

Appendix B
Hazardous Materials Group Factual
Hazardous Materials Information

Graniteville, SC
DCA-05-MR-008

000001

Appendix B
Part 1
Hazardous Materials Group Factual
Chlorine

Graniteville, SC
DCA-05-MR-008

000002



MATERIAL SAFETY DATA

Product Name: Chlorine
Revision Date: 3/8/04
Revision No. 6

OCEAN NETWORK EMERGENCY PHONE 1-888-2891-911

THIS MATERIAL SAFETY DATA SHEET (MSDS) HAS BEEN PREPARED IN COMPLIANCE WITH THE FEDERAL OSHA HAZARD COMMUNICATION STANDARD, 29 CFR 1910.1200. THIS PRODUCT MAY BE CONSIDERED TO BE A HAZARDOUS CHEMICAL UNDER THAT STANDARD. (REFER TO THE OSHA CLASSIFICATION IN SEC.I.) THIS INFORMATION IS REQUIRED TO BE DISCLOSED FOR SAFETY IN THE WORKPLACE. THE EXPOSURE TO THE COMMUNITY, IF ANY, IS QUITE DIFFERENT.

I - PRODUCT IDENTIFICATION

Product Name:	Chlorine
Synonyms:	None
Chemical Family:	Halogen
Formula:	Cl ₂
Use Description:	Chlorinating and oxidizing agent, disinfectant, organic synthesis, water and wastewater treatment, plastics, pharmaceuticals
Hazard Classification:	Irritant or corrosive; skin, eye and lung hazard; toxic by inhalation; compressed gas; oxidizer
Product Codes:	105015, 105189
File No.:	MSDS0100

II - COMPONENT DATA

This Product Composition information presented here describes the major components and their concentrations found in this product and other information as required by OSHA. This is not, and should not be interpreted, or used as, a Product Specification or a detailed chemical analysis.

Established Federal OSHA PEL is provided. OSHA Agreement State PEL may be different.

Product Composition

CAS or Chemical Name:	Chlorine				
CAS Number:	7782 50-5				
Percentage Range:	98-100 Volume percent				
Hazardous per 29 CFR 1910.1200:	Yes				
Exposure Standards:	OSHA (PEL)		ACGIH (TLV)		
	ppm	mg/m ³	ppm	mg/m ³	
	TWA:	None	None	0.5	1.5
	CEILING:	1	3	None	None
	STEL:	None	None	1	2.9



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III - PRECAUTIONS FOR SAFE HANDLING AND STORAGE

DO NOT TAKE INTERNALLY. AVOID CONTACT WITH SKIN, EYES AND CLOTHING. UPON CONTACT WITH SKIN OR EYES, WASH OFF WITH WATER. DO NOT BREATHE GAS OR VAPOR.

STORAGE CONDITIONS:

Store in a cool, dry, well-ventilated place.
DO NOT STORE AT TEMPERATURES ABOVE: 59 Deg.C (140 Deg.F)

PRODUCT STABILITY AND COMPATIBILITY:

SHELF LIFE LIMITATIONS:	Indefinite
INCOMPATIBLE MATERIALS FOR PACKAGING:	NOTICE - Should not be repackaged except by qualified and trained personnel.
INCOMPATIBLE MATERIALS FOR STORAGE OR TRANSPORT:	Alkalies, reducing agents, organic materials

IV - PHYSICAL DATA

Appearance:	Greenish liquid or gas
Melting Point:	-101 Deg.C (-149 Deg.F)
Freezing Point:	
Boiling Point:	-34 Deg.C (-29 Deg.F)
Decomposition Temperature:	None
Specific Gravity:	Not applicable
Bulk Density:	88.4 lb. per cubic feet at 63 Deg.F
pH @ 25° C:	Not applicable
Vapor Pressure @ 25° C:	114 psi
Solubility in Water:	Miscible
Volatiles, Percent by Volume:	100
Evaporation Rate:	Heat of Vaporization: 123.67 BTU per pound
Vapor Density:	Approximately 2.5 (0.7537 lb. per cubic feet at 32 Deg.F)
Molecular Weight:	71
Product is:	A compressed gas
Odor:	Acrid
Coefficient of Oil/Water Distribution:	No Data



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V - PERSONAL PROTECTIVE EQUIPMENT REQUIREMENTS

Personal Protection for Routine Use of Product:

Respiratory Protection:	If air concentrations above the TLV are possible, wear a NIOSH approved respirator
Ventilation:	Use local exhaust ventilation to maintain levels to below the TLV.
Skin and Eye Protection:	Wear gloves, boots, apron and a face shield with safety glasses. A full impermeable suit is recommended if exposure is possible to large portion of body.
Other:	Emergency eye wash and safety showers must be provided in the immediate work area.

Equipment Specifications (When Applicable):

Respirator Type:	Wear NIOSH approved full-face respirator equipped with chemical cartridges for chlorine gas.
Protective Clothing Type: (This includes: gloves, boots, apron, protective suit.)	GLOVE TYPE: Neoprene, or butyl rubber BOOT TYPE: Neoprene, or butyl rubber APRON TYPE: Neoprene, or butyl rubber PROTECTIVE SUIT: see section XI. for additional information

VI - FIRE AND EXPLOSION HAZARD INFORMATION

Flammability Data:

Explosive:	N/A
Flammable:	No
Combustible:	No
Pyrophoric:	No
Flash Point:	Not Applicable
Autoignition Temperature:	Not Applicable
Flammable Limits at Normal Atmospheric Temperature and Pressure (Percent Volume in Air):	LEL - Not Applicable UEL - Not Applicable

NFPA Ratings:

Health:	4
Flammability:	0
Reactivity:	0
Special Hazard Warning	OXIDIZER

HMIS Ratings:

Health:	3
Flammability:	0
Reactivity:	0

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Extinguishing Media:

Use extinguishing media compatible to surrounding materials.

Fire Fighting Techniques and Comments:

Use water to cool containers exposed to fire, however, direct spray between fire and containers. DO NOT spray directly on container unless absolutely necessary. Water reactive material; DO NOT spray with water. Contact with reactive metals e.g., aluminum may result in the generation of flammable hydrogen gas. See Section 11 for protective equipment for fire fighting.

VII - REACTIVITY INFORMATION**Conditions Under Which This Product May Be Unstable:**

Temperatures Above:	None
Mechanical Shock or Impact:	No
Electrical (Static) Discharge:	No
Other:	Reacts vigorously with titanium, zinc, tin
Hazardous Polymerization:	Will not occur
Incompatible Materials:	Alkalies, reducing agents, organic materials
Hazardous Decomposition:	Hydrochloric acid, hypochlorous acid
Other:	Titanium will react vigorously, resulting in spontaneous ignition, when contacted by DRY Chlorine. Combustion will be supported in carbon steel systems and equipment containing a Chlorine environment at temperatures greater than 480 Deg. F. Properly purge systems and equipment PRIOR to conducting Hot Work.

Summary of Reactivity:

Explosive:	N/A
Oxidizer:	Yes
Pyrophoric:	No
Organic Peroxide:	No
Water Reactive:	No (See Precautions under XI, Spill & Leakage Mitigation Procedures)
Corrosive:	Yes

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VIII - FIRST AID**Eyes**

- Hold eye open and rinse slowly and gently with water for 15-20 minutes.
- Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.
- Call a poison control center or doctor for treatment advice.

Skin

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

Ingestion

- Call a poison control center or doctor immediately for treatment advice.
- Have person sip a glass of water if able to swallow.
- Do not induce vomiting unless told to do so by the poison control center or doctor.
- Do not give anything by mouth to an unconscious person.

Inhalation

- Move person to fresh air.
- If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.
- Call a poison control center or doctor for further treatment advice.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

NOTE TO PHYSICIAN - Probable mucosal damage may contraindicate the use of gastric lavage.

IX - TOXICOLOGY AND HEALTH INFORMATION**Routes of Absorption**

Inhalation, skin, eye, ingestion

Warning Statements and Warning Properties

HARMFUL IF INHALED. CAUSES EYE, SKIN AND RESPIRATORY TRACT BURNS. CAN CAUSE LUNG DAMAGE.

Human Threshold Response Data

Odor Threshold:	Approximately 1.7 mg/m3 (0.3 ppm).
Irritation Threshold:	The irritation threshold is approximately 0.5 ppm.
Immediately Dangerous to Life or Health:	10.0 ppm

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Signs, Symptoms and Effects of Exposure**Inhalation**

Acute:	Toxic if inhaled. Inhalation of this material is irritating to the nose, mouth, throat and lungs. It may cause inflammation to the respiratory tract with the production of lung edema, which can result in shortness of breath, wheezing, choking, chest pain, and impairment of lung function. The inflammation of the respiratory tract is most evident in the upper portions, but bronchioles, alveolar ducts, and alveoli may also be affected. There is no evidence that acute inhalation of chlorine at low to moderate levels will cause permanent lung damage. At high levels, chlorine is corrosive to the respiratory tract and may cause lung damage.
Chronic:	Repeated inhalation exposure may cause impairment of lung function and permanent lung damage. It may contribute to the development of bronchitis.

Skin

Acute:	Dermal exposure can cause irritation characterized by redness, swelling and scab formation. Contact with liquid chlorine may cause burns with prolonged contact causing destruction of the dermis with impairment of the skin at site of contact to regenerate.
Chronic:	Effects from chronic skin exposure would be similar to those from single exposure except for effects secondary to tissue destruction.

Eye

Irritation can occur following eye exposure to the gas with redness, pain, blurred vision, and tearing. Contact with liquid chlorine may cause burns with impairment of vision and corneal damage.
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Ingestion

Acute:	If liquid is swallowed, irritation and/or burns can occur to the entire gastrointestinal tract, including the stomach and intestines, characterized by nausea, vomiting, diarrhea, abdominal pain, bleeding, and/or tissue ulceration. Ingestion is not a major route of exposure because chlorine is a gas at room temperature.
Chronic:	There are no known or reported effects from chronic exposure.

Medical Conditions Aggravated by Exposure

Asthma, respiratory and cardiovascular disease.

Interactions With Other Chemicals Which Enhance Toxicity

None known or reported.

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Animal Toxicology**Acute Target Organ Toxicity**

Inhalation LC 50: 293 ppm (1 hour, rat)
Oral LD 50: No not applicable. Product is a gas at room temperature.
Dermal LD 50: Not applicable. Product is a gas at room temperature.
Severe irritant to eyes and skin. Contact with the liquid chlorine may cause burns to eyes and skin. Contact with chlorine vapor may cause severe eye irritation.

Reproductive and Developmental Toxicity

There are no know or reported effects on reproductive function or fetal development.

Carcinogenicity

This product is not know or reported to be carcinogenic by any reference source including IARC, OSHA, NTP, or EPA.

Mutagenicity

This product is not know or reported to be mutagenic.

