipment is found to be in compliance with this standard, then the cost of the referee laboratory shall be assumed by the purchaser. If the shipment is found not to meet the specifications of this standard, the cost of the referee laboratory shall be assumed by

the vendor.

If the material delivered is found to not meet the requirements of this standard, the responsibility of removal from the point of destination shall fall wholly on the vendor. An exception to this point may be made if a price adjustment is made between the vendor and the purchaser.

PART 2: Specifications

Part 2.1 Description

50% Sodium hydroxide solution is normally a clear and colorless liquid but may sometimes be slightly colored and turbid. It is a caustic liquid and is neither combustible nor explosive. However, caustic soda can react violently or explosively with many organic chemicals. This solution begins to crystallize at 12°C. Considerable heat is generated when water is added to caustic soda which may result in boiling and splattering of hot caustic solution.

Part 2.2 Physical Requirements

Sodium hydroxide is a compound that is commonly produced in the electrolytic manufacture of chlorine. In the anhydrous form, it is white to slightly off white, opaque or translucent solid that rapidly absorbs moisture from the atmosphere. Liquid sodium hydroxide is a solution of anhydrous sodium hydroxide and water.

Part 2.3 Chemical Requirements

Liquid sodium hydroxide supplied under this specification shall contain approximately 50 percent sodium hydroxide (NaOH).

Part 2.4 Impurities

The sodium hydroxide provided under this specification shall contain no soluble or insoluble material, either organic or inorganic, capable of producing deleterious or injurious effects on the health of those consuming water that has been properly treated with the sodium hydroxide.

The sodium hydroxide supplied under this specification shall be diaphragm or membrane grade.

This material shall be certified as suitable for contact with or treatment of drinking water by an accredited certification organization in accordance with ANSI/NSF Standard 60, Drinking Water Treatment Chemicals – Health Effects.

The manufacturer or supplier shall furnish a certificate of analysis that includes but is not limited to the following parameters: sodium hydroxide, sodium oxide, sodium chloride, sodium carbonate, sodium chlorate, sodium sulfate, aluminum, silicon,

calcium, magnesium, iron, manganese, lead, mercury, arsenic, potassium, bromide, bromate.

PART 3: Delivery

Part 3.1 Marking

Each shipment of material shall carry with it some means of identification. Accompanying each shipment shall be documentation showing the net weight, the name of the manufacturer, the brand name (if any) and other information as required by applicable laws and regulations.

Part 3.2 Shipping

Liquid sodium hydroxide shall be delivered in properly cleaned self-unloading tank trucks. All bulk loads shall be accompanied by certified weight tickets. Size of load shall meet load limit restrictions. Plant facilities include two 3250 gallon fiberglass reinforced plastic tanks with two inch fill lines.

PART 4: Verification

Part 4.1 Sampling

Samples shall be taken at the point of destination, in accordance with AWWA B501-93, section 5.1, unless the shipment is accompanied by a certified analysis from the manufacturer or vendor.

Part 4.2 Testing

All testing shall be done in accordance to the most current and applicable AWWA standard for sodium hydroxide (eg. B501-93 Section 5.3-5.5). The following is a partial list of chemical and physical characteristics that may be tested:

- 1. Alkali (Na_2O).**
- 2. Hydroxide.**
- 3. Sodium Carbonate**

SECTION 3: INSURANCE

Effective the date of this Agreement, and continuing without interruption during the term of this Agreement, Contractor shall provide certificates of insurance to the City on behalf of itself, and when requested any subcontractor(s).

A. The certificates of insurance shall meet the following minimum requirements.

1. Worker's Compensation Insurance in accordance with all applicable state and federal statutes. Further, Employers Liability Coverage shall be obtained in the following minimum amounts:

Bodily Injury by Accident - \$500,000 each accident
Bodily Injury by Disease - \$500,000 each employee
Bodily Injury by Disease - \$500,000 each policy limit

2. Commercial General Liability Insurance equivalent to, as a minimum, Insurance Services Office form CG 00 01 07 98 or current equivalent. The City of Ann Arbor shall be an additional insured. There shall be no added exclusions or limiting endorsements including, but not limited to: Products and Completed Operations, Explosion, or Pollution. Limited Pollution endorsement is allowed if Broadened Pollution Liability Coverage is included in the Motor Vehicle Liability Insurance. Further, the following minimum limits of liability are required:

\$1,000,000	Each occurrence as respect Bodily Injury Liability
or	
	Property Damage Liability, or both combined
\$2,000,000	Per Job General Aggregate
\$1,000,000	Personal and Advertising Injury

3. Motor Vehicle Liability Insurance, including Michigan No-Fault Coverages, equivalent to, as a minimum, Insurance Services Office form CA 00 01 07 97 or current equivalent. The City of Ann Arbor shall be an additional insured. There shall be no added exclusions or limiting endorsements. Coverage shall include all owned vehicles, all non-owned vehicles and all hired vehicles. Further, the limits of liability shall be \$1,000,000 for each occurrence as respects Bodily Injury Liability or Property Damage Liability, or both combined. Pollution Liability – Broadened Coverage Required
4. Umbrella/Excess Liability Insurance shall be provided to apply in excess of the Commercial General Liability,

Employers Liability and the Motor Vehicle coverage enumerated above, for each occurrence and for aggregate in the amount of \$1,000,000.

- B. Insurance required under A.2 and A.3 above of this contract shall be considered primary as respects any other valid or collectible insurance that the City may possess, including any self-insured retentions the City may have; and any other insurance the City does possess shall be considered excess insurance only and shall not be required to contribute with this insurance. Further, the Contractor agrees to waive any right of recovery by its insurer against the City.

- C. Documentation must provide and demonstrate an unconditional 30 day written notice of cancellation in favor of the City of Ann Arbor. Further, the documentation must explicitly state the following: (a) the policy number; name of insurance company; name and address of the agent or authorized representative; name and address of insured; project name; policy expiration date; and specific coverage amounts; (b) any deductibles or self-insured retentions which shall be approved by the City, in its sole discretion; (c) that the policy conforms to the requirements specified. An original certificate of insurance may be provided as an initial indication of the required insurance, provided that no later than 21 calendar days after commencement of any work the Contractor supplies a copy of the endorsements required on the policies. Upon request, the Contractor shall provide within 30 days a copy of the policy(ies) to the City. If any of the above coverages expire by their terms during the term of this contract, the Contractor shall deliver proof of renewal and/or new policies to the Administering Service Area/Unit at least ten days prior to the expiration date.

SECTION 4: BID FORM

All Bidders shall submit pricing in the format requested herein.

SODIUM HYDROXIDE 50% BULK	\$ <u>550.00</u>	DRY TON
FREIGHT	\$ <u>included</u>	TON
TOTAL DELIVERED COST	\$ <u>550.00</u>	DRY TON

The sodium hydroxide shall be either diaphragm or membrane grade.

INVOICE TERMS: Discount of 0 % or \$ 0 will be allowed for payment of invoice thirty (30) days from day of delivery and acceptance.

OTHER TERMS: Less than 30 days, E.O.M., Proximo, etc., will not be considered in determining award of contract.

Sodium Hydroxide shall be supplied to the City of Ann Arbor Water Treatment Plant, f.o.b. destination, freight prepaid. Contractor shall be responsible for transferring the product from transport vehicle to the City of Ann Arbor storage vessel. Bidder shall specify minimum shipping amount if any:

QUANTITY: The annual quantity is approximately **360 tons**. This quantity is for estimating purposes only, not a guarantee of actual usage. Product will be ordered on an "as needed" basis. All prices are to remain firm.

MONITORING: The successful Provider may provide a telemetry device(s) for tank monitoring that provides data to the Provider on tank level, so that ordering product is unnecessary and resupply is managed by the supplier according to the needs of the Water Treatment Plant. This device (these devices) will be at no cost to the City of Ann Arbor.

Each bidder shall provide the City of Ann Arbor with a complete copy of the U. S. Department of Occupational Safety & Health Administration, Safety Data Sheets, (form OSHA-20) for each product bid.

