

MATERIAL SAFETY DATA SHEET

spattering. Use water spray to absorb corrosive vapors.

SPECIAL FIREFIGHTING PROCEDURES:

SCBA recommended with a full face piece operated in pressure-demand mode or other positive pressure mode. Wear full protective clothing. Run-off may cause pollution. Dike to contain run-off for proper handling as stated in Section VII.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

Negligible fire hazard when exposed to heat or flame.

FLAMMABILITY - T.D.G.R. CLASS:

Not classified as flammable or combustible

HAZARDOUS COMBUSTION PRODUCTS:

Thermal decomposition products may include toxic and hazardous oxides of carbon and sodium.

EXPLOSION DATA - SENSITIVITY TO IMPACT:

No Information

EXPLOSION DATA - SENSITIVITY TO STATIC DISCHARGE:

No Information

===== SECTION V - REACTIVITY DATA =====

STABILITY:

Stable under normal temperatures and pressures.

CONDITIONS TO AVOID:

Flammable hydrogen gas may be generated upon contact with metals such as aluminum, tin and zinc.

INCOMPATIBILITY (MATERIALS TO AVOID):

Acids. This product is alkaline - avoid contact with acidic materials. Addition of water creates heat and may cause spattering. Prolonged contact with metals such as aluminum, tin, lead and zinc may produce flammable hydrogen gas.

HAZARDOUS DECOMPOSITION OR BYPRODUCTS:

Thermal decomposition products may include toxic and hazardous oxides of carbon and sodium.

HAZARDOUS POLYMERIZATION:

May cause the violent polymerization of acetaldehyde, acrolein or acrylonitrile.

===== SECTION VI - TOXICOLOGICAL PROPERTIES =====

ROUTES OF ENTRY:

Ingestion, inhalation, skin and eyes.

INHALATION HEALTH RISKS AND SYMPTOMS OF ACUTE EXPOSURE:

SODIUM HYDROXIDE: CORROSIVE. 200 mg/m³ is immediately dangerous to life and health. The effects may vary from mild irritation of the nose at 2 mg/m³ to severe pneumonitis, depending upon the severity of exposure. Low concentrations may cause sore throat, coughing, and labored breathing. Intense exposures may result in delayed pulmonary edema.

EYE CONTACT HEALTH RISKS AND SYMPTOMS OF ACUTE EXPOSURE:

Causes severe burns to eyes. Eye damage may be permanent. SODIUM HYDROXIDE: Corrosive. Contact may cause disintegration and sloughing of conjunctival and corneal epithelium, corneal opacification, marked edema and ulceration. After 7-13 days, either gradual recovery begins or there is progression of ulceration and corneal opacification.

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Complications of severe eye burns are symblepharon with overgrowth of the cornea by a vascularized membrane, progression or recurrent corneal laceration and permanent corneal opacification.

SKIN ABSORPTION HEALTH RISKS AND SYMPTOMS OF ACUTE EXPOSURE:

Causes severe burns to skin and all body tissues.

INGESTION HEALTH RISKS AND SYMPTOMS OF ACUTE EXPOSURE:

Harmful if swallowed. Ingestion may cause burns to the mouth and esophagus. SODIUM HYDROXIDE: Corrosive. May cause severe abdominal pain, corrosion of the lips, mouth, tongue and pharynx, and vomiting of large pieces of mucosa. Asphyxia can occur from swelling of the throat. Perforation of the esophagus and stomach may occur. Cases of squamous cell carcinoma of the esophagus have occurred with latent periods of 12-42 years after ingestion. These cancers are believed to be sequela of tissue destruction and possibly scar formation rather than the result of direct carcinogenic action of the sodium hydroxide.

INHALATION HEALTH RISKS AND SYMPTOMS OF CHRONIC EXPOSURE:

SODIUM HYDROXIDE: Prolonged exposure may cause bronchial irritation, coughing, bronchial pneumonia and gastrointestinal disturbances.

EYE CONTACT HEALTH RISKS AND SYMPTOMS OF CHRONIC EXPOSURE:

SODIUM HYDROXIDE: Contact at low levels may cause conjunctivitis.

SKIN ABSORPTION HEALTH RISKS AND SYMPTOMS OF CHRONIC EXPOSURE:

SODIUM HYDROXIDE: Repeated exposure may cause dermatitis.

INGESTION HEALTH RISKS AND SYMPTOMS OF CHRONIC EXPOSURE:

SODIUM HYDROXIDE: There is no data available on the chronic effects of ingestion of this material.

CARCINOGENICITY:

NTP CARCINOGEN: Not known to have any carcinogenic components.

IARC MONOGRAPHS: No

TERATOGENICITY:

No Information.

MUTAGENICITY:

No Information.

IRRITANCY:

Corrosive

SENSITIZATION:

No information.

SYNERGISTIC PRODUCTS:

None known.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:

N/AV

ADDITIONAL INFORMATION:

N/AV

===== SECTION VII - PREVENTIVE MEASURES =====

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

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Do not touch spilled material. Stop leak if you can without risk. For SMALL SPILLS pick up spill with vacuum equipment (alkali resistant) for disposal, or flush to holding area with water. Neutralize residues with dilute acid and rinse with water.

For LARGER SPILLS, dike far ahead of spill for later disposal. Keep unnecessary people away from area. Isolate hazard area and deny entry.

A spill or release of sodium hydroxide may trigger the emergency release reporting requirements under SARA, Title III (40CFR, Part 355) and /or CERCLA (40CFR, Part 300). State or local reporting requirements may differ from federal requirements. Consult counsel for further guidance on your responsibilities under these laws.

WASTE DISPOSAL METHOD:

Waste caustic must NEVER be discharged directly to sewers or surface waters. First convert to neutral salts and dilute well with water. Inform legal authorities of uncontrolled spills.

