



# Material Safety Data Sheet

## Sulfidic Caustic Solution

MSDS Number 26600TDC (Revised: 02/23/2007)

6 Pages

### Section 1: CHEMICAL PRODUCT and COMPANY IDENTIFICATION

- 1.1 Product Name** ..... **Sulfidic caustic solution**  
Chemical Family ..... Inorganic salt solution  
Synonyms ..... NA(mixture)  
Formula ..... NA (mixture)
- 1.2 Manufacturer** ..... TDC, LLC  
1916 Farmerville Highway  
Ruston, Louisiana 71270  
Information ..... (318) 242-5305
- 1.3 Emergency Contact** ..... (800) 422-6274  
**(800) 424-9300 (CHEMTREC)**

### Section 2: COMPOSITION, INFORMATION ON INGREDIENTS

#### 2.1 Chemical Ingredients (% by wt.)

Typical Analysis		
Sodium sulfide (Na <sub>2</sub> S)	CAS #: 1313-82-2	2 - 15%
Sodium hydroxide (NaOH)	CAS #: 1310-73-2	0 - 15%
Sodium hydrosulfide (NaHS)	CAS #: 16721-80-5	0 - 5%
Sodium carbonate (Na <sub>2</sub> CO <sub>3</sub> )	CAS #: 497-19-8	0 - 4%
Water	CAS #: 7732-18-5	remaining %

(See Section 8 for exposure guidelines)

### Section 3: HAZARDS IDENTIFICATION

**NFPA:**            **Health - 3    Flammability - 0            Reactivity - 1**

<b>Section</b>	<b>3:</b>	<b>HAZARDS IDENTIFICATION (Cont.)</b>
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<b>EMERGENCY OVERVIEW</b>
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**Warning: Solution is highly alkaline**  
**May evolve small amounts of hydrogen sulfide , a highly toxic gas.**  
 Eye contact will cause marked eye irritation and possible corneal damage.  
 Skin contact will result in irritation and possible corrosion of the skin.  
 Ingestion will irritate/burn mouth, throat and gastrointestinal tract; contact with stomach acid will cause hydrogen sulfide vapors to be released.  
 Heating or acid contact will cause hydrogen sulfide gas to evolve.

**3.1 POTENTIAL HEALTH EFFECTS**

**EYE:** Contact with the eyes will cause marked eye irritation and possibly severe corneal damage.

**SKIN CONTACT:** Contact with the skin will cause skin irritation or burning sensation. Prolonged contact will result in corrosion of the skin.

**SKIN ABSORPTION:** Absorption is unlikely to occur.

**INGESTION:** Ingestion will result in severe burning and corrosion of mouth, throat and the gastrointestinal tract. If the ingested material contacts stomach acid, highly toxic hydrogen sulfide gas will be evolved.

**INHALATION:** Product solution and vapors contain some highly toxic hydrogen sulfide gas. Exposure to this gas causes, headaches, nausea, dizziness and vomiting. Continued exposure can lead to loss of consciousness and death..

**CHRONIC EFFECTS/CARCINOGENICITY:** Not listed as a carcinogen by NTP, IARC or OSHA.

<b>Section</b>	<b>4:</b>	<b>FIRST AID MEASURES</b>
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**4.1 EYES:** Immediately flush with large quantities of water for 15 minutes. Hold eyelids apart during irrigation to insure thorough flushing of the entire area of the eye. Obtain immediate medical attention.

**4.2 SKIN:** Immediately flush with large quantities of water. Remove contaminated clothing under a safety shower. Obtain immediate medical attention

**4.3 INGESTION:** DO NOT INDUCE VOMITING. If victim is conscious, immediately give 2 to 4 glasses of water. If vomiting does occur, repeat fluid administration. Obtain immediate medical attention.

**4.4 INHALATION:** Remove victim from contaminated atmosphere. If breathing is labored, administer oxygen. If breathing has ceased, clear airway and start mouth to mouth resuscitation. If heart has stopped beating, external heart massage should be applied. Obtain immediate medical attention.

<b>Section</b>	<b>5:</b>	<b>FIRE FIGHTING MEASURES</b>
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**5.1 FLAMMABLE PROPERTIES**

**FLASH POINT:** Not flammable

**METHOD USED:** NA

**5.2 FLAMMABLE LIMITS**      **Hydrogen sulfide**      **LFL:** 4%      **UFL:** 44%

**5.3 EXTINGUISHING MEDIA:** Water spray or foam or as appropriate for combustibles involved in fire.

**Section 5: FIRE FIGHTING MEASURES (Cont.)**

**5.4 FIRE & EXPLOSIVE HAZARDS:** Solution is non-flammable. However if these solutions are exposed to heat or acids, hydrogen sulfide will be released and may form explosive mixtures with air (see above). Keep containers/storage vessels in fire area cooled with water spray. Heating may cause the release of hydrogen sulfide vapors.