SECTION 5: PRICING

Supplier may revise the price semi-annually using the formula below, using the Producers Price Index (PPI) published by the U.S. Bureau of Labor Statistics (“BLS”). The choice of specific BLS Producers Price index or indices and the weighting given to a choice of multiple indices will be mutually agreed upon by the City and the Provider. Seasonally unadjusted indices will be used. The adjusted price will be in effect for six months only, at which time it will be adjusted again or revert to the bid price (base selling price).

- The Supplier should include in their bid an appropriate index or indices and the weighting to be applied to each. The Supplier should include the Series ID number with their bid and include their proposed revision formula.
- The Supplier will adjust the price semiannually, on January 20 and July 20 (if the renewal extensions are exercised or the contract is multiyear). The bid price (base selling price) must be in effect for at least 6 months before the first price adjustment.
- The Base Selling Price will be the amount bid by the Supplier.
- The Base Period Factor, denoted with a subscripted zero (in the example: E_0 and D_0), shall consist of an average of the most recent finalized indices for a period of one year, immediately preceding the date of the approved City Council resolution for the product being purchased, for that particular representative index. For monthly published indices this will be the arithmetic average of the twelve most recently published finalized indices. For quarterly published indices this will be the arithmetic average of the four most recently published finalized indices.
- The Adjustment Factor, denoted with no subscript (in the example: E and D), shall be based upon an average of the six most recently published monthly indices, (or three most recently published quarterly indices) at the time of the revision, for that particular index. For timeliness, if any monthly or quarterly index is still preliminary (designated with a P in the published numbers) at the time of the revision, it will be used in its preliminary state.
- Should the index referenced cease to be published or is published in an alternate form (different Series Number, Base Date, or Period), a mutually agreed upon and similar index will be used for future adjustments.
- When Base Dates are revised by the BLS, rebasing shall be done as needed based upon the old and new reference base period.
- The US Bureau of Labor Statistics Producers Price indices can be found at www.bls.gov/ppi
- The Revision Formula is: $P = P_0[r/100(X/X_0) + s/100(Y/Y_0) + t/100(Z/Z_0) + \dots]$
Where
- P_0 = Base Selling Price or original bid price as per the Bid Documents.
- P = Revised product price for the new future six month period.
- X_0 = Base Period Factor for a selected index.
- X = Adjustment Factor for the same index.
- $r + s + t + \dots = 100$ = weighted proportion of selected index in revision formula

Following is an example of a revision formula. The parameters are defined below.

$$P = P_0 \times [0.70 (E/E_0) + 0.30 (D/D_0)]$$

Product Price

P_0 = Base Selling Price or original bid price as per the Bid Documents

P = Revised product price for the new future six month period.

Electric Power

E_0 = Base Period Factor for Electric Power Distribution – East North Central

E = Adjustment Factor for Electric Power Distribution – East North Central PPI Monthly Index - Series ID: PCU221122221122433, Not Seasonally Adjusted, Base Date: 9012

Diesel

D_0 = Base Period Factor for #2 Diesel Fuel

D = Adjustment Factor for #2 Diesel Fuel PPI Monthly Index - Series ID: WPU057303, Not Seasonally Adjusted, Base Date: 8200

City of Ann Arbor: General Terms and Conditions
The following General Terms and Conditions shall apply.

Tax Exemption: The City of Ann Arbor is tax exempt, ID# 38-6004534.

Acceptance of Contract: This order is the City's contract to purchase the goods and services described on the reverse front side of this document from the Vendor. The City's placement of this order is expressly conditioned upon the Vendor's acceptance of all the terms and conditions of purchase contained on or attached to this purchase order. All specifications, drawings, and data submitted to the Vendor with this order are hereby incorporated and made part hereof.

Amendments: No agreement or understanding to modify this contract shall be binding upon the City unless in writing and signed by the City's authorized agent.

Delivery: All prices must be F.O.B. delivery point. Time is of the essence on this contract. If delivery dates cannot be met, the Vendor agrees to advise the City, in writing of the earliest possible shipping date. The City reserves the right to cancel or purchase elsewhere and hold the Vendor accountable.

Risk of Loss: Regardless of F.O.B. point, the Vendor agrees to bear all risk of loss, injury, or destruction of goods and materials ordered herein which may for any reason occur prior to delivery or acceptance by the City, whichever is later. No such loss, injury, or destruction shall release the Vendor from any obligations hereunder.

Inspection: Goods and materials must be properly packaged. Damaged goods and materials will not be accepted. The City reserves the right to inspect the goods at a reasonable time subsequent to delivery where circumstances or conditions prevent effective inspection of the goods at the time of delivery. All rejected goods shall be returned to the Vendor at no cost to the City, whether the damage is readily apparent at the time of delivery or later. The City's acceptance is conditioned on such inspection.

Patents and Copyrights: If an article sold and delivered to the City hereunder shall be protected by any applicable patent or copyright, the Vendor agrees to indemnify and save harmless the City, from and against any and all suits, claims, judgments, and costs instituted or recovered against it by any person whomsoever on account of the use or sale of such articles by the City in violation or right under such patent or copyright.

Uniform Commercial Code: All applicable portions of the Michigan Uniform Commercial Code shall govern contracts for goods with the City of Ann Arbor; except as modified by contract documents.

Non-waiver of Rights: No failure of either party to exercise any power given to it hereunder or to insist upon strict compliance by the other party with its obligations hereunder, and no custom or practice of the parties at variance with the terms hereof, nor any payment under this agreement shall constitute a waiver of either party's right to demand exact compliance with the terms hereof.

Material Safety Data Sheets: Applicable Material Safety Data Sheets, in compliance with OSHA/MIOSHA hazard communication regulations/standards, must be provided by the Vendor to the City at the time of purchase.

Assignments: The Vendor agrees not to assign or transfer this contract or any part thereof without the written consent of the City of Ann Arbor, acting through its authorized representative. Any unauthorized assignment may subject the contractor to immediate termination.

Laws Governing, Severability: This contract shall be governed by and construed according to the laws of the State of Michigan. Vendor agrees to submit to the jurisdiction and venue of the Circuit Court of Washtenaw County, MI, or if original jurisdiction is established, the U.S. District Ct. for Eastern District of MI, Southern Division. The Vendor stipulates venues referenced are convenient and waives any claim of non-convenience. If any term herein is found to be ineffective, unenforceable or illegal under any present or future laws, such term shall be fully severable, and the remaining terms shall not be affected and shall remain full force and effect.

Prevailing Wage: It shall be the responsibility of the Vendor to comply, when applicable, with the prevailing wage requirements and/or the Davis-Bacon Act as amended.

Living Wage: It shall be the responsibility of the Vendor to comply, when applicable, with the City of Ann Arbor's Living Wage Ordinance as defined in Chapter 23, Section 1:811-1:821.

Non-Discrimination: It shall be the responsibility of the Vendor to comply, when applicable, with, all State, Federal and Local non-discrimination laws, including MCL 37.2209 and Section 9:158 of the City Code.

Indemnification: To the fullest extent permitted by law the Vendor shall indemnify, defend and hold the City, its officers, employees and agents harmless from all suits, claims, judgments and expenses including attorney's fees resulting or alleged to result from any act or omission, associated with the performance of this contract by the Vendor or anyone acting on the Vendor's behalf under this contract. The Vendor shall not be responsible to indemnify the City for losses or damages caused by or resulting from the City's sole negligence. This indemnity survives delivery and acceptance of the Vendor's goods and services.

Warranty: The Vendor warrants to the City that all goods and services furnished hereunder will conform in all respects to the terms of this contract, including any drawings, specifications and standards incorporated herein. In addition, the Vendor warrants the goods and services are suitable for and will perform in accordance with the purposes for which they were intended.

Payment Terms: The City of Ann Arbor's payment terms are net 30. The payment date will be calculated based on the invoice receipt date or delivery date, whichever is later.