Aquatic Toxicity

LC 50 Bluegill: 0.44 mg/l/96 hours
LC 50 Yellow perch: 0.88 mg/l/1 hr.
LC 50 Channel catfish (fingerling): 0.07 mg/l/96 hrs
LC 50 Daphnia magna: 0.017 mg/l/46 hrs

CHRONIC TARGET ORGAN EFFECTS IN LABORATORY ANIMALS

Inhalation exposure has produced pathological change in the lungs and nasal passages of monkeys and rats characterized by inflammation, epithelial hyperplasia of loss of cilia. In addition, damage was observed in liver and kidneys from treated rats. These effects were seen at concentrations much higher than those expected from occupational exposure.

X - TRANSPORTATION INFORMATION

THIS MATERIAL IS REGULATED AS A DOT HAZARDOUS MATERIAL.

DOT Description from the Hazardous Materials Table 49 CFR 172.101:

Land (U.S. DOT):	Chlorine, 2.3, UN1017, Poison Inhalation Hazard - Hazard Zone B - Marine Pollutant
Water (IMO):	Same as LAND above
Air (IATA/ICAO):	FORBIDDEN
Hazard Label/Placard:	Poison Gas, Corrosive
Reportable Quantity:	10 lbs. (Per 49 CFR 172.101, Appendix)
Emergency Guide:	124

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XI - SPILL AND LEAKAGE PROCEDURES

FOR ALL TRANSPORTATION ACCIDENTS, CALL CHEMTREC AT 800-421-9300.

Reportable Quantity:	This product is subject to a Reportable Quantity with respect to chlorine. RQs are subject to change and reference should be made to 40 CFR 302.4 for the current requirements.
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Spill Mitigation Procedures:

Hazardous concentrations in air may be found in local spill area and immediately downwind. Do not put water directly on this product as gas evolution may increase. Water should not be used directly on a chlorine leak. Chlorine and water react forming acids and the leak quickly will get worse. Water provides a heat source for vaporizing liquid chlorine. Water should be prevented from coming into contact with a liquid chlorine spill, and liquid chlorine should be prevented from flowing into water drains or bodies of water in the close proximity. This product may represent an explosion hazard, if in contact with incompatible materials. Remove all sources of ignition.

Air Release:	This material is heavier than air and may concentrate in low areas. Ambient air and water temperature must be considered if a water fog is used to attempt absorption or dispersion. It must be understood that very little vapor may actually be absorbed and the gas may be dispersed to other areas. Contain all fog water for neutralization and treatment.
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Water Release:	This material is heavier than water. Chlorine will sink and bubble into water to form a hypochlorous acid, which will later self-decompose to various materials. Stop flow of material and divert water to a holding area for treatment and neutralization.
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Land Spill:	Dike area of spill and stop flow if safe to do so. Cover area of spill with foam to reduce air contamination. Begin treatment to neutralize material as soon as possible.
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Spill Residues:

Dispose of per guidelines under Section 12, WASTE DISPOSAL.

This material may be neutralized for disposal; you are requested to contact OCEAN at 888-2891-911 before beginning any such operation.



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Personal Protection for Emergency Spill and Firefighting Situations:

In case of fire, use normal fire fighting equipment.

For response to Chlorine gas it is recommended to use as a minimum level "B" protection that is compatible to Chlorine and for Liquid spills it is recommended to utilize as a minimum enhanced level "B" (Enhanced level "B" is the addition of a splash hood). Responders can reference Chlorine Institute pamphlet #65 on PPE.

Additional protective clothing must be worn to prevent personal contact with this material. Those items include but are not limited to: boots, gloves, hard hat, splash-proof goggles, full face shield and impervious clothing, i.e., chemically impermeable suit.

Compatible materials for response to this material are neoprene and butyl rubber.

Protection concerns must also address the potential of the physical characteristics of this product as a compressed gas, corrosive and a poison.

XII - WASTE DISPOSAL

If this product becomes a waste, it meets the criteria of a hazardous waste as defined under 40 CFR 261 and would have the following EPA hazardous waste number: D003, D001.

If this product becomes a hazardous waste, it will be a hazardous waste which is subject to the Land Disposal Restrictions under 40 CFR 258 and must be managed accordingly.

As a hazardous liquid waste, it must be disposed of in accordance with local, state and federal regulations in a permitted hazardous waste treatment, storage and disposal facility by treatment.

Chlorine can exist in a gaseous state, and controlled evaporation may be warranted.

CARE MUST BE TAKEN TO PREVENT ENVIRONMENTAL CONTAMINATION FROM THE USE OF THIS MATERIAL. THE USER OF THIS MATERIAL HAS THE RESPONSIBILITY TO DISPOSE OF UNUSED MATERIAL, RESIDUES AND CONTAINERS IN COMPLIANCE WITH ALL RELEVANT LOCAL, STATE AND FEDERAL LAWS AND REGULATIONS REGARDING TREATMENT, STORAGE AND DISPOSAL FOR HAZARDOUS AND NONHAZARDOUS WASTES.

XIII - ADDITIONAL REGULATORY STATUS INFORMATION

TOXIC SUBSTANCES CONTROL ACT:

This product is listed on the Toxic Substances Control Act inventory.

NSF LIMITS: NSF Maximum Drinking Water Use Concentration - 30 mg/l as chlorine

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FEDERAL INSECTICIDE FUNGICIDE RODENTICIDE ACT (FIFRA): This substance is registered for use as a disinfectant or sanitizer. Re-formulators and re-packagers of this product must obtain their own registration from the Environmental Protection Agency. EPA Registration Number: 72315-1.

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT TITLE III:
HAZARD CATEGORIES, PER 40 CFR 370.2:

HEALTH:

Immediate (Acute)
Delayed (Chronic)

PHYSICAL:

Sudden release of pressure
Reactivity

EMERGENCY PLANNING AND COMMUNITY RIGHT TO KNOW, PER 40 CFR 355, APP.A:

EXTREMELY HAZARDOUS SUBSTANCE - THRESHOLD PLANNING QUANTITY:

100 lbs.

SUPPLIER NOTIFICATION REQUIREMENTS, PER 40 CFR 372.45:

This mixture or tradename product contains a toxic chemical or chemicals subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR 372.

CHEMICALS LISTED ARE: Chlorine

XIV - ADDITIONAL INFORMATION

MSDS REVISION STATUS: The Chlor/Alkali MSDS Control Group update this MSDS January 2002

First Aid Statements and Additional Regulatory Information updated October 2003

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XV - MAJOR REFERENCES

1. Teratogenic Study with Monosodium Cyanurate Plus Chlorine in Albino Rats. Industrial Bio-Test Laboratories, Inc., 1810 Frontage Road, Northbrook, Illinois 60062, IBT No. B758c. April 18, 1972.
2. Barrow, C. S. et al. An Inhalation Toxicity Study of Chlorine in Fischer 344 Rats following 30 Days of Exposure. Toxicology and Applied Pharmacology 49, 77-88 (1979).
3. Shimizu, H. et al. The Results of Microbial Mutation Test for Forty-Three Industrial Chemicals. Jpn. J. Ind. Health, Vol. 27, (1985).
4. Weill, H. et al. Late Evaluation of Pulmonary Function After Acute Exposure to Chlorine Gas. American Review of Respiratory Disease, Volume 99, (1969).
5. Patel, L. R. S. et al. The Health of Diaphragm Cell Workers Exposed to Chlorine. American Industrial Hygiene Association Journal, Volume 31. November-December, 1970.
6. Rotman, H. H. et al. Effects of low concentrations of chlorine on pulmonary function in humans. J. Appl. Physiol.: Respir. Environ. Exercise Physiol., Vol. 54 ISS 4, 1983.
7. Ploysongseang, Y. et al. Pulmonary Function Changes After Acute Inhalation of Chlorine Gas. So. Med. J. 75, 23. (1982)
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9. Chester, E. et al. The Prevalence of Chronic Obstructive Pulmonary Disease in Chlorine Gas Workers. American Review of Respiratory Disease, Volume 99. (1969).
10. Klonne, D. R. et al. One-Year Inhalation Toxicity Study of Chlorine in Rhesus Monkeys (Macaca mulatta). Fundamental and Applied Toxicology 9, 557-572. (1987).
11. Jones, R. N. et al. Lung Function after Acute Chlorine Exposure. Am. Rev. Respir. Dis., 134(b), p 1190-1195. (1986).
12. Grant, W. M. Toxicology of the Eye. Second Edition, Illinois: Charles C. Thomas, 1974.
13. Ellenhorn, M. J. and D. G. Barceloux. Medical Toxicology. Diagnosis and Treatment of Human Poisoning. New York: Elsevier, 1988.
14. Conlon, P. C, Ed. Emergency Action Guides. Association of American Railroads. (1984).
15. Windholz, M. et al. Eds., The Merck Index. An Encyclopedia of Chemicals, Drugs, and Biologicals. Tenth Edition. (1983).
16. Occupational Health Guideline for Chlorine. U.S. Department of Health and Human Services, September 1978.
17. Material Safety Data Sheet, OHS04600. Occupational Health Services, Inc., p. 1-11.

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THE INFORMATION IN THIS MATERIAL SAFETY DATA SHEET SHOULD BE PROVIDED TO ALL WHO WILL USE, HANDLE, STORE, TRANSPORT, OR OTHERWISE BE EXPOSED TO THIS PRODUCT. THIS INFORMATION HAS BEEN PREPARED FOR THE GUIDANCE OF PLANT ENGINEERING, OPERATIONS AND MANAGEMENT AND FOR PERSONS WORKING WITH OR HANDLING THIS PRODUCT. OLIN BELIEVES THIS INFORMATION TO BE RELIABLE AND UP TO DATE AS OF THE DATE OF PUBLICATION, BUT MAKES NO WARRANTY THAT IT IS. ADDITIONALLY, IF THIS MATERIAL SAFETY DATA SHEET IS MORE THAN THREE YEARS OLD, YOU SHOULD CONTACT OLIN AT THE PHONE NUMBER LISTED BELOW TO MAKE CERTAIN THAT THIS SHEET IS CURRENT.

