



TETRA Technologies, Inc.

Material Safety Data Sheet

This MSDS Sheet complies with the style format specified by ANSI Z400.1-1993

SECTION 1: CHEMICAL PRODUCT-COMPANY IDENTIFICATION

TETRA Technologies, Inc. (281) 367-1983
25025 I-45 North (800) 327-7817
Woodlands, Texas 77380

(800) 424-9300 - CHEMTREC (24 Hours Emergency Response)

SUBSTANCE: Sodium Hydroxide
TRADE NAMES/SYNONYMS: Caustic Soda
CHEMICAL FAMILY: Bases, alkalies (inorganic)
APPLICATION: Oil well drilling fluid additive pH modifier
MSDS CREATION DATE: 16 May 01

SECTION 2: COMPOSITION, INFORMATION ON INGREDIENTS

COMPONENT: Sodium Hydroxide 100%
CAS NUMBER: 1310-73-2 (Sodium Hydroxide)

SECTION 3: HAZARDS IDENTIFICATION

NFPA RATINGS: (SCALE 0-4): HEALTH=3, FIRE=0, REACTIVITY=1

EMERGENCY OVERVIEW: Product is white pellets or flake material. Slippery when wet. CAUSES EYE AND SKIN BURNS. Do not get in eyes or on skin or clothing. Avoid breathing airborne particles. Use only with adequate ventilation. Wash thoroughly after handling.. Keep container closed. Water reactive. Contact with water or moisture may generate sufficient heat to ignite combustible material.

POTENTIAL HEALTH EFFECTS:

INHALATION: Severely irritating to the respiratory tract if inhaled.
SKIN CONTACT: Corrosive to the skin.
EYE CONTACT: Corrosive to the eyes.
INGESTION: May cause burns in mucous membranes, throat, esophagus and stomach.

CARCINOGEN STATUS:

OSHA: No **NTP:** No **IARC:** No

SECTION 4: FIRST AID MEASURES

INHALATION: Remove from exposure area to fresh air immediately. Perform artificial resuscitation if breathing has stopped. Get medical attention.

SKIN CONTACT: Remove contaminated clothing. Wash skin thoroughly with soap and water (at least 15-20 minutes). Wash contaminated clothing and decontaminate footwear before reuse. Get medical attention if discomfort continues.

EYE CONTACT: Promptly flush eyes immediately with large amounts of water while lifting lids (at least 15-20 minutes). Get medical attention if any discomfort continues.

INGESTION: Drink a couple of glasses of water or milk (never give anything by mouth to an unconscious person.). Do not induce vomiting unless directed to do so by a physician. Get medical attention.



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SECTION 5: FIRE FIGHTING MEASURES

AUTO IGNITION, FLAMMABILITY LIMITS: Not determined

FIRE AND EXPLOSION HAZARD: Upon contact with certain metals and water or moist air, hydrogen gas is generated, forming explosive mixtures with air.

EXTINGUISHING MEDIA: Carbon dioxide (CO₂), dry chemicals, foam.

FIRE FIGHTING: No specific fire fighting procedures given. Do not get water directly on material. Stay upwind and out of low areas. Avoid combustion by-products.

HAZARDOUS COMBUSTION PRODUCTS: Irritating gases/vapors/fumes.

SECTION 6: ACCIDENTAL RELEASE MEASURES

OCCUPATIONAL SPILL: Avoid generating and spreading of dust. Shovel into dry containers. Cover and move containers. Flush the area with water. Do not contaminate drainage or waterways. Repackage or recycle if possible.

SECTION 7: HANDLING AND STORAGE

Observe all federal, state, and local regulations when storing this substance. Store at moderate temperature in dry, well ventilated area in tightly closed (original) containers. Keep away from incompatible substances. Prevent skin and eye contact.

SECTION 8: EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE LIMITS:

ACGIH TLV

TWA: 2C

C=Ceiling limit

OSHA PEL

TWA: 2

OTHER:

Units: mg/m³

VENTILATION: Provide natural or mechanical ventilation adequate to exhaust airborne product and keep exposures below the applicable limits.

EYE PROTECTION: Use tight fitting goggles if dust is generated. Wear splash proof goggles to prevent eye contact.

EMERGENCY WASH FACILITIES: Where there is any possibility that an employee's eyes and/or skin may be exposed to this product, the employer should provide an eye wash fountain and quick drench shower within the immediate work area for emergency use.

CLOTHING: Wear appropriate impervious clothing to prevent any possibility of skin contact.

GLOVES: Use gauntlet type rubber gloves.

HYGIENIC WORK PRACTICES: Wash promptly with soap and water if skin is contaminated. Change and wash work clothes daily if there is any possibility of contamination.

RESPIRATOR: Use at least a NIOSH approved N95 half-mask disposable or reusable particulate respirator.

ENGINEERING CONTROLS: Use appropriate engineering controls such as exhaust ventilation and process enclosure to reduce air contamination and keep worker exposure below the applicable limits.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

DESCRIPTION:

White pellets or flakes. Odorless or no characteristic odor.