Payments: All invoices for goods and services shall be emailed to accountspayable@a2gov.org. Mailed invoices shall be addressed to the City of Ann Arbor, Accounts Payable, P.O. Box 8647, Ann Arbor, MI 48107, as indicated on the front of this purchase order. Invoices must include the Vendor's name, phone number, and clearly listed item descriptions, quantities and units of measure. The Vendor acknowledges and understands that invoices not addressed as stated above shall have the net 30 begin once the invoice is received by Accounts Payable.

Compliance with Laws: The Vendor certifies that in performing this contract it will comply with all applicable provisions of Federal, State and Local laws, regulations, rules and orders.

Termination for Cause: In the event the Vendor fails, at any time, to comply with, fully perform or strictly adhere to any covenant, condition or representation contained within the contract, the City shall have the right to give written notice to Vendor of such failure. If such failure is not cured to the City's satisfaction within ten (10) business days from the time of delivery to Vendor of such notice, the City shall have the right to terminate immediately without the requirement of a further notice.



Vendor Conflict of Interest Disclosure Form

All vendors interested in conducting business with the City of Ann Arbor must complete and return the Vendor Conflict of Interest Disclosure Form in order to be eligible to be awarded a contract. Please note that all vendors are subject to comply with the City of Ann Arbor's conflict of interest policies as stated within the certification section below.

If a vendor has a relationship with a City of Ann Arbor official or employee, an immediate family member of a City of Ann Arbor official or employee, the vendor shall disclose the information required below.

1. No City official or employee or City employee's immediate family member has an ownership interest in vendor's company or is deriving personal financial gain from this contract.
2. No retired or separated City official or employee who has been retired or separated from the City for less than one (1) year has an ownership interest in vendor's Company.
3. No City employee is contemporaneously employed or prospectively to be employed with the vendor.
4. Vendor hereby declares it has not and will not provide gifts or hospitality of any dollar value or any other gratuities to any City employee or elected official to obtain or maintain a contract.
5. Please note any exceptions below:

Conflict of Interest Disclosure*	
Name of City of Ann Arbor employees, elected officials or immediate family members with whom there may be a potential conflict of interest.	<input type="checkbox"/> Relationship to employee <input type="checkbox"/> Interest in vendor's company <input type="checkbox"/> Other (please describe in box below)
none	

*Disclosing a potential conflict of interest does not disqualify vendors. In the event vendors do not disclose potential conflicts of interest and they are detected by the City, vendor will be exempt from doing business with the City.

I certify that this Conflict of Interest Disclosure has been examined by me and that its contents are true and correct to my knowledge and belief and I have the authority to so certify on behalf of the Vendor by my signature below:		
JCI Jones Chemicals, Inc.	734.283.0677	
Vendor Name	Vendor Phone Number	
	04/12/17	Pamela Nowaske- Sales Coordinator/Office Manager
Signature of Vendor Authorized Representative	Date	Printed Name of Vendor Authorized Representative

Questions about this form? Contact Procurement Office City of Ann Arbor Phone: 734/794-6500, procurement@a2gov.org

**CITY OF ANN ARBOR
DECLARATION OF COMPLIANCE**

Non-Discrimination Ordinance

The “non discrimination by city contractors” provision of the City of Ann Arbor Non-Discrimination Ordinance (Ann Arbor City Code Chapter 112, Section 9:158) requires all contractors proposing to do business with the City to treat employees in a manner which provides equal employment opportunity and does not discriminate against any of their employees, any City employee working with them, or any applicant for employment on the basis of actual or perceived age, arrest record, color, disability, educational association, familial status, family responsibilities, gender expression, gender identity, genetic information, height, HIV status, marital status, national origin, political beliefs, race, religion, sex, sexual orientation, source of income, veteran status, victim of domestic violence or stalking, or weight. It also requires that the contractors include a similar provision in all subcontracts that they execute for City work or programs.

In addition the City Non-Discrimination Ordinance requires that all contractors proposing to do business with the City of Ann Arbor must satisfy the contract compliance administrative policy adopted by the City Administrator. A copy of that policy may be obtained from the Purchasing Manager

The Contractor agrees:

- (a) To comply with the terms of the City of Ann Arbor’s Non-Discrimination Ordinance and contract compliance administrative policy.
- (b) To post the City of Ann Arbor’s Non-Discrimination Ordinance Notice in every work place or other location in which employees or other persons are contracted to provide services under a contract with the City.
- (c) To provide documentation within the specified time frame in connection with any workforce verification, compliance review or complaint investigation.
- (d) To permit access to employees and work sites to City representatives for the purposes of monitoring compliance, or investigating complaints of non-compliance.

The undersigned states that he/she has the requisite authority to act on behalf of his/her employer in these matters and has offered to provide the services in accordance with the terms of the Ann Arbor Non-Discrimination Ordinance. The undersigned certifies that he/she has read and is familiar with the terms of the Non-Discrimination Ordinance, obligates the Contractor to those terms and acknowledges that if his/her employer is found to be in violation of Ordinance it may be subject to civil penalties and termination of the awarded contract.

JCI Jones Chemicals, Inc.

Company Name	
<i>Pamela Nowaske</i>	04/12/17
Signature of Authorized Representative	Date

Pamela Nowaske - Sales Coordinator/Office Manager

Print Name and Title

18000 Payne Street Riverview, MI 48193

Address, City, State, Zip

734.283.0677 pnowaske@jcichem.com

Phone/Email address

Questions about the Notice or the City Administrative Policy, Please contact:
Procurement Office of the City of Ann Arbor

(734) 794-6500

CITY OF ANN ARBOR NON-DISCRIMINATION ORDINANCE

Relevant provisions of Chapter 112, Nondiscrimination, of the Ann Arbor City Code are included below. You can review the entire ordinance at www.a2gov.org/departments/city-clerk

Intent: It is the intent of the city that no individual be denied equal protection of the laws; nor shall any individual be denied the enjoyment of his or her civil or political rights or be discriminated against because of actual or perceived age, arrest record, color, disability, educational association, familial status, family responsibilities, gender expression, gender identity, genetic information, height, HIV status, marital status, national origin, political beliefs, race, religion, sex, sexual orientation, source of income, veteran status, victim of domestic violence or stalking, or weight.

Discriminatory Employment Practices: No person shall discriminate in the hire, employment, compensation, work classifications, conditions or terms, promotion or demotion, or termination of employment of any individual. No person shall discriminate in limiting membership, conditions of membership or termination of membership in any labor union or apprenticeship program.

Discriminatory Effects: No person shall adopt, enforce or employ any policy or requirement which has the effect of creating unequal opportunities according to actual or perceived age, arrest record, color, disability, educational association, familial status, family responsibilities, gender expression, gender identity, genetic information, height, HIV status, marital status, national origin, political beliefs, race, religion, sex, sexual orientation, source of income, veteran status, victim of domestic violence or stalking, or weight for an individual to obtain housing, employment or public accommodation, except for a bona fide business necessity. Such a necessity does not arise due to a mere inconvenience or because of suspected objection to such a person by neighbors, customers or other persons.

Nondiscrimination by City Contractors: All contractors proposing to do business with the City of Ann Arbor shall satisfy the contract compliance administrative policy adopted by the City Administrator in accordance with the guidelines of this section. All city contractors shall ensure that applicants are employed and that employees are treated during employment in a manner which provides equal employment opportunity and tends to eliminate inequality based upon any classification protected by this chapter. All contractors shall agree not to discriminate against an employee or applicant for employment with respect to hire, tenure, terms, conditions, or privileges of employment, or a matter directly or indirectly related to employment, because of any applicable protected classification. All contractors shall be required to post a copy of Ann Arbor's Non-Discrimination Ordinance at all work locations where its employees provide services under a contract with the city.

Complaint Procedure: If any individual has a grievance alleging a violation of this chapter, he/she has 180 calendar days from the date of the individual's knowledge of the allegedly discriminatory action or 180 calendar days from the date when the individual should have known of the alleged discriminatory action to file a complaint with the city's Human Rights Commission. If an individual fails to file a complaint alleging a violation of this chapter within the specified time frame, the complaint will not be considered by the Human Rights Commission. The complaint should be made in writing to the Human Rights Commission. The complaint may be filed in person with the City Clerk, by e-mail (hrc@a2gov.org), by phone (734-794-6141) or by mail (Ann Arbor Human Rights Commission, PO Box 8647, Ann Arbor, MI 48107). The complaint must contain information about the alleged discrimination, such as name, address, phone number of the complainant and location, date and description of the alleged violation of this chapter.