ORC MSDS CONTROL GROUP
Olin Chlor Alkali
1186 Lower River Road
P.O. Box 248
Charleston, TN 37310
Phone Number: (888)-658-MSDS (6737)

Date Printed: 01/04/05 12:55:25 CST

FROM OLIN CORPORATION

PAGE: 1 OF 1

AT: Augusta Plant Nixon, GA		DATE: 01/04/05	DO NOT SUBMIT FREIGHT BILL WITHOUT THIS NUMBER
ROUTE: NS		VEHICLE NO: GATX017105	OLIN REFERENCE NO: 20810707
		SEAL NO: 792269, 792268	OLIN ORDER NUMBER: 10800235

SHIP TO: 90000743 RHODIA INC; Charlesto 2151 KING ST EXT CHARLESTON SC 29405	CUSTOMER'S ORDER NO. 584854	The property described below in apparent good order except as noted (contents and condition of contents of package unknown), marked consigned and destined as indicated below which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all terms and conditions of the uniform domestic straight bill of lading set forth (1) in uniform freight classification in effect on the date hereof, if this is a rail or rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment. Shipper hereby certifies that he is familiar with all the terms and conditions of the said Bill Of Lading, including those on the back thereof, set forth in the classification or tariff which governs the transportation of this shipment and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.
	3RD PARTY:	
	FOR EMERGENCY RESPONSE: 800-424-9300 (US Only) 800-567-7455 (Canada Only)	

FREIGHT CHARGES ARE PREPAID	IF CHARGES ARE PREPAID MAIL PREPAID FREIGHT BILL TO: OLIN CORPORATION P.O. BOX 248 CHARLESTON, TN 37310-0248 (ACCTS PAYABLE)	CARRIER INSTRUCTIONS SEE BELOW	*If the shipment moves between two ports by a carrier by water, the law requires that the bill of lading state whether it is carrier's or shipper's weight. Note - Where the rate is dependent on released value the agreed or declared value of the property is hereby stated by the shipper to be not exceeding 200 CENTS PER POUND OR ANY OTHER LEVEL AUTHORIZED BY RRO-MC-972	Subject to Section 7 of This shipment is correctly conditions of applicable bill of lading, if this shipment is to be delivered to the consignee herein and subject to without recourse on the verification by the governing Bureau. Weighing and inspection
FOB: Delivered (O6P)			OLIN CORPORATION SIGNATURE OF CONSIGNOR	OLIN CORPORATION SIGNATURE OF CONSIGNOR

NO. OF PACKAGES	KIND OF PKGS	HM	DESCRIPTION OF ARTICLES SPECIAL MARKS AND EXCEPTIONS	NET WEIGHT (LBS)	CLASS OR RATE
1	RC	RQ	CHLORINE, 2.3 (8), UN1017, POISON INHALATION HAZARD HAZARD ZONE B MARINE POLLUTANT ERG NO.124 4920523 CHLORINE GAS, LIQUEFIED Chlorine 4 PLACARDS APPLIED	180,000 LB	

CARRIER INSTRUCTIONS

SHIPPING SEAL NUMBER MUST APPEAR ON BOL!!!

TOTAL GROSS WGT: 261,200 LB

***** THIS DOCUMENT IS NOT AN OFFICIAL BILL OF LADING. *****
***** OFFICIAL BILLS OF LADING ARE TRANSMITTED VIA EDI PER DOT-E 7616 *****

DECLARATION - APPLIES TO CONTAINERS AND IMO TYPE TANKS FOR EXPORT
is declared that the packing of the container/vehicle has been carried out in accordance with the General Introduction, IMDG Code paragraph 12.3.7.

hereby declare that the contents of this consignment are fully and accurately described above by a correct technical name(s) (proper shipping names(s)), and are classified, packaged, marked and labeled/placarded and are in all respects in proper condition for transport according to applicable international and national government regulations.

Carrier must report any spill of product with RQ in the HM column to:

NATIONAL RESPONSE CENTER (800) 424-8802 (TOLL FREE) by my signature below I acknowledge having either been provided the emergency response information by Olin or have this information in my possession.

OLIN CORPORATION, Shipper

Per ELIZABETH MUSE

Permanent post-office address of shipper, 490 Stuart Road N.E., Cleveland, TN 37312-4918

Agent

Per

ZVBOLCA CPR 034

000015

WEIGHT RECORDED BY

Olin CORP.

CHEMICALS DIV.

P.O. BOX 1234

AUGUSTA, GA 30913

10800235

20810707

DATE: 1/3/05

Rhodia

CAR INITIALS: GATX

CAR NO: 171AS 86

COMMODITY: CL

WEIGHER: KE / LER

WEIGHT

Marked Tare ☒

Actual Tare ☐

12:02:07 03/07/00

G+261200 lb

2T+081200 lb

2N+180000 lb

COMMENTS:

12:35 AM 03 JAN 05

[Handwritten signature]

000013

**AUGUSTA PLANT
CHLORINE TANK CAR INSPECTION AND LOADING**

Car initials and number: GATX 17105 Date: 12-30-04 Plant: Augusta

PRELOADING INSPECTION

OK

DEFECT OR NEEDED REPAIR

Couplers (must be double shelf) draft

Wheels, springs, bearings

Hand Brake

Placard holders (4)

Ladders and walkways

Stencils (all must be legible)

Date car painted: 6-99

Outer shell manway area:

Outer shell seams:

Is there a defect card?

Star before Ld. Lmt.

Chemtrec sticker on both sides?

Four inch Chlorine stencil both sides?

Respiratory hazard stencil both sides?

Is this car returning from the shop?

Tank test date: 2-03

Safety valve date: 2-03

Angle valve recon. date: 2-04

Four angle valves passed preloading inspection:

Reconditioned angle valves installed by:

Poor

Poor

Poor

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

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clin
AUGUSTA PLANT
RAIL CAR INSPECTION

Type Car: C12

Car Number: GATX 17105

Date: 12-30-04

Inspector: EPH

Paint VP P F G ☒
Stenciling VP P F G ☒

Safety valve test date: 2-03

Due: 2-06

Tank test date: 2-03

Due: 2-06

Thickness test date: ✓

Due: 1-2005

	Yes	No	Explain
Tank test date both sides of car?	<input checked="" type="checkbox"/>		
Safety valve test date both sides of car?	<input checked="" type="checkbox"/>		
Commodity stencil both sides?	<input checked="" type="checkbox"/>		
Chemtrec decal both sides?	<input checked="" type="checkbox"/>		
Four placard holders?	<input checked="" type="checkbox"/>		
Appreciable dents in tank?		<input checked="" type="checkbox"/>	
Signs of derailment?		<input checked="" type="checkbox"/>	
Dome lid, chain and pin in place?	<input checked="" type="checkbox"/>		
Ladders, walkways, handrails okay?	<input checked="" type="checkbox"/>		
Wheels okay?	<input checked="" type="checkbox"/>		
Brake Shoes okay?	<input checked="" type="checkbox"/>		
Truck springs in place and okay?	<input checked="" type="checkbox"/>		
Is car on center bowl?	<input checked="" type="checkbox"/>		
Roller Bearings okay?	<input checked="" type="checkbox"/>		
Journals okay?	<input checked="" type="checkbox"/>		
Hand brakes okay?	<input checked="" type="checkbox"/>		
Couplers okay?	<input checked="" type="checkbox"/>		

Remarks: _____

N/A

AUGUSTA PLANT
ANGLE VALVE AND SAFETY VALVE CHECKSHEET

Car number: GATX 17105 Inspected by: EPH

Last angle valve replacement date: 2-04 Due: 2-05

Does angle valves appear to be intact? Yes ☒ No ☐

Verified that all valve nuts are wrench tight: Yes ☒ No ☐

State reason for valve changeout: N/A

Inspected new angle valves and excess flow valves: Yes N/A No N/A

New angle valves were installed by: N/A Date: N/A

Last safety valve replacement date: 2-03 Due: 2-06

Does safety valve look intact? Yes ☒ No ☐

Is wire seal intact? Yes ☒ No ☐

Is dust cover seal bulging? Yes ☐ No ☒

If valve is to be changed state reason: N/A

Safety valve changed by: N/A Date: N/A

Safety valve identification number: N/A

CHLORINE TANK CAR FILLING

CAR NUMBER GATV-1710

STARTED 4²⁵pm 112 2005

GROSS 261200

FINISHED 1:30AM 113 2005

TARE ~~80200~~ 81200

DISCONNECTED BY WR

NET 180000

WEIGHTED BY: TARE KL GROSS WR

FILLED FROM PRIMARY ☒ TAIL GAS ☐ STORAGE TANK ☐

TIME	GROSS WEIGHT	PRES. ON CAR P.S.I.G.	WEIGHER	POUNDS PER HOUR	TEMP °C	FILLING LINE PRES.-P.S.I.G.
<u>6⁰⁰pm</u>	<u>108.1</u>	<u>22</u>	<u>OR</u>	<u>-</u>	<u>-</u>	<u>36</u>
<u>7¹⁵pm</u>	<u>133.1</u>	<u>22</u>	<u>PR</u>	<u>-</u>	<u>-</u>	<u>36</u>
<u>8⁴⁵pm</u>	<u>148.7</u>	<u>22</u>	<u>DR</u>	<u>-</u>	<u>-</u>	<u>36</u>
<u>9⁴²pm</u>	<u>155.2</u>	<u>22</u>	<u>DR</u>	<u>-</u>	<u>-</u>	<u>36</u>
<u>11:55</u>	<u>230.7</u>	<u>22</u>	<u>WR</u>	<u>-</u>	<u>-</u>	<u>36</u>

GAS PRES. (P.S.I.G.) 22 SAFETY VALVE 2-03

AIR PRES. (P.S.I.G.) 88 TANK TEST 2-03

TOTAL PRES. (P.S.I.G.) 110

M 100 REVISED 1/77

BE SURE SCALES ARE FREE

000020

Railcar Maintenance Report for Cars On Hand

01-04-2005 06:43:41 AM

GATX 017105

Assigned Product: 111 - Chlorine

Facility Shipped From: RHODIA;CHARLESTON

Fleet / Subfleet: 111

Shipment Date: 12-24-2004 3:00:00 AM Shipment Status: On Hand

Last Product Shipped: Chlorine - 105015

Last Sighting: 12-30-2004 4:00:00 PM Sighting Status: 0256Z / Actual Placement

Sighting Location: NIXON, GA

Maintenance: /9/93 062 TO W12 FOR PT AND EC1, D-N-E. GRF555

(LAST PT 8/88/SES)

3/26/93 W12 TO 062(ALSO HAD S-S INSP + AEI TAG/SES)

5/10/93 \$300 PT PD/SES

4/24/98 APPROVED INVOICE FOR 179.00 FOR REPAIR MADE BY MOBILE
UNIT TO THE MANWAY GASKET / TERRI VICE

05/05/99 058 TO W12 FOR EXTERNAL CORROSION INSPECTION AND
REPAINT.CAR IS NOT CLEAN.TVICE

6/22/99 OUT SHOP (W12 TO 0158) W SMITH

01/06/00 THICKNESS TEST/EXEMPTION PERFORMED AT 058.TVICE

02/03 061 SEATING SURFACE TOO LARGE IN PRESSURE PLATE - A LOT OF
SCALE INSIDE CAR LALFORD

Delivery Notes:

Date Entered	Entered By	Maintenance Task	Date Last Performed	Date Due	Date Performed	Next Due Date
2004-04-21	JC5A	A. Angle Valve Test	2003-02-19	2005-02-07		
2003-10-06	LA2C	B. Safety Valve Test, Tan	2003-02-19	2006-02-28		
2003-06-30	JW1Z	E. Tank Requalification	1999-09-28	2008-07-31		
2003-06-30	JW1Z	G. Schd Shop (Paint/Repai	1999-06-22	2004-06-22		
2003-10-06	LA2C	J. Rule 88 Inspection	2003-06-01	2013-06-30		
2003-10-06	LA2C	K. Stub Sill Inspection	2003-06-01	2013-06-30		

<== Maintenance is Overdue

Reconditioned By: _____

Instructions for Railcar Maintenance:

- 1) Check maintenance due dates and take necessary action to railcars.
- 2) Compare maintenance due dates with those stenciled on the car.
Bring any discrepancies to the attention of the shipping supervisor.
- 3) Update railcar maintenance dates in the SAP/IT system for all maintenance work performed and for any missing dates.
- 4) Enter a note in the I/T maintenance comments field describing special actions needed or taken.