**5.5 FIRE FIGHTING EQUIPMENT:** Because of the possible presence of toxic gases and the corrosive nature of the product, wear self-contained breathing apparatus, positive pressure, MSHA/NIOSH (approved or equivalent) and full protective gear.

**Section 6: ACCIDENTAL RELEASE MEASURES**

**6.1 Small releases:** Isolate for 75 feet. Confine area to qualified response personnel. Wear proper Personnel Protective equipment (See Section 8). Confine release material by berming or diverting its path. Absorb on sand, earth or other inert dry absorbent. Do not allow into sewer, storm drains or any waterway. Oxidize residual reactive sulfides with a weak (3-5%) hydrogen peroxide solution to stop the release of toxic hydrogen sulfide. Remove contaminated soil and dispose of in accordance with all governmental regulations.

**6.2 Large releases:** Activate Emergency Response Plan procedures. Isolate release area for 500 feet. Confine area to qualified response personnel. Wear proper Personnel Protective Equipment (See Section 8). Shut off release, if safe to do so. Dike spill area to prevent runoff into sewers, drains (potential toxic and explosive mixtures of hydrogen sulfide in confined spaces) or surface waterways (potential aquatic toxicity). Recover as much of the solution as possible. Treat remaining material as a small release (See 6.1).

**Section 7: HANDLING and STORAGE**

**7.1 Handling:** Wear proper protective equipment (See Section 8). Avoid breathing product vapors. Avoid contact with skin and eyes. Use only in a well ventilated area. Dilute product only in enclosed containers. Wash thoroughly after handling.

**7.2 Storage:** Store in well ventilated areas. Do not store combustibles in the area of storage vessels. Keep away from any sources of heat or flame. Store tote and smaller containers out of direct sunlight at moderate temperatures [ $<80^{\circ}$  F ( $27^{\circ}$  C)]. (See Section 10.4 for materials of construction)

**Section 8: EXPOSURE CONTROLS, PERSONAL PROTECTION**

**8.1 RESPIRATORY PROTECTION:** If working near open container or storage vessel opening or open tank truck dome cover, wear self-contained breathing apparatus, positive pressure, MSHA/NIOSH (approved or equivalent).

**8.2 SKIN PROTECTION:** Neoprene rubber gloves, chemical suit and boots should be worn to prevent contact with the liquid. Wash contaminated clothing prior to reuse. Contaminated leather shoes cannot be cleaned and should be discarded.

**8.3 EYE PROTECTION:** Chemical goggles and a full face shield.

<b>Section</b>	<b>8:</b>	<b>EXPOSURE CONTROLS, PERSONAL PROTECTION (Cont.)</b>
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**8.4 EXPOSURE GUIDELINES:**

	OSHA		ACGIH	
	<u>TWA</u>	<u>STEL</u>	<u>TLV</u>	<u>STEL</u>
Hydrogen sulfide	20 ppm (ceiling)		10 ppm (ceiling)	

**8.5 ENGINEERING CONTROLS:** Use adequate exhaust ventilation to prevent inhalation of product vapors. Where feasible scrub process or storage vessel vapors with caustic solution. Maintain eyewash/safety shower in areas where chemical is handled.

<b>Section</b>	<b>9:</b>	<b>PHYSICAL and CHEMICAL PROPERTIES</b>
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<b>9.1 APPEARANCE:</b>	Light to dark brown to green or red liquid.
<b>9.2 ODOR:</b>	Hydrocarbon (mercaptan) , possibly hydrogen sulfide (rotten egg) odor.
<b>9.3 BOILING POINT:</b>	Not determined
<b>9.4 VAPOR PRESSURE:</b>	Not determined
<b>9.5 VAPOR DENSITY: (Air = 1.0)</b>	1.17
<b>9.6 SOLUBILITY IN WATER:</b>	Complete
<b>9.7 SPECIFIC GRAVITY:</b>	1.10 – 1.3 (9.16 - 10.83 lbs/gal)
<b>9.8 FREEZING POINT:</b>	Not determined
<b>9.9 pH:</b>	11.5 - 13.5
<b>9.10 VOLATILE:</b>	Not determined

<b>Section</b>	<b>10:</b>	<b>STABILITY and REACTIVITY</b>
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**10.1 STABILITY:** This is a stable material

**10.2 HAZARDOUS POLYMERIZATION:** Will not occur.

**10.3 HAZARDOUS DECOMPOSITION PRODUCTS:** Heating product will evolve H<sub>2</sub>S gas. Fire conditions will cause the production of sulfur dioxide. Hydrogen sulfide (4-44%) may form flammable mixtures with air.