Private Actions For Damages or Injunctive Relief: To the extent allowed by law, an individual who is the victim of discriminatory action in violation of this chapter may bring a civil action for appropriate injunctive relief or damages or both against the person(s) who acted in violation of this chapter.

THIS IS AN OFFICIAL GOVERNMENT NOTICE AND
MUST BE DISPLAYED WHERE EMPLOYEES CAN READILY SEE IT.

RCMS® Verification

JCI Jones Chemicals Inc.

Sarasota, Florida

has been verified by Midland Engineering, Ltd, an independent third party, as conforming to the 2011-2013 cycle requirements of the

American Chemistry Council's Responsible Care Management System®

Technical Specification RC101.03

JCI Jones Chemicals Inc. – Doc # MELRL0413-01

April 20, 2013

Issue Date

Ronald E. Lund

Ronald E. Lund, Vice President – Auditing Services



Midland Engineering, Ltd.

MEL asp-005





EQUAL EMPLOYMENT OPPORTUNITY POLICY

January 5, 2017

The employment policy of JCI is to provide equal opportunity to all persons. Our company therefore has made a commitment to equal employment opportunities through a positive and continuing Affirmative Action Program. No employee or applicant for employment will be discriminated against because of race, color, creed, religion, sex, national origin, age, marital status, citizenship status, sexual orientation or otherwise qualified disability or veteran status.

To implement these policies, JCI will continue to:

- A. Recruit, hire, train, and promote persons in all job classifications without regard to race, color, religion, sex, national origin, citizenship status, otherwise qualified disability or veteran status. JCI does not discriminate on the basis of national origin or citizenship status as provided under the Immigration Reform and Control Act of 1986.
- B. Base decisions on employment so as to further the principle of equal employment opportunity.
- C. Insure that promotion decisions are in accord with the principles of equal employment s by imposing only valid requirements for promotional opportunities.
- D. Insure that all personal actions (including but not limited to compensation, benefits, transfer, layoffs, return from layoffs, company sponsored training, education, tuition assistance, social and recreational programs) are administered without regard to race, color, religion, sex, national origin, age, marital status, citizenship status, otherwise qualified disability or veteran status.

Susan Malloy Jones, Corporate Vice President, has been designated as EEO coordinator and is responsible for compliance with state and federal equal employment opportunity laws and for implementing the affirmative action program, including equal employment practices, monitoring, and internal reporting. If you would like to see the plan or have questions, comments, or complaints please contact the above listed EEO coordinator at (941) 330-1537 during regular business hours (EST).

The continued success of our Affirmative Action Program requires maximum cooperation from every employee throughout the organization. Equal employment opportunity is not only the law, but is a principle of JCI. Your cooperation is expected to achieve this goal and I personally stand behind this principle.

Jeffrey W. Jones
President & C.E.O.



April 13, 2017

City of Ann Arbor
301 E. Huron Street
Ann Arbor, MI 48104

Dear Sir/Madam:

AFFIDAVIT OF COMPLIANCE

SODIUM HYDROXIDE (CAUSTIC SODA)

JCI Jones Chemicals, Inc. hereby guarantees that the sodium hydroxide (caustic soda) comprising each shipment or other delivery made to the buyer complies with all applicable requirements of the AWWA Standard Sodium Hydroxide, AWWA B501-13.

We believe the above certification holds true until such a time as the AWWA Standard for Sodium Hydroxide is amended or the above certification is revoked in writing.

In addition, this product is certified under the ANSI/NSF Standard 60.

Very truly yours,

JCI JONES CHEMICALS, INC.

Donald Skidmore Jr.

Donald Skidmore Jr.
Branch Manager



**DRINKING WATER
TREATMENT ADDITIVES
ANSI/NSF 60
8N76**

Maximum Use Level:

Sodium Hydroxide 50%	100 mg/l
Sodium Hydroxide 26% – 49%	100 mg/l
Sodium Hydroxide 15% – 25%	200 mg/l
Sodium Hydroxide 5% – 14%	700 mg/l

**Manufactured by: JCI JONES CHEMICALS, INC.
18000 Payne Avenue, Riverview, MI 48192**

CERTIFICATE OF COMPLIANCE

Certificate Number 20140416-MH18026
Report Reference MH18026-20020830
Issue Date 2014-APRIL-16

Issued to: JCI JONES CHEMICALS INC
1765 RINGLING BLVD
SARASOTA FL 34236



This is to certify that representative samples of DRINKING WATER TREATMENT CHEMICALS
Sodium Hydroxide 50%, Sodium Hydroxide 49%-26%,
Sodium Hydroxide 25%-15%, Sodium Hydroxide 14%-5%.

Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.

Standard(s) for Safety: NSF/ANSI 60 - Drinking Water Treatment Chemicals - Health Effects

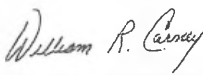
Additional Information: See the UL Online Certifications Directory at www.ul.com/database for additional information

Only those products bearing the UL Classification Mark for the U.S. and Canada should be considered as being covered by UL's Classification and Follow-Up Service and meeting the appropriate U.S. and Canadian requirements.

The UL Classification Mark includes: the UL in a circle symbol:  with the word "CLASSIFIED" (as shown); a control number (may be alphanumeric) assigned by UL; a statement to indicate the extent of UL's evaluation of the product; and the product category name (product identity) as indicated in the appropriate UL Directory. The UL Classification Mark for Canada includes: the UL Classification Mark for Canada:  with the word "CLASSIFIED" (as shown); a control number (may be alphanumeric) assigned by UL; a statement to indicate the extent of UL's evaluation of the product; and the product category name (product identity) in English, French, or English/French as indicated in the appropriate UL Directory.

Look for the UL Classification Mark on the product.

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.



William R. Carney, Director, North American Certification Programs

UL LLC

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please contact a local UL Customer Service Representative at www.ul.com/contactus





Safety Data Sheet

Section 1: Identification of the Substance/Mixture and of the Company/Undertaking

1.1 Product identifier

- Product Name** • **Liquid Caustic Soda 50%**
Synonyms • Liquid Caustic Soda; NaOH; Sodium Hydroxide

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

- Relevant identified use(s)** • Chemical reagent; Industrial uses

1.3 Details of the supplier of the safety data sheet

- Manufacturer** • Axiall, LLC
1000 Abernathy Rd. NE, Suite 1200
Atlanta, GA 30328
United States
www.axiall.com
msdsinfo@axiall.com

Telephone (General) • +1 225-685-1240

- Responsible Party - EU** • Intertek France
12 Rue Alfred Kastler
71530 Fragnes
France
christian.gimenez@intertek.com

Telephone (General) • 33 (0) 385 99 1274

Telephone (General) • 33 385 99 1288 - Fax

1.4 Emergency telephone number

- Manufacturer** • +1 304-455-6882

Section 2: Hazards Identification

EU/EEC

According to Regulation (EC) No 1272/2008 (CLP)/REACH 1907/2006 [amended by 453/2010]
According to EU Directive 67/548/EEC (DSD) or 1999/45/EC (DPD)

2.1 Classification of the substance or mixture

- CLP** • Skin Corrosion 1A - H314
DSD/DPD • Corrosive (C)
R35

2.2 Label Elements

CLP

DANGER

Hazard statements • H314 - Causes severe skin burns and eye damage.

Precautionary statements

- Prevention** • P260 - Do not breathe mist/vapours/spray.
 P264 - Wash thoroughly after handling.
 P280 - Wear protective gloves/protective clothing/eye protection/face protection.
- Response** • P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
 P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
 P310 - Immediately call a POISON CENTER or doctor/physician.
 P363 - Wash contaminated clothing before reuse.
 P321 - Specific treatment, see supplemental first aid information.
 P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

Storage/Disposal • P405 - Store locked up.
 P501 - Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

DSD/DPD

Risk phrases • R35 - Causes severe burns.