000021

Date Printed: 01/04/05 12:53:54 CST

FROM OLIN CORPORATION

PAGE: 1 OF 1

AT: Augusta Plant Nixon, GA		DATE: 01/04/05		DO NOT SUBMIT FREIGHT BILL WITHOUT THIS NUMBER	
ROUTE: NS		VEHICLE NO: SBLX014146		OLIN REFERENCE NO: 20810706	
		SEAL NO: 792221, 792224		OLIN ORDER NUMBER: 10800211	
SHIP TO: 90001301 GULBRANDSEN MFG CO; Orangeburg ORANGEBURG SC 29115		CUSTOMER'S ORDER NO. 04-102841 3RD PARTY:		The property described below in apparent good order except as noted (contents and condition of contents of package unknown), marked consigned and destined as indicated below which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. Is is mutually agreed, as to each carrier of all or any said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all terms and conditions of the uniform domestic straight bill of lading set forth (1) in uniform freight classification in effect on the date hereof, if this is a rail or rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment. Shipper hereby certifies that he is familiar with all the terms and conditions of the said Bill Of Lading, including those on the back thereof, set forth in the classification or tariff which governs the transportation of this shipment and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.	
		FOR EMERGENCY RESPONSE: 800-424-9300 (US Only) 800-567-7455 (Canada Only)			
FREIGHT CHARGES ARE PREPAID FOB: ORANGEBURG SC (06P)	IF CHARGES ARE PREPAID MAIL PREPAID FREIGHT BILL TO: OLIN CORPORATION P.O. BOX 248 CHARLESTON, TN 37310-0248 (ACCTS PAYABLE)	CARRIER INSTRUCTIONS SEE BELOW	*If the shipment moves between two ports by a carrier by water, the law requires that the bill of lading state whether it is carrier's or shipper's weight. Note - Where the rate is dependent on released value the agreed or declared value of the property is hereby stated by the shipper to be not exceeding 200 CENTS PER POUND OR ANY OTHER LEVEL AUTHORIZED BY RRO-MC-972	Subject to Section 7 of This shipment is correctly described. Gross weights of this shipment are correct as shown herein and subject to verification by the governing Bureau. Without recourse on the consignee, the consignor shall sign the following statement: The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges. OLIN CORPORATION SIGNATURE OF CONSIGNOR	

NO. OF PACKAGES	KIND OF PKGS	HM	DESCRIPTION OF ARTICLES SPECIAL MARKS AND EXCEPTIONS	NET WEIGHT (LBS)	CLASS OR RATE
1	RC	RQ	CHLORINE, 2.3 (8), UN1017, POISON INHALATION HAZARD HAZARD ZONE B MARINE POLLUTANT ERG NO.124 4920523 CHLORINE GAS, LIQUEFIED Chlorine 4 PLACARDS APPLIED	180,000 LB	

CARRIER INSTRUCTIONS

TOTAL GROSS WGT: 260,200 LB

***** THIS DOCUMENT IS NOT AN OFFICIAL BILL OF LADING. *****
***** OFFICIAL BILLS OF LADING ARE TRANSMITTED VIA EDI PER DOT-E 7616 *****

DECLARATION - APPLIES TO CONTAINERS AND IMO TYPE TANKS FOR EXPORT
It is declared that the packing of the container/vehicle has been carried out in accordance with the General Introduction, IMDG Code paragraph 12.3.7.

I hereby declare that the contents of this consignment are fully and accurately described above by the correct technical name(s) (proper shipping names(s)), and are classified, packaged, marked and labeled/placarded and are in all respects in proper condition for transport according to applicable international and national government regulations.

Carrier must report any spill of product with RQ in the HM column to:

NATIONAL RESPONSE CENTER (800) 424-8802 (TOLL FREE) by my signature below I acknowledge having either been provided the emergency response information by Olin or have this information in my possession.

OLIN CORPORATION, Shipper

Per ELIZABETH MUSE

Permanent post-office address of shipper, 490 Stuart Road N.E., Cleveland, TN 37312-4918

Agent

Per

ZVBOLCA CPR 034

000022



AUGUSTA PLANT
RAIL CAR INSPECTION

Type Car: CL2

Car Number: SBLX-14146

Date: 12-29-04

Inspector: JG

Paint VP P F G ✓
Stenciling VP P F G ✓

Safety valve test date: 3-04
Tank test date: 3-04
Thickness test date: 2004

Due: 3-07
Due: 3-07
Due: 2014

	Yes	No	Explain
Tank test date both sides of car?	✓		
Safety valve test date both sides of car?	✓		
Commodity stencil both sides?	✓		
Chemtrec decal both sides?	✓		
Four placard holders?	✓		
Appreciable dents in tank?		✓	
Signs of derailment?		✓	
Dome lid, chain and pin in place?	✓		
Ladders, walkways, handrails okay?	✓		
Wheels okay?	✓		
Brake Shoes okay?	✓		
Truck springs in place and okay?	✓		
Is car on center bowl?	✓		
Roller Bearings okay?	✓		
Journals okay?	✓		
Hand brakes okay?	✓		
Couplers okay?	✓		

Remarks: _____

AUGUSTA PLANT
ANGLE VALVE AND SAFETY VALVE CHECKSHEET

*Car number: SBLX-14146 Inspected by: SG
Last angle valve replacement date: 3-04 Due: 3-05
Does angle valves appear to be intact? Yes ☒ No ☐
Verified that all valve nuts are wrench tight: Yes ☒ No ☐
State reason for valve changeout: N/A
Inspected new angle valves and excess flow valves: Yes N/A No N/A
New angle valves were installed by: N/A Date: N/A

Last safety valve replacement date: 3-04 Due: 3-07
Does safety valve look intact? Yes ☒ No ☐
Is wire seal intact? Yes ☒ No ☐
Is dust cover seal bulging? Yes ☐ No ☒
If valve is to be changed state reason: N/A

Safety valve changed by: N/A Date: N/A
Safety valve identification number: N/A

CHLORINE TANK CAR FILLING

CAR NUMBER SPBX 4146

STARTED 3³⁰ pm 12/30 20 04

GROSS 260,200

FINISHED 12³⁵ AM 12-31 20 04

TARE 80200

DISCONNECTED BY MU

NET 180,000

WEIGHTED BY: TARE WR GROSS MU

FILLED FROM PRIMARY ☒ TAIL GAS ☐ STORAGE TANK ☐

TIME	GROSS WEIGHT	PRES. ON CAR P.S.I.G.	WEIGHER	POUNDS PER HOUR	TEMP °C	FILLING LINE PRES.-P.S.I.G.
<u>4²² pm</u>	<u>104.3</u>	<u>22</u>	<u>Don</u>	<u>—</u>	<u>—</u>	<u>36</u>
<u>6²⁸ pm</u>	<u>128.8</u>	<u>22</u>	<u>Don</u>	<u>—</u>	<u>—</u>	<u>36</u>
<u>8³⁰ pm</u>	<u>177.9</u>	<u>22</u>	<u>Don</u>	<u>—</u>	<u>—</u>	<u>36</u>
<u>9³⁵ pm</u>	<u>201.1</u>	<u>22</u>	<u>Don</u>	<u>—</u>	<u>—</u>	<u>36</u>

GAS PRES. (P.S.I.G.) 22 SAFETY VALVE 3-04

AIR PRES. (P.S.I.G.) 88 TANK TEST 3-04

TOTAL PRES. (P.S.I.G.) 110

M 100 REVISED 1/77

BE SURE SCALES ARE FREE

000025

**AUGUSTA PLANT
CHLORINE TANK CAR INSPECTION AND LOADING**

Car initials and number: SRX14146 Date: 12-29-04 Plant: Augusta

PRELOADING INSPECTION

OK

DEFECT OR NEEDED REPAIR

Couplers (must be double shelf) draft

Wheels, springs, bearings

Hand Brake

Placard holders (4)

Ladders and walkways

Stencils (all must be legible)

Date car painted: 2-04

Poor

Fair

Good

Outer shell manway area:

Poor

Fair

Good

Outer shell seams:

Poor

Fair

Good

Is there a defect card?

Yes

No

Star before Ld. Lmt.

Yes

No

Chemtrec sticker on both sides?

Yes

No

Four inch Chlorine stencil both sides?

Yes

No

Inhalation hazard stencil both sides?

Yes

No

Is this car returning from the shop?

Yes

No

Tank test date: 3-04

Due date:

3-07

Location:

CTN

Safety valve date: 3-04

Due date:

3-07

Location:

CTN

Angle valve recon. date: 3-04

Date:

3-05

Is date stenciled in dome?

Yes

No

Four angle valves passed preloading inspection:

Yes

No

By:

J. Glaspe

Reconditioned angle valves installed by:

N/A

Date:

N/A

LOADING

Stenciled Lt. Wt. 80200 Lbs.

Gross Wt. 260200 Lbs. By ML

(263,000 lbs. or less for 90T car)

Tare Wt. 80200 Lbs. By WR

(must be within 500# of stenciled Wt.)

Net Wt. 180,000 Lbs. (must not exceed Ld. Lmt. Stencil)

OUTBOUND INSPECTION BY: ML

DATE: 12-31-04

All four 1017 placards applied

Yes ☒ No ☐

Empty return cable provided with green tag

Yes ☒ No ☐

All valve identity tags in place and Cl₂ product tags attached

Yes ☒ No ☐

Dome area cleaned of debris

Yes ☒ No ☐

Plugs installed in angle valves and wrench tight

Yes ☒ No ☐

Checked for leaks with ammonia by: J. Glaspe

Yes ☒ No ☐

Seal pin chained to car & applied to cover

Yes ☒ No ☐

All four housing hole covers closed

Yes ☒ No ☐

Seal number for shipping 792221 SG for return 792224 SG

Comments:

Supervisor's approval for shipment:

Date: 2 JAN 05

Original - Traffic

Railcar Maintenance Report for Cars On Hand

Assigned Product: 111 - Chlorine

01-02-2005 01:04:01 PM

SBLX 014146

Facility Shipped From: RAYONIER INC: Rosser

Fleet / Subfleet: 111

Shipment Date: 12-21-2004 11:00:00 AM Shipment Status: On Hand

Last Product Shipped: Chlorine - 105015

Last Sighting: 12-28-2004 2:00:00 PM Sighting Status: 0256Z / Actual Placement

Sighting Location: NIXON, GA

Maintenance: 6/29/01 061 MACHINED ANGLE & SAFETY VALVE SEATING SURFACES, ALL WERE TOO SMALL. D.GEREN

05/15/03 PLEASE SEND TO SHOP FOR PAINT, MECH., HM-201 BY APPROXIMATELY 05/31/04. JWHITE

01/05/04 061 W53 CAR SHOPPING FOR FULL REPAINT, CORROSION INSPECTION, MECH INSP, HM-201 LALFORD

2/13/04 APPROVED ESTIMATE OF \$6,299.64 TO FITZ FOR HM-201 QUALIFICATION, HEMPEL PAINT, AND GENERAL REPAIRS. SBENNETT
02/20/04 CAR RETURNING FROM SHOP WITH NEW SAFETY VALVE (#20560M) AND ANGLE VALVES.