RESOURCE CONSERVATION & RECOVERY ACT (RCRA) REQUIREMENTS:

As currently defined in the federal Resource Conservation Act (RCRA), sodium hydroxide, when discarded, is a hazardous waste as defined under 40 CFR 261.22 as exhibiting the characteristics of corrosivity. Its disposal is, therefore, regulated by federal RCRA regulations.

CLEAN WATER ACT REQUIREMENTS:

NaOH is listed under Section 311 as requiring the submission of a National Pollutant Discharge Elimination System (NPDES) permit application to the EPA. Once a permit is issued, NaOH is exempted from the reporting requirements of Section 311 relating to spills.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:

Store in well sealed containers which are protected from physical damage. Avoid handling conditions that can lead to spills or mist formation. Drains must have retention basins for pH adjustment and neutralization of spilled materials and flushings prior to discharge. Have abundant running water available where material is stored, unloaded or handled. Store above the freezing point of water. DO NOT store in ALUMINUM containers as flammable hydrogen gas can be generated. Do not use aluminum fittings or transfer lines. Avoid contact with acids. DO NOT permit workers to handle caustic materials without proper training and proper equipment. Avoid contact with incompatible chemicals listed in Section V.

OTHER PRECAUTIONS:

N/AV

RESPIRATORY PROTECTION:

None needed for normal operating conditions. Have available and wear as appropriate for exposure limits: NIOSH/MSHA approved respirator. Supplied-air respirator with a full face-piece, helmet or hood; self-contained breathing apparatus with a full face-piece.

ENGINEERING CONTROLS (VENTILATION):

Provide natural or mechanical ventilation to minimize exposure, especially where possibility of mist formation exists. If practical, use local mechanical exhaust ventilation at sources of air contamination such as open process equipment. Consult NFPA Standard 91 for design exhaust systems.

PROTECTIVE GLOVES:

Employee must wear appropriate protective gloves to prevent contact with this substance.

EYE PROTECTION:

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Employee must wear splash proof and/or dust-resistant safety goggles with a full face-shield to prevent eye contact with this substance. DO NOT WEAR CONTACT LENSES.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT:

Apron or protective clothing, and rubber boots (tops covered by apron or clothing to prevent entrance of material).

WORK/HYGIENIC PRACTICES:

Where there is any possibility that an employee's eyes may be exposed to this substance, the employer shall provide an eye-wash fountain within the immediate work area for emergency use.

SHIPPING CLASSIFICATIONS:

TDG REGULATION (TRANSPORT DANGEROUS GOODS Schedule 1):

UN 1824, Sodium Hydroxide Solution, Class 8, PG II

U.S.DOT CLASSIFICATION (49 CFR 172.101):

UN 1824, Sodium Hydroxide Solution, Class 8, PG II

U.S. SUPERFUND AMENDMENTS & REAUTHORIZATION ACT (SARA) REQUIREMENTS:

SARA TITLE III (Sections 302 & 304 Extremely Hazardous Substances):

The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III, Section 302 requires notification of the State Emergency Response Commission (SERC) and Local Emergency Planning Committee (LEPC) of the presence of Extremely Hazardous Substances (EHS), 40 CFR 355 Appendix A, in amounts in excess of the threshold planning quantity (TPQ).

Extremely Hazardous Substances contained in this product are: ***NONE***. Section 304 requires notification of SERC and LEPC of releases involving a RQ of an EHS or CERCLA Hazardous Substance.

Sodium hydroxide is considered a CERCLA Hazardous substance with a reportable quantity (RQ) of 33,333 lbs of NEW CONCEPT F-222.

SARA TITLE III (Sections 311 & 312 Hazardous Chemicals):

This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories: An Immediate (Acute) Health Hazard. A Reactive Hazard.

SARA TITLE III (Section 313 Toxic Release Inventory):

The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III, requires submission of annual reports of release of toxic chemicals that appear in 40 CFR 372 (for SARA 313). This information must be included in all MSDS's that are copied or distributed for this material. Refer to Section II, HAZARDOUS INGREDIENTS/SARA III INFORMATION, the components that are subject to reporting are designated by an asterix (*).

===== SECTION VIII - FIRST AID MEASURES =====

INHALATION:

Remove from exposure to mist. If breathing has stopped, provide artificial respiration. Keep the person warm and at rest. OBTAIN IMMEDIATE MEDICAL ATTENTION.

EYE CONTACT:

Wash eyes immediately with plenty of running water for 15-20 minutes, or until no evidence of chemical remains, including under eyelids. Remove any contact lenses at once. Speed in beginning the eyewash is essential if permanent injury is to be avoided. In case of chemical burns, apply sterile bandages loosely to eyes without medication. GET MEDICAL ATTENTION IMMEDIATELY.

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SKIN CONTACT:

Flush contaminated skin with water for 15 minutes, or until no evidence of chemical remains. Remove contaminated clothing under the shower immediately. Prolong washing in serious cases until doctor arrives. GET MEDICAL CARE FOR EVIDENCE OF BURNING. If evidence of chemical burn exists, cover with sterile, dry dressing. Bandage securely, but not too tightly.

INGESTION:

Do not induce vomiting. Drink a large glass of water. Treat symptomatically and supportively. GET MEDICAL ATTENTION IMMEDIATELY. CAUTION: IF UNCONSCIOUS OR HAVING TROUBLE BREATHING OR IN CONVULSIONS, DO NOT INDUCE VOMITING OR GIVE WATER.

===== SECTION IX - PREPARATION INFORMATION =====

MSDS REVISION DATE: 11/12/08

NAME OF PREPARER: Environmental, Health & Safety Department.

CONTACT PHONE: (360) 733-7478

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