Safety phrases • S36 - Wear suitable protective clothing.
 S37 - Wear suitable gloves.
 S39 - Wear eye/face protection.
 S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

2.3 Other Hazards

CLP • According to Regulation (EC) No. 1272/2008 (CLP) this material is considered hazardous.

DSD/DPD • According to European Directive 1999/45/EC this material is considered dangerous.

UN GHS

According to Third Revised Edition

2.1 Classification of the substance or mixture

UN GHS • Skin Corrosion 1A - H314
 Serious Eye Damage 1 - H318

2.2 Label elements

UN GHS

DANGER

Hazard statements • H314 - Causes severe skin burns and eye damage.
 H318 - Causes serious eye damage

Precautionary statements

- Prevention**
 - P260 - Do not breathe mist/vapours/spray.
 - P264 - Wash thoroughly after handling.
 - P280 - Wear protective gloves/protective clothing/eye protection/face protection.
- Response**
 - P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
 - P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
 - P363 - Wash contaminated clothing before reuse.
 - P321 - Specific treatment, see supplemental first aid information.
 - P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 - P310 - Immediately call a POISON CENTER or doctor/physician.
 - P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
- Storage/Disposal**
 - P405 - Store locked up.
 - P501 - Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

2.3 Other hazards

UN GHS

- According to the Globally Harmonized System for Classification and Labeling (GHS) this product is considered hazardous.

United States (US)

According to OSHA 29 CFR 1910.1200 HCS

2.1 Classification of the substance or mixture

OSHA HCS 2012

- Serious Eye Damage 1 - H318
- Skin Corrosion 1A - H314

2.2 Label elements

OSHA HCS 2012

DANGER



- Hazard statements**
 - Causes severe skin burns and eye damage. - H314
 - Causes serious eye damage - H318

Precautionary statements

- Prevention**
 - Do not breathe mist/vapours/spray. - P260
 - Wash thoroughly after handling. - P264
 - Wear protective gloves/protective clothing/eye protection/face protection. - P280
- Response**
 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. - P304+P340
 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. - P303+P361+P353
 - Wash contaminated clothing before reuse. - P363
 - Specific treatment, see supplemental first aid information. - P321
 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. - P305+P351+P338
 - Immediately call a POISON CENTER or doctor/physician. - P310
 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. - P301+P330+P331
- Storage/Disposal**
 - Store locked up. - P405
 - Dispose of content and/or container in accordance with local, regional, national, and/or international regulations. - P501

2.3 Other hazards

OSHA HCS 2012

- Under United States Regulations (29 CFR 1910.1200 - Hazard Communication Standard), this product is considered hazardous.

Canada**According to WHMIS****2.1 Classification of the substance or mixture****WHMIS**

- Corrosive - E

2.2 Label elements**WHMIS**

- Corrosive - E

2.3 Other hazards**WHMIS**

- In Canada, the product mentioned above is considered hazardous under the Workplace Hazardous Materials Information System (WHMIS).

Section 3 - Composition/Information on Ingredients**3.1 Substances**

- Material does not meet the criteria of a substance in accordance with Regulation (EC) No 1272/2008.

3.2 Mixtures

Composition				
Chemical Name	Identifiers	%	LD50/LC50	Classifications According to Regulation/Directive
Sodium hydroxide	CAS: 1310-73-2 EC Number: 215-185-5 EU Index: 011-002-00-6	49% TO 51%	NDA	UN GHS: Skin Corr. 1B; Eye Dam. 1, EU DSD/DPD: Annex VI, Table 3.2: C R35 EU CLP: Annex VI, Table 3.1: Skin Corr. 1A, H314 OSHA HCS 2012: Skin Corr. 1B; Eye Dam. 1
Sodium chloride	CAS: 7647-14-5 EC Number: 231-598-3	0% TO 2%	Ingestion/Oral-Rat LD50 • 3000 mg/kg	UN GHS: Eye Irrit. 2; Skin Irrit. 3; Acute Tox. 5 (oral) EU DSD/DPD: Self Classified: Xi R36 EU CLP: Self Classified: Eye Irrit. 2, H319 OSHA HCS 2012: Eye Irrit. 2
Chloric acid, sodium salt	CAS: 7775-09-9 EC Number: 231-887-4 EU Index: 017-005-00-9	< 1%	Ingestion/Oral-Rat LD50 • 1200 mg/kg	UN GHS: Ox. Sol. 1; Acute Tox. 4 (oral); Aquatic Chronic 2 EU DSD/DPD: Annex VI, Table 3.2: Xn R22 N R51-53 O R9 EU CLP: Annex VI, Table 3.1: Ox. Sol. 1, H271; Acute Tox. 4, H302; Aquatic Chronic 2, H411 OSHA HCS 2012: Ox. Sol. 1; Acute Tox. 4 (oral)
Sodium carbonate (2:1)	CAS: 497-19-8 EC Number: 207-838-8 EU Index: 011-005-00-2	< 0.5%	Ingestion/Oral-Rat LD50 • 4090 mg/kg Inhalation-Rat LC50 • 2300 mg/m ³ 2 Hour(s)	UN GHS: Eye Irrit. 2; Acute Tox. 5 (oral) EU DSD/DPD: Annex VI, Table 3.2: Xi R36 EU CLP: Annex VI, Table 3.1: Eye Irrit. 2, H319 OSHA HCS 2012: Eye Irrit. 2

See Section 16 for full text of H-statements and R-phrases.

Section 4 - First Aid Measures

4.1 Description of first aid measures

- Inhalation**
- Administer oxygen if breathing is difficult. Do not use mouth-to-mouth method if victim inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Give artificial respiration if victim is not breathing. Move victim to fresh air.
- Skin**
- For minor skin contact, avoid spreading material on unaffected skin. In case of contact with substance, immediately flush skin with running water for at least 20 minutes. Remove and isolate contaminated clothing.
- Eye**
- In case of contact with substance, immediately flush eyes with running water for at least 20 minutes. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- Ingestion**
- If swallowed, rinse mouth with water (only if the person is conscious). Do NOT induce vomiting. Do not use mouth-to-mouth method if victim ingested the substance. Obtain medical attention immediately if ingested.

4.2 Most important symptoms and effects, both acute and delayed

- Refer to Section 11 - Toxicological Information.

4.3 Indication of any immediate medical attention and special treatment needed

- Notes to Physician**
- All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

Section 5 - Firefighting Measures

5.1 Extinguishing media

- Suitable Extinguishing Media**
- SMALL FIRES: Dry chemical, carbon dioxide or water spray.
LARGE FIRES: Dry chemical, carbon dioxide, alcohol-resistant foam or water spray.
- Unsuitable Extinguishing Media**
- No data available

5.2 Special hazards arising from the substance or mixture

- Unusual Fire and Explosion Hazards**
- Containers may explode when heated.
- Hazardous Combustion Products**
- Hazardous combustion products may include the following materials: halogenated compounds, metal oxide/oxides, sodium monoxide.

5.3 Advice for firefighters

- Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.
Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection.
Wear positive pressure self-contained breathing apparatus (SCBA).
SMALL FIRES: Move containers from fire area if you can do it without risk.

Section 6 - Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

- Personal Precautions**
- Do not walk through spilled material. Wear appropriate personal protective equipment, avoid direct contact. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate the area before entry.
- Emergency Procedures**
- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). As an immediate precautionary measure, isolate spill or leak area for at least 50 meters (150 feet) in all directions. Keep unauthorized personnel away. Stay

upwind. Keep out of low areas. Do not get water inside container.

6.2 Environmental precautions

- Prevent entry into waterways, sewers, basements or confined areas.

6.3 Methods and material for containment and cleaning up

Containment/Clean-up Measures

- Stop leak if you can do it without risk. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Dike to collect large liquid spills.

6.4 Reference to other sections

- Refer to Section 8 - Exposure Controls/Personal Protection and Section 13 - Disposal Considerations.