**10.4 INCOMPATIBILITY:** Acids will cause the release of highly toxic hydrogen sulfide. Sulfidic caustic solution is not compatible with copper, zinc, aluminum or their alloys (i.e. bronze, brass, galvanized metals, etc.). Corrosive to steel above 150° F (65.5° C). These materials of construction should not be used in handling systems or storage containers for this product. (SEE Section 7.2, Storage)

<b>Section</b>	<b>11:</b>	<b>TOXICOLOGICAL INFORMATION</b>
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**11.1 ORAL:** Data not available

**11.2 DERMAL:** Data not available

**11.3 INHALATION:** INH-RAT LC<sub>50</sub>: 444 ppm (hydrogen sulfide)

**11.4 CHRONIC/CARCINOGENICITY:** No evidence available

<b>Section</b>	<b>12:</b>	<b>TOXICOLOGICAL INFORMATION, Cont.</b>
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**11.5 TERATOLOGY:** Data not available

**11.6 REPRODUCTION:** Data not available

**11.7 MUTAGENICITY:** Data not available

<b>Section</b>	<b>12:</b>	<b>ECOLOGICAL INFORMATION</b>
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None available

<b>Section</b>	<b>13:</b>	<b>DISPOSAL CONSIDERATIONS</b>
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If released to the environment for other than its intended purpose, this product contains some reactive sulfides but not a sufficient quantity to meet the definition of a D003, hazardous waste. The pH may be high enough to meet the definition of a corrosive waste, D002.

<b>Section</b>	<b>14:</b>	<b>TRANSPORT INFORMATION</b>
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<b>14.1 DOT Shipping Name:</b>	Corrosive liquids, n.o.s.
<b>14.2 DOT Hazard Class:</b>	8
<b>14.3 UN/NA Number:</b>	UN1760
<b>14.4 Packing Group:</b>	II
<b>14.5 DOT Placard:</b>	Corrosive
<b>14.6 DOT Label(s):</b>	Corrosive
<b>14.7 IMO Shipping Name:</b>	Sodium hydroxide solution
<b>14.8 RQ (Reportable Quantity):</b>	1,000 lbs (454 Kg) 100% basis (Approx. 538 gals)
<b>14.9 USCG Barge Certification:</b>	SSH (sodium sulfide, hydrosulfide solutions, H <sub>2</sub> S 15 ppm or less) SSI (sodium sulfide, hydrosulfide solutions, H <sub>2</sub> S greater than 15 ppm but less than 200 ppm)

<b>Section</b>	<b>15:</b>	<b>REGULATORY INFORMATION</b>
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**15.1 OSHA:** This product is listed as a hazardous material under criteria of the Federal OSHA Hazard Communication Standard, 29 CFR 1910.1200.

**15.2 SARA TITLE III:** a. **EHS (Extremely Hazardous Substance) List:** No

<b>Section</b>	<b>15: REGULATORY INFORMATION (Cont.)</b>
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b.	Section 311/312, (Tier I,II) Categories:	Immediate (acute)	Yes
		Fire	No
		Sudden release	No
		Reactivity	Yes
		Delayed (chronic)	No
c.	Section 313 (Toxic Release Report-Form R):		No
d.	<b>TPQ</b> (Threshold Planning Quantity):		No
<b>15.3 CERCLA/SUPERFUND:</b>	RQ (Reportable Quantity)		1,000 lbs Based on sodium hydroxide (454 Kg)
<b>15.4 TSCA</b> (Toxic Substance Control Act) Inventory List:			Yes
<b>15.5 RCRA</b> (Resource Conservation and Recovery Act) Status:			Yes (See Section 13)
<b>15.6 WHMIS</b> (Canada) Hazard Classification:			E, D1
<b>15.7 DOT</b> Hazardous Material: (See Section 14)			Yes
<b>15.8 CAA</b> Hazardous Air Pollutant (HAP)			No

<b>Section</b>	<b>16: OTHER INFORMATION</b>
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**REVISIONS:** The entire MSDS was reformatted to comply to ANSI Standard Z400.1-1993.

Revised for company and address change, 1/11/00.

Revised for Company name change 6/8/2001

Revised Section 8.3, Eye Protection, and company logo, 5/7/02

Revised Section 14, Transportation Information, description, 12/1/03

Revised Section 2 ingredients, Section 3, NFPA, Section 14 Transportation, 7/19/04

Revised Logo and Emergency Telephone Number, 2/23/07.

<p>THE INFORMATION PUBLISHED IN THIS MATERIAL SAFETY DATA SHEET HAS BEEN COMPILED FROM OUR EXPERIENCE AND OSHA, ANSI, NFPA, DOT, ERG, AND CHRIS. IT IS THE USER'S RESPONSIBILITY TO DETERMINE THE SUITABILITY OF THIS INFORMATION FOR THE ADOPTION OF NECESSARY SAFETY PRECAUTIONS. WE RESERVE THE RIGHT TO REVISE MATERIAL SAFETY DATA SHEETS PERIODICALLY AS NEW INFORMATION BECOMES AVAILABLE.</p>
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