2/25/04 APPROVED INVOICE OF \$6,691.75 TO FITZ FOR HM-201 QUALIFICATION, HEMPEL PAINT, AND GENERAL REPAIRS. SBENNETT

03/04/04 061 CAR RETURNED FROM SHOP LALFORD

Delivery Notes:

Date Entered	Entered By	Maintenance Task	Date Last Performed	Date Due	Date Performed	Next Due Date
2004-03-09	LA2C	A. Angle Valve Test	2004-03-05	2005-03-31		
2004-03-09	LA2C	B. Safety Valve Test, Tan	2004-03-05	2007-03-31		
2004-03-03	SB6K	E. Tank Requalification	2004-02-20	2014-02-20		
2004-03-03	SB6K	G. Schd Shop (Paint/Repai	2004-02-20	2009-02-20		
2004-04-20	LA2C	J. Rule 88 Inspection	1997-07-01	2007-07-31		
2003-03-19	SID	K. Stub Sill Inspection		8888-08-08		

Reconditioned By: _____

Instructions for Railcar Maintenance:

- 1) Check maintenance due dates and take necessary action to railcars.
- 2) Compare maintenance due dates with those stenciled on the car.
Bring any discrepancies to the attention of the shipping supervisor.
- 3) Update railcar maintenance dates in the SAP/IT system for all maintenance work performed and for any missing dates.
- 4) Enter a note in the I/T maintenance comments field describing special actions needed or taken.

0000027

WEIGHT RECORDED BY

Olin CORP.

CHEMICALS DIV.

P.O. BOX 1234

AUGUSTA, GA 30913

10800211

20810706

DATE: 12-31-04

Gueb.

CAR INITIALS: SBLX

CAR NO: 14146

COMMODITY: Cl2

WEIGHER: WR /mu

WEIGHT

Marked Tare ☒

Actual Tare ☐

22729557 03/04/00
61200007 15
27100000 15
22110000 15

COMMENTS:

000028

BILL OF LADING - SHORT FORM

ORIGINAL NOT NEGOTIABLE

RECEIVED SUBJECT TO THE CLASSIFICATIONS AND TARIFFS IN EFFECT ON THE DATE OF THE ISSUE OF THIS BILL OF LADING.

Date Printed: 01/04/05 13:00:41 CST

FROM OLIN CORPORATION

PAGE: 1 OF 1

AT: Augusta Plant Nixon, GA		DATE: 01/04/05	DO NOT SUBMIT FREIGHT BILL WITHOUT THIS NUMBER OLIN REFERENCE NO: 20810710
ROUTE: NS		VEHICLE NO: UTLX900270 SEAL NO: 792287, 792286	OLIN ORDER NUMBER: 10800226
SHIP TO: 90000743 RHODIA INC; Charlesto 2151 KING ST EXT CHARLESTON SC 29405		CUSTOMER'S ORDER NO. 584855 3RD PARTY:	The property described below in apparent good order except as noted (contents and condition of contents of package unknown), marked consigned and destined as indicated below which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on it's route, otherwise to deliver to another carrier on the route to said destination. Is is mutually agreed, as to each carrier of all or any said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all terms and conditions of the uniform domestic straight bill of lading set forth (1) in uniform freight classification in effect on the date hereof, if this is a rail or rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment. Shipper hereby certifies that he is familiar with all the terms and conditions of the said Bill Of Lading, including those on the back thereof, set forth in the classification or tariff which governs the transportation of this shipment and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.
		FOR EMERGENCY RESPONSE: 800-424-9300 (US Only) 800-567-7455 (Canada Only)	
FREIGHT CHARGES ARE PREPAID FOB: Delivered (06P)	IF CHARGES ARE PREPAID MAIL PREPAID FREIGHT BILL TO: OLIN CORPORATION P.O. BOX 248 CHARLESTON, TN 37310-0248 (ACCTS PAYABLE)	CARRIER INSTRUCTIONS SEE BELOW	*If the shipment moves between two ports by a carrier by water, the law requires that the bill of lading state whether it is carrier's or shipper's weight. Note - Where the rate is dependent on released value the agreed or declared value of the property is hereby stated by the shipper to be not exceeding 200 CENTS PER POUND OR ANY OTHER LEVEL AUTHORIZED BY RRO-MC-972 Subject to Section 7 of This shipment is correctly conditions of applicable bill of lading, if this shipment is to be delivered to the consignee herein and subject to without recourse on the verification by the governing consignor, the consignor shall sign the following statement: Bureau, OLIN CORPORATION The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges. OLIN CORPORATION SIGNATURE OF CONSIGNOR

NO. OF PACKAGES	KIND OF PKGS	HM	DESCRIPTION OF ARTICLES SPECIAL MARKS AND EXCEPTIONS	NET WEIGHT (LBS)	CLASS OR RATE
1	RC	RQ	CHLORINE, 2.3 (8), UN1017, POISON INHALATION HAZARD HAZARD ZONE B MARINE POLLUTANT ERG NO.124 4920523 CHLORINE GAS, LIQUEFIED Chlorine 4 PLACARDS APPLIED	180,000 LB	

CARRIER INSTRUCTIONS

SHIPPING SEAL NUMBER MUST APPEAR ON BOL!!!

TOTAL GROSS WGT: 261,300 LB

***** THIS DOCUMENT IS NOT AN OFFICIAL BILL OF LADING. *****
 ***** OFFICIAL BILLS OF LADING ARE TRANSMITTED VIA EDI PER DOT-E 7616 *****

LARATION - APPLIES TO CONTAINERS AND IMO TYPE TANKS FOR EXPORT
 declared that the packing of the container/vehicle has been carried out in accordance
 the General Introduction, IMDG Code paragraph 12.3.7.

by declare that the contents of this consignment are fully and accurately described above by
 correct technical name(s) (proper shipping names(s)), and are classified, packaged, marked and
 id/placarded and are in all respects in proper condition for transport according to applicable
 national and national government regulations.

Carrier must report any spill of product with RQ in the HM column to:

NATIONAL RESPONSE CENTER (800) 424-8802 (TOLL FREE) by my signature
 below I acknowledge having either been provided the emergency response
 information by Olin or have this information in my possession.

OLIN CORPORATION, Shipper

Per ELIZABETH MUSE

Permanent post-office address of shipper, 490 Stuart Road N.E., Cleveland, TN 37312-4918

Agent

Per

ZVBOLCA CPR 034

000029

WEIGHT RECORDED BY

10800226

20810710

Olin CORP.

DATE: 1/4/05

CHEMICALS DIV.

P.O. BOX 1234

AUGUSTA, GA 30913

Rhodia

CAR INITIALS:

UTLX

CAR NO:

900270 FG

COMMODITY:

Cl₂

WEIGHER:

WR / WR

WEIGHT

Marked Tare ☒

Actual Tare ☐

13:41:58 03/08/00

G+261300 lb

2T+081300 lb

2N+180000 lb

COMMENTS:

12:15 AM 04 JAN 05

000000

AUGUSTA PLANT
CHLORINE TANK CAR INSPECTION AND LOADING

Car initials and number. UTLX 900270 Date: 1/2/05 Plant: Augusta

PRELOADING INSPECTION

OK

DEFECT OR NEEDED REPAIR

Couplers (must be double shelf) draft ✓

Wheels, springs, bearings ✓

Hand Brake ✓

Placard holders (4) ✓

Ladders and walkways ✓

Stencils (all must be legible) ✓

Date car painted: 6/04

Poor

Fair

Good ✓

Outer shell manway area: ✓

Poor

Fair

Good ✓

Outer shell seams: ✓

Poor

Fair

Good ✓

Is there a defect card? ✓

Yes

No ✓

Star before Ld. Lmt. ✓

Yes

No

Chemtrec sticker on both sides? ✓

Yes

No

Four inch Chlorine stencil both sides? ✓

Yes

No

Inhalation hazard stencil both sides? ✓

Yes

No

Is this car returning from the shop? ✓

Yes

No

Tank test date: 7/04

Due date: 7/07

Location: CTN

Safety valve date: 7/04

Due date: 7/07

Location: CTN

Angle valve recon. date: 7/04

Date: 7/05

Is date stenciled in dome? Yes No

Four angle valves passed preloading inspection: Yes No

By: CS

Reconditioned angle valves installed by: N/A

Date: N/A

LOADING

Stenciled Lt. Wt. 81300 Lbs.

Gross Wt. 261300 Lbs. By WR

(263,000 lbs. or less for 90T car)

Tare Wt. 81300 Lbs. By WR

(must be within 500# of stenciled Wt.)

Net Wt. 180000 Lbs. (must not exceed Ld. Lmt. Stencil)

OUTBOUND INSPECTION BY: WR

DATE: 1/4/05

All four 1017 placards applied Yes No

Empty return cable provided with green tag Yes No

All valve identity tags in place and Cl₂ product tags attached Yes No

Dome area cleaned of debris Yes No

Plugs installed in angle valves and wrench tight Yes No

Checked for leaks with ammonia by: S. Glasper

Seal pin chained to car & applied to cover Yes No

All four housing hole covers closed Yes No

Seal number for shipping 792287 SG for return 792286 SG

Comments: [Signature]

Supervisor's approval for shipment: [Signature]

Date: 4 JAN 05

Original - Traffic



AUGUSTA PLANT
RAIL CAR INSPECTION

Type Car: CL

Car Number: UTLX 900270

Date: 1/2/05

Inspector: CS

Paint VP P F G ✓
Stenciling VP P F G ✓

Safety valve test date: 7/04

Due: 7/07

Tank test date: 7/04

Due: 7/07

Thickness test date: 2004

Due: 2014

	Yes	No	Explain
Tank test date both sides of car?	<u>✓</u>		
Safety valve test date both sides of car?	<u>✓</u>		
Commodity stencil both sides?	<u>✓</u>		
Chemtrec decal both sides?	<u>✓</u>		
Four placard holders?	<u>✓</u>		
Appreciable dents in tank?		<u>✓</u>	
Signs of derailment?		<u>✓</u>	
Dome lid, chain and pin in place?	<u>✓</u>		
Ladders, walkways, handrails okay?	<u>✓</u>		
Wheels okay?	<u>✓</u>		
Brake Shoes okay?	<u>✓</u>		
Truck springs in place and okay?	<u>✓</u>		
Car on center bowl?	<u>✓</u>		
Roller Bearings okay?	<u>✓</u>		
Journals okay?	<u>✓</u>		
Hand brakes okay?	<u>✓</u>		
Couplers okay?	<u>✓</u>		

Remarks: _____

N/A

CHLORINE TANK CAR FILLING

CAR NUMBER UTL 900270

STARTED 8³⁰ pm 1/2 20 05

GROSS 261300

FINISHED 3:10 AM 1/4 2005

TARE 81300

DISCONNECTED BY WR

NET 180000

WEIGHTED BY: TARE 100 GROSS 100

FILLED FROM PRIMARY ☒ TAIL GAS ☐ STORAGE TANK ☐

[illegible]

GAS PRES. (P.S.I.G.) 22 SAFETY VALVE 7-04

AIR PRES. (P.S.I.G.) 88 TANK TEST 7-04

TOTAL PRES. (P.S.I.G.) 110

M 100 REVISED 1/77

BE SURE SCALES ARE FREE

000033

Henderson James

From: Hall, Rick CHAS [REDACTED]
Sent: Thursday, February 10, 2005 2:22 PM
To: Henderson James
Subject: RE: Loading temperature of Chlorine.