Section 7 - Handling and Storage

7.1 Precautions for safe handling

Handling

- Handle and open container with care. Use only with adequate ventilation. Wear appropriate personal protective equipment, avoid direct contact. Do not breathe mist, vapors, spray. Do not get in eyes, on skin, or on clothing. Do not ingest. Add this product only to water. Never add water to this product. Do not add to warm or hot water, a violent eruption or explosive reaction can result. Avoid contact with organic materials. Take any precaution to avoid mixing with strong acids. May cause fire or explosion. When making solutions or diluting, only add caustic soda slowly to surface of cold water while stirring. Attacks many metals producing extremely flammable hydrogen gas which can form explosive mixtures with air. Caustic soda may react with various sugars to generate carbon monoxide. Hazardous carbon monoxide gas can form upon contact with food and beverage products in enclosed vessels and can cause death. Follow appropriate tank entry procedures (see ANSI Z117.1 - 2009 Safety Requirements for Confined Spaces). Empty containers retain product residue and can be hazardous. Do not reuse container. Liquid caustic soda is shipped hot (100-180°F). Avoid contact with skin. Contact with hot material causes thermal skin burns. Wash thoroughly with soap and water after handling and before eating, drinking, or using tobacco.

7.2 Conditions for safe storage, including any incompatibilities

Storage

- Ventilate enclosed areas. Keep only in the original container. Keep container tightly closed. Keep away from incompatible materials. Store in a cool, dry, well-ventilated place. Liquid caustic soda becomes more viscous and harder to handle as it approaches its freezing point, at which it becomes solid. Refer to freeze point temperature in properties section. User should ensure that equipment and procedures are in place to ensure safe handling of the caustic at temperatures involved, which may include the need to heat or maintain temperature of the material.

7.3 Specific end use(s)

- Refer to Section 1.2 - Relevant identified uses.

Section 8 - Exposure Controls/Personal Protection

8.1 Control parameters

Exposure Limits/Guidelines						
	Result	ACGIH	Canada British Columbia	Canada Ontario	Canada Quebec	NIOSH
Sodium hydroxide (1310-73-2)	Ceilings	2 mg/m3 Ceiling	2 mg/m3 Ceiling	2 mg/m3 Ceiling	2 mg/m3 Ceiling	2 mg/m3 Ceiling

Exposure Limits/Guidelines (Con't.)		
	Result	OSHA
Sodium hydroxide (1310-73-2)	TWAs	2 mg/m3 TWA

8.2 Exposure controls

Engineering Measures/Controls

- Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Personal Protective Equipment

Respiratory

- If workers are exposed to concentrations above the exposure limit, they must use appropriate, certified respirators. Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Eye/Face

- Wear chemical splash goggles and face shield.

Skin/Body

- Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. HANDS: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Environmental Exposure Controls

- Controls should be engineered to prevent release to the environment, including procedures to prevent spills, atmospheric release and release to waterways. Follow best practice for site management and disposal of waste.

Key to abbreviations

ACGIH = American Conference of Governmental Industrial Hygiene

TWA EV = Time-Weighted Average Exposure Value

NIOSH = National Institute of Occupational Safety and Health

TWA = Time-Weighted Averages are based on 8h/day, 40h/week exposures

OSHA = Occupational Safety and Health Administration

Section 9 - Physical and Chemical Properties

9.1 Information on Physical and Chemical Properties

Material Description			
Physical Form	Liquid	Appearance/Description	Colorless liquid with no odor.
Color	Colorless	Odor	Odorless
Odor Threshold	No data available		
General Properties			
Boiling Point	142 C(287.6 F)	Melting Point	10 to 12.8 C(50 to 55.04 F)
Decomposition Temperature	No data available	pH	Strongly basic
Specific Gravity/Relative Density	1.53 Water=1 @ 15.6 C(60.08 F)	Water Solubility	100 %
Viscosity	No data available	Explosive Properties	No data available
Oxidizing Properties:	No data available		
Volatility			
Vapor Pressure	1 mmHg (torr) @ 739 C(1362.2 F)	Vapor Density	No data available
Evaporation Rate	No data available	Volatiles (Wt.)	49 to 51 %

Volatiles (Vol.)	49 to 51 %		
Flammability			
Flash Point	No data available	UEL	No data available
LEL	No data available	Autoignition	No data available
Flammability (solid, gas)	Not relevant.		
Environmental			
Octanol/Water Partition coefficient	No data available		

9.2 Other Information

- No additional physical and chemical parameters noted.

Section 10: Stability and Reactivity

10.1 Reactivity

- No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

- Stable under recommended storage and handling conditions.

10.3 Possibility of hazardous reactions

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

10.4 Conditions to avoid

- Incompatible materials. Excess heat.

10.5 Incompatible materials

- Keep away from the following materials to prevent strong exothermic reactions: oxidizing agents, strong alkalis, strong acids. Reactive or incompatible with the following materials: metals (Attacks many metals producing extremely flammable hydrogen gas which can form explosive mixtures with air. Metals: Magnesium. Aluminum. Zinc. tin. Chromium Compounds. copper, bronze, brass), acids, organic materials (May cause fire or explosion.), food sugars (Caustic soda may react with various sugars to generate carbon monoxide.), and water (Aqueous reaction with caustic soda can generate heat (strongly exothermic).).

10.6 Hazardous decomposition products

- Decomposition products may include the following materials: halogenated compounds, Sodium monoxide, metal oxide/oxides.

Section 11 - Toxicological Information

11.1 Information on toxicological effects

Components		
Sodium hydroxide (49% TO 51%)	1310-73-2	Irritation: Eye-Rabbit • 1 % • Severe irritation; Skin-Rabbit • 500 mg 24 Hour(s) • Severe irritation
Sodium chloride (0% TO 2%)	7647-14-5	Acute Toxicity: Ingestion/Oral-Rat LD50 • 3000 mg/kg; Irritation: Eye-Rabbit • 100 mg 24 Hour(s) • Moderate irritation; Skin-Rabbit • 500 mg 24 Hour(s) • Mild irritation; Multi-dose Toxicity: Ingestion/Oral-Rat TDLo • 201.6 g/kg 6 Week(s)-Intermittent; Vascular:BP elevation not characterized in autonomic section; Mutagen: Unscheduled DNA synthesis • Ingestion/Oral-Rat • 16800 mg/kg 4 Week(s)-Continuous; Reproductive: Ingestion/Oral-Rat TDLo • 56400 mg/kg (5D pre-21D post); Reproductive Effects:Maternal Effects:Postpartum; Reproductive Effects:Effects on Newborn:Biochemical and metabolic
Sodium carbonate	497-	Acute Toxicity: Ingestion/Oral-Rat LD50 • 4090 mg/kg; Inhalation-Rat LC50 • 2300 mg/m ³ 2 Hour(s); Lungs, Thorax, or Respiration:Dyspnea; Gastrointestinal:Other changes; Irritation: Eye-Rabbit • 50 mg • Severe irritation; Skin-Rabbit • 500 mg 24 Hour(s) • Mild irritation;

(2:1) (< 0.5%)	19-8	Multi-dose Toxicity: Inhalation-Rat TCLo • 16.2 mg/m ³ 16 Week(s)-Intermittent; <i>Sense Organs and Special Senses:Olfaction:Change in sensation of smell; Lungs, Thorax, or Respiration:Empysema; Immunological Including Allergic:Decrease in cellular immune response</i>
Chloric acid, sodium salt (< 1%)	7775-09-9	Acute Toxicity: Ingestion/Oral-Rat LD50 • 1200 mg/kg; Multi-dose Toxicity: Ingestion/Oral-Rat TDLo • 80 mg/kg 4 Day(s)-Intermittent; <i>Blood:Changes in leucocyte (WBC) count;</i> Mutagen: DNA Inhibition • Ingestion/Oral-Rat • 84 mg/kg 12 Week(s)-Continuous

GHS Properties	Classification
Acute toxicity	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met UN GHS • Classification criteria not met
Aspiration Hazard	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met UN GHS • Classification criteria not met
Carcinogenicity	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met UN GHS • Classification criteria not met
Germ Cell Mutagenicity	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met UN GHS • Classification criteria not met
Skin corrosion/Irritation	EU/CLP • Skin Corrosion 1A OSHA HCS 2012 • Skin Corrosion 1A UN GHS • Skin Corrosion 1A
Skin sensitization	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met UN GHS • Classification criteria not met
STOT-RE	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met UN GHS • Classification criteria not met
STOT-SE	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met UN GHS • Classification criteria not met
Toxicity for Reproduction	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met UN GHS • Classification criteria not met
Respiratory sensitization	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met UN GHS • Classification criteria not met
Serious eye damage/Irritation	EU/CLP • Classification criteria not met OSHA HCS 2012 • Serious Eye Damage 1 UN GHS • Serious Eye Damage 1

Route(s) of entry/exposure • Inhalation, Skin, Eye, Ingestion

Potential Health Effects

Inhalation

Acute (Immediate)

- May cause corrosive burns - irreversible damage.