BOILING POINT:

2530°F

Pressure: 760mmHg

MELT/FREEZE POINT:

604°F



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| DENSITY/SPECIFIC GRAVITY (g/ml): | 213 | Temperature (°F): 68 |
| BULK DENSITY: | 133 lb/cu.ft; 2131 kg/m ³ | |
| WATER SOLUBILITY: | Soluble | |
| VAPOR DENSITY (air=1): | N/A | |
| VAPOR PRESSURE: | 42 mmHg | Temperature (°F): 1832 |
| pH-VALUE, DILUTE SOLUTION: | 13 | Concentration (%M): 1% |

SECTION 10: STABILITY AND REACTIVITY

| | | | | |
|---------------------------------|--|--|--|--|
| REACTIVITY: | Stable under normal conditions. | | | |
| CONDITIONS TO AVOID: | Reacts strongly with water. Avoid contact with acids. | | | |
| MATERIALS TO AVOID: | Organochlorine solvents, nitro and nitroso compounds, organic peroxides, aluminum, zinc, tin and their alloys. | | | |
| HAZARDOUS DECOMPOSITION: | None noted | | | |
| POLYMERIZATION: | Will not polymerize. | | | |

SECTION 11: TOXICOLOGICAL INFORMATION

| | | | | |
|----------------------------|----------------------|------|--------|--------------------------|
| TOXICOLGICAL DATA: | | | | |
| Corrosive effects | 24 hours | Eye | Rabbit | 1 mg Severe Irritation |
| Corrosive effects | 24 hours | Skin | Rabbit | 500 mg Severe Irritation |
| Acute toxicity LDLo | | Oral | Rabbit | 500 mg/kg |
| TOXIC DOSE – LD 50: | 1350 mg/kg (skn-rbt) | | | |

SECTION 12: ECOLOGICAL INFORMATION

| | |
|--------------------------------------|--------------------|
| LC 50, 96 hrs, FISH, mg/l: | 125 (Misquitofish) |
| EC 50, 48 hrs, DAPHNIA, mg/l: | 100 |
| ACUTE AQUATIC TOXICITY: | |

This product passes the mysid shrimp toxicity test required by the U.S. EPA Region VI (Gulf of Mexico) NPDES Permit, which regulates offshore discharge of drilling fluids, when tested in a standard drilling fluid. Contact M-I's Environmental Affairs Dept. for more information.

This product is approved for use under the US EPA Region IX (California) General NPDES Permit which regulates offshore discharges of drilling fluids. Contact M-I's Environmental Affairs Dept. for more information.

SECTION 13: DISPOSAL INFORMATION

Observe all federal, state, and local regulations when disposing of this substance. Recover and reclaim or recycle, if practical. Dispose of in a facility permitted for hazardous waste in accordance with RCRA criteria.

Empty containers retain potentially hazardous residue. Observe all hazard label precautions.

SECTION 14: TRANSPORT INFORMATION

PROPER SHIPPING DESCRIPTION: Sodium hydroxide, solid, 8, UN 1823, PG II



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| GENERAL: | RQ – 1000# |
| EMERGENCY RESPONSE GUIDE NO: | 154 |
| U.S. DOT | UN # 1823, Class 8 (Corrosive Material), Packing Group II |
| U.S. DOT HAZARD LABEL: | Corrosive (Black/White diam.) DOT17 |
| U.S. DOT PACKAGING INST: | 49 CFR 173.154; 173.212; 240 |
| CANADIAN TRANSPORT: | Class 8, Corrosive |
| SEA TRANSPORT: | UN 1823, Class 8 (Corrosive), PG II |
| IMDG PAGE No.: | 8225-1 |
| EmS No.: | 8-06 |
| MFAG TABLE No.: | 705 |
| AIR TRANSPORT: | UN # 1823, Class 8 – Corrosives, PG II |

SECTION 15: REGULATORY INFORMATION

| | |
|----------------------------------|--|
| TSCA | Yes |
| CERCLA | RQ - 1000# |
| SARA 311 | Immediate (Acute) Health Effects Reactivity Hazard |
| SARA 302 | No |
| SARA 313 | No |
| US FEDERAL | Hazardous waste by US RCRA criteria |
| DSL (CAN) | Yes |
| WHMIS | Classification B – Corrosive Material D2B – Other Toxic Effects: Toxic Material |
| CALIFORNIA PROPOSITION 65 | No |
| STATE REGULATORY STATUS | Illinois Right-to-Know New Jersey Right-to-Know Pennsylvania Right-to-Know |

SECTION 16: OTHER INFORMATION

Individuals handling this product should be informed of the recommended safety precautions and should have access to this information. This information relates to the specific material designated and may not be valid for such material used in combination with any other materials or in any other processes. Such information is to the best of our knowledge and belief, accurate and reliable as of the date compiled. However, no representation, warranty or guarantee is made as to its accuracy, reliability, or completeness. It is the user's responsibility to satisfy themselves as to the suitability and completeness of such information for their own particular use. We do not accept liability for any loss or damage that may occur from the use of this information, nor do we offer warranty against patent infringement.

TETRA Technologies, Inc. reserves the right to refuse shipment of this material to any consumer who fails to demonstrate the ability to consistently handle and use it safely and in compliance with all applicable laws, rules, and regulations. Such demonstration may require on-site inspection of any or all storage, processing, packaging and other handling systems that come in contact with it.

This MSDS meets the requirements specified in 29 CFR 1910.1200. Customers are responsible for compliance with local, state and federal regulations that may be pertinent in the storage, application and disposal of this product.