Jim, the system pressure for our chlorine sets the temperature based on vapor-liquid equilibrium. From the loading sheet for UTLX 900270 (copy in App. B of the Hazmat notes) the gas pressure was recorded at 22 psig. That translates based on the vapor pressure curve to about -25 C or -14 F. Also from the loading sheet, loading was complete at 3:10 AM on 1/4/2005. Let me know if you need any additional information.

Rick

From: Henderson James [REDACTED]
Sent: Thursday, February 10, 2005 9:57 AM
To: Hall, Rick CHAS
Subject: Loading temperature of Chlorine.

Rick - A question just came up. What was the loading temperature of the chlorine in the UTLX car and when was it loaded? What we would like to do is estimate the temperature the metal of the tank car shell during the impact. Earlier Board reports have addressed the response of metals to damage at temperatures below their ductile-to-brittle transition temperature. We would like to collect the same information on this tank. Thanks!

~~Jim H.~~

The information contained in this e-mail message is intended only for the personal and confidential use of the recipient(s) named above. If the reader of this message is not the intended recipient or an agent responsible for delivering it to the intended recipient, you are hereby notified that you have received this message and any attachments in error and that any review, dissemination, distribution, copying or alteration of this message and/or its attachments is strictly prohibited. If you have received this message in error, please notify the sender immediately by electronic mail, and delete the original message.

000031

02/10/2005

Railcar Maintenance Report for Cars On Hand

01-04-2005 06:43:41 AM

UTLX 900270

Assigned Product: 111 - Chlorine

Facility Shipped From: RHODIA;CHARLESTON

Fleet / Subfleet: 111

Shipment Date: 12-29-2004 6:00:00 AM Shipment Status: On Hand

Last Product Shipped: Chlorine - 105015

Last Sighting: 01-02-2005 5:00:00 PM Sighting Status: 0256Z / Actual Placement

Sighting Location: NIXON, GA

Maintenance: 2/3/93 W37 TO 061 - NEW IN SERVICE

12/99 061 TESTED AND EXEMPTED LALFORD

05/01 061 NO RULE 88B STENCILED ON CAR LALFORD

7/31/01 061 TO W42 CLEAN CAR SHOPPING FOR JACKET REPAIR, CORROSION INSP., PAINT AND REQUALIFICATION. D.GEREN

10/4/01 OUT SHOP (W42 TO 061) w. Smith

9/6/02 Car returning loaded from Brenntag in Taft Fl. Customer could not get one of the gas valves open. Check valves to answer complaint 30005650. GB

12/17/03 **Shop car for Tank Qualification approx. by 12/01/04 in order to meet E-11941 requirements** Call Kim Antinozzi with Union @ 404-255-8859 for dispo. P Yann****

04/04 061 W42 FULL REPAINT, EXTERNAL CORROSION INSPECTION, RULE 88B INSPECTION, THICKNESS & INTERNAL INSPECTION, HM-201, REPAIR BAD PLACE ON MANWAY SEATING SURFACE FOR PRESSURE PLATE ON CAR. LALFORD

6/23/04-MANWAY PRESSURE PLATE REPLACED AND TORQUED.CAR READY TO AIR DRY AND PRESSURE TEST AT PLANT.D.P.

07/06/04 061 CAR RETURNING FROM SHOP - REQUALIFIED/PAINT LALFORD

09/13/04 *****Do not load***** Send car empty to McIntosh or Charleston for needed repairs due to root cause analysis on SBLX 14150. Charleston or McIntosh must pull pressure plate before loading. If there are any questions please contact Bruce Fleming x4120 or Peter Yann x4833. P Yann

10/18/04 Per Bobby Fugate pressure plate pulled 07/28/04. P Yann

Delivery Notes:

Date Entered	Entered By	Maintenance Task	Date Last Performed	Date Due	Date Performed	Next Due Date
2004-07-30	LA2C	A. Angle Valve Test	2004-07-29	2005-07-31		
2004-10-19	LA2C	B. Safety Valve Test, Tan	2004-07-01	2007-07-31		

Instructions for Railcar Maintenance:

- 1) Check maintenance due dates and take necessary action to railcars.
- 2) Compare maintenance due dates with those stenciled on the car.
Bring any discrepancies to the attention of the shipping supervisor.
- 3) Update railcar maintenance dates in the SAP/IT system for all maintenance work performed and for any missing dates.
- 4) Enter a note in the I/T maintenance comments field describing special actions needed or taken.

000035

Appendix B
Part 2
Hazardous Materials Group Factual
Sodium Hydroxide

Graniteville, SC
DCA-05-MR-008

000033



MATERIAL SAFETY DATA

Product Name: Sodium Hydroxide Solution (50%)
 Revision Date: March 10, 2004
 Revision No.: 3

CAS or Chemical Name:	Water
CAS Number:	7732-18-5
Percentage Range:	45-55%
Hazardous Per 29 CFR 1910.1200:	No
Exposure Standards:	None established.

III - PRECAUTIONS FOR SAFE HANDLING AND STORAGE

DO NOT TAKE INTERNALLY. AVOID CONTACT WITH SKIN, EYES AND CLOTHING. UPON CONTACT WITH SKIN OR EYES, WASH OFF WITH WATER. AVOID BREATHING VAPOR OR MIST.

STORAGE CONDITIONS:

DO NOT STORE AT TEMPERATURES ABOVE: 130° C (266° F)

PRODUCT STABILITY AND COMPATIBILITY:

SHELF LIFE LIMITATIONS:	Indefinite if in closed container.
INCOMPATIBLE MATERIALS FOR PACKAGING:	Aluminum, zinc, tin, wood, paper
INCOMPATIBLE MATERIALS FOR STORAGE OR TRANSPORT:	Acids, nitrogen containing organics, phosphorous, explosives, organic peroxides, aluminum, zinc, tin, halogenated hydrocarbons

IV - PHYSICAL DATA

Appearance:	Clear, viscous liquid
Freezing Point:	10-12° C (50-54° F)
Boiling Point:	130-140° C (266-284° F)
Decomposition Temperature:	None
Specific Gravity:	1.482-1.53
Bulk Density:	Not Applicable
pH @ 25° C:	13 (0.5% Solution)
Vapor Pressure @ 25° C:	Approximately equal to water
Solubility in Water:	Miscible
Volatiles, Percent by Volume:	45-55
Evaporation Rate:	No Data
Vapor Density:	No Data
Molecular Weight:	40.01 (Active agent)
Odor:	None
Coefficient of Oil/Water Distribution:	No Data



MATERIAL SAFETY DATA

Product Name: Sodium Hydroxide Solution (50%)

Revision Date: March 10, 2004

Revision No.: 3

V - PERSONAL PROTECTIVE EQUIPMENT REQUIREMENTS

Personal Protection for Routine Use of Product:

Respiratory Protection:	If mists, or aerosols are generated and are not controlled below the TLV with ventilation wear a NIOSH approved dust/mist respirator.
Ventilation:	Use Local exhaust ventilation to maintain levels to below the TLV.
Skin and Eye Protection:	Wear gloves, boots, face shield with chemical goggles, apron or impermeable suit to avoid skin and eye contact.
Other:	Emergency eye wash and safety showers must be made available in the immediate work area.

Equipment Specifications (When Applicable):

Respirator Type:	NIOSH N95 filter respirator, or better.	
Protective Clothing Type:	GLOVE TYPE:	Neoprene
(This includes: gloves, boots, apron, protective suit.)	BOOT TYPE:	Neoprene
	APRON TYPE:	Neoprene
	PROTECTIVE SUIT:	Neoprene

VI - FIRE AND EXPLOSION HAZARD INFORMATION

Flammability Data:

Explosive:	
Flammable:	No
Combustible:	No
Pyrophoric:	No
Flash Point:	Not Applicable
Autoignition Temperature:	Not Applicable
Flammable Limits at Normal Atmospheric Temperature and Pressure (Percent Volume in Air):	Not Applicable

NFPA Ratings:

Health:	3
Flammability:	0
Reactivity:	1

HMIS Ratings:

Health:	3
Flammability:	0
Reactivity:	1

Extinguishing Media:

Not Applicable - Choose extinguishing media suitable for surrounding materials.

**MATERIAL
SAFETY DATA**

Product Name: Sodium Hydroxide Solution (50%)
Revision Date: March 10, 2004
Revision No.: 3

Fire Fighting Techniques and Comments:

Use water to cool containers exposed to fire. Contact with reactive metals, e.g., aluminum may result in the generation of flammable hydrogen gas. See Section XI for protective equipment for fire fighting. Sodium Hydroxide may react with water. (See Section 7). On small fires, use dry chemical, carbon dioxide, water spray, or foam. On large fires, use water-flooding quantities as a fog.

VII - REACTIVITY INFORMATION**Conditions Under Which This Product May Be Unstable:**

Temperatures Above:	None
Mechanical Shock or Impact:	No
Electrical (Static) Discharge:	No
Other:	Contact with carbohydrates, aluminum, zinc, and tin.
Hazardous Polymerization:	Will not occur
Incompatible Materials:	Acids, nitrogen containing organics, explosives, carbohydrates, phosphorous, organic peroxides, halogenated hydrocarbons
Hazardous Decomposition:	Contact with carbohydrates can produce carbon monoxide. Contact with aluminum, zinc, or tin can produce hydrogen gas.

Summary of Reactivity:

Explosive:	No
Oxidizer:	No
Pyrophoric:	No
Organic Peroxide:	No
Water Reactive:	No
Corrosive:	Yes

VIII - FIRST AID**Eyes**

Immediately flush with large amounts of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Seek medical attention at once.