Chronic (Delayed)

- Repeated or prolonged exposure to corrosive fumes may cause bronchial irritation with

chronic cough.

Skin

Acute (Immediate)

- Causes severe skin burns.

Chronic (Delayed)

- Repeated or prolonged exposure to corrosive materials will cause dermatitis.

Eye

Acute (Immediate)

- Causes serious eye damage. Direct contact with the eyes can cause irreversible damage, including blindness.

Chronic (Delayed)

- Repeated or prolonged exposure to corrosive materials or fumes may cause conjunctivitis.

Ingestion

Acute (Immediate)

- May cause irreversible damage to mucous membranes.

Chronic (Delayed)

- Repeated or prolonged exposure to corrosive materials or fumes may cause gastrointestinal disturbances.

Key to abbreviations

LD = Lethal Dose TC = Toxic Concentration

MLD = Mild TD = Toxic Dose

SEV = Severe

Section 12 - Ecological Information

12.1 Toxicity

Liquid Caustic Soda 50%					
Dosage	Species	Duration	Results	Exposure Conditions	Comments
= 40.4 mg/L	Water Flea: Ceriodaphnia dubia	48 Hour(s)	EC50	Fresh water	sodium hydroxide
= 40.38 mg/L	Water Flea: Ceriodaphnia dubia - Neonate	48 Hour(s)	EC50	Fresh water	sodium hydroxide
= 196 mg/L	Fish: Guppy - Poecilia reticulata	96 Hour(s)	LC50	Marine water	sodium hydroxide
= 56 mg/L	Fish: Guppy - Poecilia reticulata	96 Hour(s)	NOEC	Marine water	sodium hydroxide
= 1294600 µg/L	Fish: Bluegill - Lepomis macrochirus	96 Hour(s)	LC50	Fresh water	sodium chloride
= 469200 µg/L	Water Flea: Daphnia	48 Hour(s)	EC50	Fresh water	sodium chloride

12.2 Persistence and degradability

- Material data lacking.

12.3 Bioaccumulative potential

- Material data lacking.

12.4 Mobility in Soil

- Water solubility: Soluble.

12.5 Results of PBT and vPvB assessment

- No PBT and vPvB assessment has been conducted.

12.6 Other adverse effects

- No studies have been found.

Section 13 - Disposal Considerations

13.1 Waste treatment methods**Product waste**

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

Packaging waste

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

Section 14 - Transport Information

	14.1 UN number	14.2 UN proper shipping name	14.3 Transport hazard class(es)	14.4 Packing group	14.5 Environmental hazards
DOT	UN1824	Sodium hydroxide solution	8	II	NDA
TDG	UN1824	SODIUM HYDROXIDE SOLUTION	8	II	NDA
IMO/IMDG	UN1824	SODIUM HYDROXIDE SOLUTION	8	II	NDA
IATA/ICAO	UN1824	Sodium hydroxide solution	8	II	NDA

14.6 Special precautions for user

- None specified.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

- Data lacking.

Section 15 - Regulatory Information**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture****SARA Hazard Classifications**

- Acute

Inventory						
Component	CAS	Canada DSL	Canada NDSL	EU EINECS	EU ELNICS	TSCA
Chloric acid, sodium salt	7775-09-9	Yes	No	Yes	No	Yes
Sodium carbonate (2:1)	497-19-8	Yes	No	Yes	No	Yes
Sodium chloride	7647-14-5	Yes	No	Yes	No	Yes
Sodium hydroxide	1310-73-2	Yes	No	Yes	No	Yes

Canada**Labor****Canada - WHMIS - Classifications of Substances**

- Sodium hydroxide

1310-73-2

E (including 0.04% in aqueous solution, 0.08%, 0.4% in aqueous solution, 2%, 2.5%, 4% in aqueous solution, 5%, 10%, 16%, 20%, 40%, 50% in aqueous solution, 8.7N)

- Sodium chloride

7647-14-5

Uncontrolled product according to WHMIS classification criteria

• Sodium carbonate (2:1)	497-19-8	D2B, E
• Chloric acid, sodium salt	7775-09-9	C, D1B

Canada - WHMIS - Ingredient Disclosure List

• Sodium hydroxide	1310-73-2	1 %
• Sodium chloride	7647-14-5	Not Listed
• Sodium carbonate (2:1)	497-19-8	1 %
• Chloric acid, sodium salt	7775-09-9	Not Listed

Environment**Canada - 2004 NPRI (National Pollutant Release Inventory)**

• Sodium hydroxide	1310-73-2	Not Listed
• Sodium chloride	7647-14-5	Not Listed
• Sodium carbonate (2:1)	497-19-8	Not Listed
• Chloric acid, sodium salt	7775-09-9	Not Listed

Canada - 2005 NPRI (National Pollutant Release Inventory)

• Sodium hydroxide	1310-73-2	Not Listed
• Sodium chloride	7647-14-5	Not Listed
• Sodium carbonate (2:1)	497-19-8	Not Listed
• Chloric acid, sodium salt	7775-09-9	Not Listed

Canada - CEPA - Greenhouse Gases Subject to Mandatory Reporting

• Sodium hydroxide	1310-73-2	Not Listed
• Sodium chloride	7647-14-5	Not Listed
• Sodium carbonate (2:1)	497-19-8	Not Listed
• Chloric acid, sodium salt	7775-09-9	Not Listed

Canada - CEPA - Priority Substances List

• Sodium hydroxide	1310-73-2	Not Listed
• Sodium chloride	7647-14-5	Not Listed
• Sodium carbonate (2:1)	497-19-8	Not Listed
• Chloric acid, sodium salt	7775-09-9	Not Listed

Canada - DWQ (Drinking Water Quality) - IMACs

• Sodium hydroxide	1310-73-2	Not Listed
• Sodium chloride	7647-14-5	Not Listed
• Sodium carbonate (2:1)	497-19-8	Not Listed
• Chloric acid, sodium salt	7775-09-9	Not Listed

Other**Canada - Accelerated Reduction/Elimination of Toxics (ARET)**

• Sodium hydroxide	1310-73-2	Not Listed
• Sodium chloride	7647-14-5	Not Listed
• Sodium carbonate (2:1)	497-19-8	Not Listed
• Chloric acid, sodium salt	7775-09-9	Not Listed

Canada New Brunswick**Environment****Canada - New Brunswick - Ozone Depleting Substances - Schedule A**

• Sodium hydroxide	1310-73-2	Not Listed
• Sodium chloride	7647-14-5	Not Listed
• Sodium carbonate (2:1)	497-19-8	Not Listed

• Chloric acid, sodium salt	7775-09-9	Not Listed
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Canada - New Brunswick - Ozone Depleting Substances - Schedule B

• Sodium hydroxide	1310-73-2	Not Listed
• Sodium chloride	7647-14-5	Not Listed
• Sodium carbonate (2:1)	497-19-8	Not Listed
• Chloric acid, sodium salt	7775-09-9	Not Listed

United States**Labor****U.S. - OSHA - Process Safety Management - Highly Hazardous Chemicals**

• Sodium hydroxide	1310-73-2	Not Listed
• Sodium chloride	7647-14-5	Not Listed
• Sodium carbonate (2:1)	497-19-8	Not Listed
• Chloric acid, sodium salt	7775-09-9	Not Listed

U.S. - OSHA - Specifically Regulated Chemicals

• Sodium hydroxide	1310-73-2	Not Listed
• Sodium chloride	7647-14-5	Not Listed
• Sodium carbonate (2:1)	497-19-8	Not Listed
• Chloric acid, sodium salt	7775-09-9	Not Listed

Environment**U.S. - CAA (Clean Air Act) - 1990 Hazardous Air Pollutants**

• Sodium hydroxide	1310-73-2	Not Listed
• Sodium chloride	7647-14-5	Not Listed
• Sodium carbonate (2:1)	497-19-8	Not Listed
• Chloric acid, sodium salt	7775-09-9	Not Listed

U.S. - CERCLA/SARA - Hazardous Substances and their Reportable Quantities

• Sodium hydroxide	1310-73-2	1000 lb final RQ; 454 kg final RQ
• Sodium chloride	7647-14-5	Not Listed
• Sodium carbonate (2:1)	497-19-8	Not Listed
• Chloric acid, sodium salt	7775-09-9	Not Listed

U.S. - CERCLA/SARA - Radionuclides and Their Reportable Quantities

• Sodium hydroxide	1310-73-2	Not Listed
• Sodium chloride	7647-14-5	Not Listed
• Sodium carbonate (2:1)	497-19-8	Not Listed
• Chloric acid, sodium salt	7775-09-9	Not Listed

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances EPCRA RQs

• Sodium hydroxide	1310-73-2	Not Listed
• Sodium chloride	7647-14-5	Not Listed
• Sodium carbonate (2:1)	497-19-8	Not Listed
• Chloric acid, sodium salt	7775-09-9	Not Listed

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances TPQs

• Sodium hydroxide	1310-73-2	Not Listed
• Sodium chloride	7647-14-5	Not Listed
• Sodium carbonate (2:1)	497-19-8	Not Listed
• Chloric acid, sodium salt	7775-09-9	Not Listed

U.S. - CERCLA/SARA - Section 313 - Emission Reporting

• Sodium hydroxide	1310-73-2	Not Listed
• Sodium chloride	7647-14-5	Not Listed
• Sodium carbonate (2:1)	497-19-8	Not Listed
• Chloric acid, sodium salt	7775-09-9	Not Listed

U.S. - CERCLA/SARA - Section 313 - PBT Chemical Listing

• Sodium hydroxide	1310-73-2	Not Listed
• Sodium chloride	7647-14-5	Not Listed
• Sodium carbonate (2:1)	497-19-8	Not Listed
• Chloric acid, sodium salt	7775-09-9	Not Listed

U.S. - TSCA (Toxic Substances Control Act) - Section 12(b) - Export Notification

• Sodium hydroxide	1310-73-2	Not Listed
• Sodium chloride	7647-14-5	Not Listed
• Sodium carbonate (2:1)	497-19-8	Not Listed
• Chloric acid, sodium salt	7775-09-9	Not Listed

United States - California**Environment****U.S. - California - Proposition 65 - Carcinogens List**

• Sodium hydroxide	1310-73-2	Not Listed
• Sodium chloride	7647-14-5	Not Listed
• Sodium carbonate (2:1)	497-19-8	Not Listed
• Chloric acid, sodium salt	7775-09-9	Not Listed

U.S. - California - Proposition 65 - Developmental Toxicity

• Sodium hydroxide	1310-73-2	Not Listed
• Sodium chloride	7647-14-5	Not Listed
• Sodium carbonate (2:1)	497-19-8	Not Listed
• Chloric acid, sodium salt	7775-09-9	Not Listed

U.S. - California - Proposition 65 - Maximum Allowable Dose Levels (MADL)

• Sodium hydroxide	1310-73-2	Not Listed
• Sodium chloride	7647-14-5	Not Listed
• Sodium carbonate (2:1)	497-19-8	Not Listed
• Chloric acid, sodium salt	7775-09-9	Not Listed

U.S. - California - Proposition 65 - No Significant Risk Levels (NSRL)

• Sodium hydroxide	1310-73-2	Not Listed
• Sodium chloride	7647-14-5	Not Listed
• Sodium carbonate (2:1)	497-19-8	Not Listed
• Chloric acid, sodium salt	7775-09-9	Not Listed

U.S. - California - Proposition 65 - Reproductive Toxicity - Female

• Sodium hydroxide	1310-73-2	Not Listed
• Sodium chloride	7647-14-5	Not Listed
• Sodium carbonate (2:1)	497-19-8	Not Listed
• Chloric acid, sodium salt	7775-09-9	Not Listed

U.S. - California - Proposition 65 - Reproductive Toxicity - Male

• Sodium hydroxide	1310-73-2	Not Listed
• Sodium chloride	7647-14-5	Not Listed
• Sodium carbonate (2:1)	497-19-8	Not Listed

• Chloric acid, sodium salt

7775-09-9

Not Listed

15.2 Chemical Safety Assessment

- No Chemical Safety Assessment has been carried out.

15.3 Other Information

- WARNING: This product contains a chemical known to the State of California to cause cancer, birth defects, or other reproductive harm.

Section 16 - Other Information

Relevant Phrases (code & full text)

- H271 - May cause fire or explosion; strong oxidizer
- H302 - Harmful if swallowed
- H319 - Causes serious eye irritation
- H411 - Toxic to aquatic life with long lasting effects
- R9 - Explosive when mixed with combustible material.
- R22 - Harmful if swallowed.
- R36 - Irritating to eyes.
- R51 - Toxic to aquatic organisms.
- R53 - May cause long-term adverse effects in the aquatic environment.

Last Revision Date

- 08/May/2014

Preparation Date

- 08/May/2014

Other Information

- NSF® Standard 60 Drinking Water Treatment Chemicals – Some liquid caustic soda brands have Health Effect Listing and are certified for maximum use of 200 mg/l.

Disclaimer/Statement of Liability

- The technical data given herein is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release, and is not to be considered a warranty or quality specification. No guarantee is being given as to the end use performance. The product is sold on the basis that buyers test the product for their specific purposes. This information related to the material designated and may not be valid for such material used in combination with any other materials or in any process.

Key to abbreviations

NDA = No Data Available

Material Safety Data Sheet



Date of issue 14 June 2013

Version 2

1. Product and company identification

Product name : Chlorine
Code : 0119
Supplier : Axiall, LLC
115 Perimeter Center Place
Suite 460
Atlanta, GA 30346
USA
Emergency telephone number : +1 304-455-6882
Technical Phone Number : 1-800-243-6774 (C/A) 8am-5pm Eastern time

2. Hazards identification

Emergency overview : DANGER!
 OXIDIZER. CAUSES RESPIRATORY TRACT, EYE AND SKIN BURNS. MAY BE FATAL IF INHALED OR SWALLOWED. CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE.
Personnel near or handling chlorine should at all times, carry a NIOSH approved chemical cartridge type escape respirator and be trained in its use. Do not breathe gas. Do not get in eyes or on skin or clothing. Use only with adequate ventilation. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective occupational exposure limits. Do not puncture or incinerate container. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.

See Section 11 for more detailed information on health effects and symptoms.

Potential acute health effects

Inhalation : May be fatal if inhaled. Corrosive to the respiratory system.
Ingestion : (gas) This route of exposure is not applicable.
(liquid) May be fatal if swallowed. May cause burns to mouth, throat and stomach. Ingestion of liquid can cause burns similar to frostbite. Corrosive to the digestive tract.
Skin : Corrosive to the skin. Causes burns. Dermal contact with a rapidly evaporating liquid could result in freezing of the tissues or frostbite.
Eyes : Corrosive to eyes. Causes burns. Liquid can cause burns similar to frostbite.

Over-exposure signs/symptoms

Inhalation : Adverse symptoms may include the following:
respiratory tract irritation
coughing
shortness of breath/breathing difficulty
pulmonary edema
nausea or vomiting
Ingestion : Adverse symptoms may include the following:
(gas) This route of exposure is not applicable.
(liquid) Causes severe burns.
stomach pains
nausea or vomiting
Skin :