Skin

Immediately flush with water for at least 15 minutes. Seek medical attention. If clothing, shoes and/or jewelry come in contact with the product, they should be removed immediately and laundered before re-use.

Ingestion

Immediately drink large quantities of water. DO NOT induce vomiting. Seek medical attention at once. DO NOT give anything by mouth if the person is unconscious or if having convulsions.

**MATERIAL
SAFETY DATA**

Product Name: Sodium Hydroxide Solution (50%)
Revision Date: March 10, 2004
Revision No.: 3

Inhalation

If person experiences nausea, headache or dizziness, person should stop work immediately and move to fresh air until these symptoms disappear. If breathing is difficult, administer oxygen, keep the person warm and at rest. Seek medical attention. In the event that an individual inhales enough vapors to lose consciousness, person should be moved to fresh air at once and seek medical attention immediately. If breathing has stopped, artificial respiration should be given immediately. In all cases, ensure adequate ventilation and provide respiratory protection before the person returns to work.

IX - TOXICOLOGY AND HEALTH INFORMATION**Routes of Absorption**

Inhalation, skin and eye contact, ingestion

Warning Statements and Warning Properties

HARMFUL IF SWALLOWED. CAUSES SKIN, EYE, DIGESTIVE TRACT AND RESPIRATORY TRACT BURNS. CAN CAUSE LUNG DAMAGE.

Human Threshold Response Data

Odor Threshold:	No data.
Irritation Threshold:	No data.
Immediately Dangerous to Life or Health:	10 mg/M ³ .

Signs, Symptoms and Effects of Exposure**Inhalation**

Acute:	Inhalation of this material is irritating to the nose, mouth, throat and lungs. It may also cause burns to the respiratory tract, which can result in shortness of breath, wheezing, choking, chest pain, and impairment of lung function. Inhalation of high concentrations can result in permanent lung damage.
Chronic:	Chronic (repeated) inhalation exposure may cause impairment of lung function and permanent lung damage.

Skin

Acute:	Dermal exposure can cause severe irritation and/or burns characterized by redness, swelling and scab formation. Prolonged skin exposure may cause permanent damage.
Chronic:	Effects from chronic skin exposure would be similar to those from single exposure except for effects secondary to tissue destruction.

Eye

Severe irritation and/or burns can occur following eye exposure. Direct contact may cause impairment of vision and corneal damage.

**MATERIAL
SAFETY DATA**

Product Name: Sodium Hydroxide Solution (50%)
Revision Date: March 10, 2004
Revision No.: 3
Ingestion

Acute:	Irritation and/or burns can occur to the entire gastrointestinal tract, including the stomach and intestines, characterized by nausea, vomiting, diarrhea, abdominal pain, and bleeding and/or tissue ulceration. Ingestion causes severe damage to the gastrointestinal tract with the potential to cause perforation.
Chronic:	There are no known or reported effects from chronic exposure. Chronic ingestion of significant amounts of this product is unlikely because of its acute corrosive action.

Medical Conditions Aggravated by Exposure

Asthma, respiratory and cardiovascular disease

Interactions with Other Chemicals Which Enhance Toxicity

There are no chemicals known to enhance the toxicity of the product.

Animal Toxicology**Acute Toxicity**

Inhalation LC 50: No Data
Oral LD 50: Believed to be 300 - 500 mg/kg. (rat); harmful if swallowed
Dermal LD 50: Believed to be > 2 g/kg. (rabbit)
Irritation: Causes burns to eyes and skin.

Acute Target Organ Toxicity

This product is corrosive to all tissues contacted and upon inhalation, may cause irritation to mucous membranes and respiratory tract.

Chronic Target Organ Toxicity

There are no known or reported effects from repeated exposure except that secondary to burns.

Reproductive and Developmental Toxicity

There are no known or reported effects on reproductive function or fetal development from exposure to this product.

Carcinogenicity

This product is not known or reported to be carcinogenic by any reference source including IARC, OSHA, NTP, or EPA.

Ingestion of massive doses of sodium hydroxide has led to the development of tumors of the esophagus. The relevance of these findings to cancer is unknown due to repeated tissue destruction and scar formation as a result of the corrosive nature of sodium hydroxide.

Mutagenicity

Sodium hydroxide has been tested and was found to be non-mutagenic in the Ames



MATERIAL SAFETY DATA

Product Name: Sodium Hydroxide Solution (50%)
Revision Date: March 10, 2004
Revision No.: 3

assay, a bacterial DNA-repair test and in the Syrian hamster embryo (SA7/SHE) cell transformation assay.

Aquatic Toxicity

Caustic soda is not lethal to fully developed fish in natural fresh waters until the pH becomes greater than 9.0:

Lethal pH for Goldfish: 10.9

Lethal pH for Bluegill sunfish: 10.5

Gambusia affinis (mosquito fish), 96 hr. LC50: 125 mg/l

Bluegill, 48 hr. LC50: 99 mg/l

X - TRANSPORTATION INFORMATION

THIS MATERIAL IS REGULATED AS A DOT HAZARDOUS MATERIAL.

DOT Description from the Hazardous Materials Table 49 CFR 172.101:

Land (U.S. DOT):	SODIUM HYDROXIDE SOLUTION, 8, UN1824, PG 11
Water (IMO):	SAME AS ABOVE
Air (IATA/ICAO):	SAME AS ABOVE
Hazard Label/Placard:	CORROSIVE
Reportable Quantity:	1000 lbs. (Per 49 CFR 172.101, Appendix)
Emergency Guide:	154

XI - SPILL AND LEAKAGE PROCEDURES

FOR ALL TRANSPORTATION ACCIDENTS, CALL CHEMTREC AT 800-424-9300.

Reportable Quantity: 1000 lbs. (Per 40 CFR 302.4)

Spill Mitigation Procedures:

Hazardous concentrations in air may be found in local spill area in the form of a mist, which may cause skin irritation and breathing problems. Stop source of spill as soon as possible, if safe to do so.	
Air Release:	Will normally be found in a mist form and evacuation from the mist area is the only advisable approach. Correction of the source of mist is of the utmost importance.
Water Release:	This material is heavier than and is soluble in water. This material is subject to emulsification and must be removed via a vacuum system or neutralized and absorbed as necessary, with various commercial absorbents, which are available. Notify all downstream industrial, municipal and public operation of this spill and advise them to monitor until otherwise notified.
Land Spill:	Dike or divert flow of material to a diked area as soon as possible. If necessary create an excavation large enough to contain the spill and associated neutralization materials. To reduce environmental damage, line the excavated surface with a material to which it is compatible and begin neutralization process or remove by vacuum, or pumping.

**MATERIAL
SAFETY DATA**

Product Name: Sodium Hydroxide Solution (50%)
Revision Date: March 10, 2004
Revision No.: 3

Spill Residues:

Dispose of per guidelines under Section 12, WASTE DISPOSAL.

This material may be neutralized for disposal; you are requested to contact OCEAN at 800-2891-911 before beginning any such operation.

Personal Protection for Emergency Spill and Firefighting Situations:

In case of fire use normal fire fighting equipment (including self contained breathing apparatus: SCBA).

A hazardous physical characteristic of this product is: corrosive

XII - WASTE DISPOSAL

If this product becomes a waste, it meets the criteria of a hazardous waste as defined under 40 CFR 261 and would have the following EPA hazardous waste number: D002.

If this product becomes a waste, it will be a hazardous waste, which is subject to the Land Disposal Restrictions under 40 CFR 268 and must be managed accordingly.

As a hazardous liquid waste, it must be disposed of in accordance with local, state and federal regulations in a permitted hazardous waste treatment, storage and disposal facility by treatment.

CARE MUST BE TAKEN TO PREVENT ENVIRONMENTAL CONTAMINATION FROM THE USE OF THIS MATERIAL. THE USER OF THIS MATERIAL HAS THE RESPONSIBILITY TO DISPOSE OF UNUSED MATERIAL, RESIDUES AND CONTAINERS IN COMPLIANCE WITH ALL RELEVANT LOCAL, STATE AND FEDERAL LAWS AND REGULATIONS REGARDING TREATMENT, STORAGE AND DISPOSAL FOR HAZARDOUS AND NONHAZARDOUS WASTES.

XIII - ADDITIONAL REGULATORY STATUS INFORMATION**TOXIC SUBSTANCES CONTROL ACT:**

This substance is listed on the Toxic Substances Control Act inventory.

NSF LIMITS: NSF Maximum Drinking Water Use Concentration - 100 mg/l

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT TITLE III:

HAZARD CATEGORIES, PER 40 CFR 370.2:

HEALTH:

Immediate (Acute)

PHYSICAL:

None

EMERGENCY PLANNING AND COMMUNITY RIGHT TO KNOW, PER 40 CFR 355, APP.A:

EXTREMELY HAZARDOUS SUBSTANCE - THRESHOLD PLANNING QUANTITY:

None Established

SUPPLIER NOTIFICATION REQUIREMENTS, PER 40 CFR 372.45:

None Established

**MATERIAL
SAFETY DATA**

Product Name: Sodium Hydroxide Solution (50%)
Revision Date: March 10, 2004
Revision No.: 3

XIV - ADDITIONAL INFORMATION**XV - MAJOR REFERENCES**

1. DeFlora, Silvio, et al., Genotoxic Activity and Potency of 135 Compounds in the Ames Reversion Test and in a Bacterial DNA-Repair Test. Mutation Research, Vol. 133, pp. 161-198, 1984.
2. ACGIH Documentation of the Threshold Limit Values and Biological Exposure Indices, Sixth Edition, 1997. American Conference of Governmental Industrial Hygienists, Inc., Cincinnati, OH.
3. Federal Register, Vol. 53, No. 237, Friday, December 8, 1988, 49688-49690. 40 CFR Part 372, Sodium Hydroxide: Toxic Chemical Release Reporting, Community Right-to-Know.
4. AQUIRE Database (aquatic toxicity), Chemical Information Systems, Inc. (a division of PSI International, Inc.), Towson, MD.
5. TOXNET Database, U.S. National Library of Medicine, Bethesda, MD.
6. Forsberg, K., and S.Z. Mansdorf, Quick Selection Guide to Chemical Protective Clothing, Second Edition, Van Nostrand Reinhold, N.Y., 1993.
7. 3M 1995 Respirator Selection Guide. 3M Occupational Health and Environmental Safety Division, St. Paul, MN., 1995.

Other References are available upon request.

THE INFORMATION IN THIS MATERIAL SAFETY DATA SHEET SHOULD BE PROVIDED TO ALL WHO WILL USE, HANDLE, STORE, TRANSPORT, OR OTHERWISE BE EXPOSED TO THIS PRODUCT. THIS INFORMATION HAS BEEN PREPARED FOR THE GUIDANCE OF PLANT ENGINEERING, OPERATIONS AND MANAGEMENT AND FOR PERSONS WORKING WITH OR HANDLING THIS PRODUCT. OLIN BELIEVES THIS INFORMATION TO BE RELIABLE AND UP TO DATE AS OF THE DATE OF PUBLICATION, BUT MAKES NO WARRANTY THAT IT IS. ADDITIONALLY, IF THIS MATERIAL SAFETY DATA SHEET IS MORE THAN THREE YEARS OLD, YOU SHOULD CONTACT OLIN AT THE PHONE NUMBER LISTED BELOW TO MAKE CERTAIN THAT THIS SHEET IS CURRENT.

ORC MSDS Control Group
Olin Chlor Alkali
1186 Lower River Road
P. O. Box 248
Charleston, TN 37310
Phone Number: (800)-658-MSDS (6737)

STRAIGHT BILL OF LADING - SHORT FORM

ORIGINAL NOT NEGOTIABLE

RECEIVED SUBJECT TO THE CLASSIFICATIONS AND TARIFFS IN EFFECT ON THE DATE OF THE ISSUE OF THIS BILL OF LADING.

Date Printed: 01/04/05 12:59:02 CST

FROM OLIN CORPORATION

PAGE: 1 OF 2

AT: Augusta Plant Nixon, GA		DATE: 01/04/05		DO NOT SUBMIT FREIGHT BILL WITHOUT THIS NUMBER	
ROUTE: NS		VEHICLE NO: GATX058326		OLIN REFERENCE NO: 20810711	
		SEAL NO: 790968, 790961, 790962		OLIN ORDER NUMBER: 10801377	
SHIP TO: 90000702 JONES CHEMICALS INC; Charlotte 1500 TARHEEL ROAD CHARLOTTE NC 28208		CUSTOMER'S ORDER NO. 30-2215 3RD PARTY:		The property described below in apparent good order except as noted (contents and condition of contents of package unknown), marked consigned and destined as indicated below which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on it's route, otherwise to deliver to another carrier on the route to said destination. Is is mutually agreed, as to each carrier of all or any said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all terms and conditions of the uniform domestic straight bill of lading set forth (1) in uniform freight classification in effect on the date hereof, if this is a rail or rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment. Shipper hereby certifies that he is familiar with all the terms and conditions of the said Bill Of Lading, including those on the back thereof, set forth in the classification or tariff which governs the transportation of this shipment and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.	
		FOR EMERGENCY RESPONSE: 800-424-9300 (US Only) 800-567-7455 (Canada Only)			
FREIGHT CHARGES ARE PREPAID FOB: Charlotte, NC (06P)	IF CHARGES ARE PREPAID MAIL PREPAID FREIGHT BILL TO: OLIN CORPORATION P.O. BOX 248 CHARLESTON, TN 37310-0248 (ACCTS PAYABLE)	CARRIER INSTRUCTIONS SEE BELOW	*If the shipment moves between two ports by a carrier by water, the law requires that the bill of lading state whether it is carrier's or shipper's weight. Note - Where the rate is dependent on released value the agreed or declared value of the property is hereby stated by the shipper to be not exceeding 200 CENTS PER POUND OR ANY OTHER LEVEL AUTHORIZED BY RRO-MC-972	Subject to Section 7 of conditions of applicable bill of lading, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement: The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges. OLIN CORPORATION SIGNATURE OF CONSIGNOR	This shipment is correctly described. Gross weights of this shipment are correct as shown herein and subject to verification by the governing Weighing and Inspection Bureau. OLIN CORPORATION SIGNATURE OF CONSIGNOR

NO. OF PACKAGES	KIND OF PKGS	HM	DESCRIPTION OF ARTICLES SPECIAL MARKS AND EXCEPTIONS	NET WEIGHT (LBS)	CLASS OR RATE
1	RC	RQ	SODIUM HYDROXIDE SOLUTION, 8, UN1824, PG II, ERG NO.154 4935240 CAUSTIC SODA LIQUID Caustic 50% Rayon Grade 4 PLACARDS APPLIED	191,750 LB	

CARRIER INSTRUCTIONS

UNLOADING POINT: Jones, Charlotte Plant

FOR TRUCKS: DELIVER AT:

Carrier: After delivery please fax signed Bill of Lading AND shipper(Olin) B/L to Sheri Henderson at 704-392-7412

c of a with driver

full tanktruck

Truck driver must send his name and picture ID to Jones prior to arrival or truck will be refused. Fax to: 704-392-7412

FOR RAILCARS: SEND COIL CARS DECEMBER - MARCH

TOTAL GROSS WGT: 253,850 LB

***** THIS DOCUMENT IS NOT AN OFFICIAL BILL OF LADING. *****

DECLARATION - APPLIES TO CONTAINERS AND IMO TYPE TANKS FOR EXPORT
It is declared that the packing of the container/vehicle has been carried out in accordance with the General Introduction, IMDG Code paragraph 12.3.7.

I hereby declare that the contents of this consignment are fully and accurately described above by the correct technical name(s) (proper shipping names(s)), and are classified, packaged, marked and labeled/placarded and are in all respects in proper condition for transport according to applicable international and national government regulations.

Carrier must report any spill of product with RQ in the HM column to:

NATIONAL RESPONSE CENTER (800) 424-8802 (TOLL FREE) by my signature below I acknowledge having either been provided the emergency response information by Olin or have this information in my possession.

000045

OLIN CORPORATION, Shipper

Agent

Per ELIZABETH MUSE

Per

Permanent post-office address of shipper, 490 Stuart Road N.E., Cleveland, TN 37312-4918

ZVBOLCA CPR 034



AUGUSTA PLANT
CAUSTIC TANK CAR INSPECTION

Car initials and number: GATX 5832C Car size: 16141 Date: 1/4/05

Plant: Augusta

PRELOADING INSPECTION

INITIALLED

DEFECT OR NEEDED REPAIR

Couplers (must be double shelf) draft sill

VR

Wheels, springs, bearings

VR

Hand Brake

VR

Placard holders (4)

VR

Ladders and walkways

VR

Loading Hose Inspection

VR

Security Inspection

VR

Paint: Poor Fair Good /

Outer shell manway area: Poor Fair Good /

Outer shell seams: Poor Fair Good /

Is there a defect card? Yes No / (if yes, make copy-send to Traffic Dept. replace in holder)

Stencils (all must be legible)

Is there a "C", "M", or "RC" label on the manway opening?

Yes No / If yes, follow steps 12-15.

Gross Wt. 253850 By VR

Tare Wt. 62100 By VR

Net Wt. 191750 By VR

ANALYSIS

NAOH 50.04

NA₂CO₃ .03

NACL % .003

NA₂O 38.77

PPM Fe .0002

76% LBS.

STENCILS/LINING/PAINT

lining type: Phen Guard Date lined 1-98 Place GA

lining condition: Tank: Poor Fair Good /

date car painted: 7-98 Place: GA

ank test date: 1998 Year Due: 2008

lve test date: 1999 Year Due: 2009

nk test pressure: 75 PSI

pture disc pressure: 75 PSI

(If equipped with safety valve,
car CAN NOT HAVE "Not For
Flammable Liquid" stenciled on
car.)
(If equipped with rupture disc 60
lbs. test requires 80 lbs.-disc,
100 lbs. test requires 165 lbs.
disc.)
(If equipped with rupture disk,
car MUST BE STENCILED "Not
for Flammable Liquids.")

METTLER TOLEDO DL55 Titrator V2.4

Method 100 Caustic Analysis 01/21/2003 1:47 pm
Measured 01/04/2005 10:10 am
User

SAMPLE DATA

No.	Status	Sample size	Corr. f	Method	ID
1	active	0.5815 g	1.0	100	

RESULTS

No.	ID	Sample size and results			
1		0.5815 g			
		R1 = 50.04 %		NaOH	
		R2 = 38.77 %		Na2O	
		R3 = 14.551 ml		titrated	

Seq # 6
GATX 58326

000047

GATX 058326

Railcar Maintenance Report for Cars On Hand

Assigned Product: 112 - Caustic

01-04-2005 06:43:41 AM

Facility Shipped From: CLARIANT CORPORATION: MartinShipment Date: 12-20-2004 2:00:00 PM Shipment Status: On HandLast Sighting: 12-31-2004 3:00:00 PM Sighting Status: 0256Z / Actual PlacementMaintenance: 7/31/90 CAR SCHEDULED FOR RATCHET VALVE RETROFIT TO A TOP OPERATED BOV. SES555
8/21/90 058 TO WAYX(W12)-SVT-I.O. 7666-TT(GATX SAYS SVT DUE?)
10/17/90 W12 TO 058(ALSO HAD SVT-PT/U-LAST PT 9/86)
12/13/90 \$5336 RETRO PD7/30/91 VRV REMOVED AT 058
11/26/91 LECOMTE TO CK AVAILABILITY FOR SIGMA PT TEST/SES
12/17/91 058 TO WAYX(W12)-PT(LAST 9/86)-CI(IS WASHED)2/14/92 W12 TO 058
3/9/92 \$300 PT PD11/01/96 058 TO W54 FOR SSI.RWF11/4/97 061 TO W12(WAYX) FOR RELINE. CLEAN //ABS
1/22/98 W12 TO 061 PAINED AND LINED. GB
1/22/98 W12 ALSO TT AND SVT. GB01/01 061 NO RULE 88B STENCILED ON CAR LALFORD5/20/02 NF CST rec'd call from Betty Qualls, Solutia/Decater AL, car had damage B-end, shelf coupler & catwalk, rec'd in that cond. on 5/9. No defect or BO card. Asked her to contact NSRR, notify them car arrived this way, Laura @ NSRR said car crew would look at car. Car was emptied by cust. M.WinstelFleet / Subfleet: 112Last Product Shipped: Caustic 50% Rayon Grade - 105016Sighting Location: NIXON, GA

Lining Type: _____

Delivery Notes: _____

Date Entered	Entered By	Maintenance Task	Date Last Performed	Date Due	Date Performed	Next Due Date
2000-09-25	LA2C	B. Safety Valve Test, Tan	1999-01-01	2009-01-31		
2000-09-25	LA2C	E. Tank Requalification	1998-01-01	2008-01-31		

Instructions for Railcar Maintenance:

- 1) Check maintenance due dates and take necessary action to railcars.
- 2) Compare maintenance due dates with those stenciled on the car.

Bring any discrepancies to the attention of the shipping supervisor.

- 3) Update railcar maintenance dates in the SAP/IT system for all maintenance work performed and for any missing dates.
- 4) Enter a note in the I/T maintenance comments field describing special actions needed or taken.

00000000

WEIGHT RECORDED BY

10801377

20810711

Olin CORP.

DATE: 1-3-05

CHEMICALS DIV.

P.O. BOX 1234

AUGUSTA, GA 30913

Jones Char.

CAR INITIALS: GATX

CAR NO: 58326 8G

COMMODITY: NAOH

WEIGHER: VR

WEIGHT

Marked Tare ☒

Actual Tare ☐

15:53:45 03/08/00

G+253850 lb

BT+062100 lb

GN+191750 lb

COMMENTS: _____

04:27 AM 04 JAN 05

000049