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MATERIAL SAFETY DATA SHEET

HELENA LABORATORIES  
 1530 Lindbergh Dr./P.O. Box 752  
 Beaumont, TX 77704-0752  
 USA Toll Free 800-231-5663

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DATE PREPARED: 4/5/2010  
 REVISION: 2

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1. IDENTIFICATION:

PRODUCT NAME: SPIFE 4000 IFE  
 PRODUCT NO.: 2300

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2. INGREDIENTS (THE ABOVE KIT CONTAINS THE FOLLOWING ITEMS):

PRODUCT NUMBER	PRODUCT IDENTIFICATION (LABEL NAME)	COMMENTS
552398	SPIFE 4000 IFE GEL KIT	
551758	ACID VIOLET STAIN	
	HAZARDOUS INGREDIENT	CAS # %
	ACID VIOLET 17	4129-84-4 100% NON-HAZARDOUS
551959	CITRIC ACID DESTAIN	
	HAZARDOUS INGREDIENT	CAS # %
	CITRIC ACID	77-92-9 100% MSDS ATTACHED
551715	TRIS BUFFERED SALINE	
	HAZARDOUS INGREDIENT	CAS # %
	TRISMA BASE	77-86-1 40% MSDS ATTACHED
	TRIS HYDROCHLORIDE	1185-53-1 21% MSDS ATTACHED
552402	SPIFE 4000 IFE GEL	
	HAZARDOUS INGREDIENT	CAS # %
	BARBITAL SODIUM	144-02-5 1.3% MSDS ATTACHED

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2. INGREDIENTS (THE ABOVE KIT CONTAINS THE FOLLOWING ITEMS) (CONT):

PRODUCT NUMBER	PRODUCT IDENTIFICATION (LABEL NAME)	COMMENTS
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552440	SPIFE 4000 IFE ANTISERA KIT	
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552441	SPIFE 4000 IFE PROTEIN FIXATIVE	
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HAZARDOUS INGREDIENT	CAS #	%	COMMENTS
TRICHLOROACETIC ACID	76-03-9	6.0%	MSDS ATTACHED
SULFOSALICYLIC ACID	5965-83-3	3.5%	MSDS ATTACHED
GUANIDINE HYDROCHLORIDE	50-01-1	1.5%	MSDS ATTACHED

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ATTACHED IS THE MSDS FOR THE ABOVE NAMED HAZARDOUS INGREDIENT.

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DATE PREPARED: 5/13/2009
REVISION: 3

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1. IDENTIFICATION:

NAME: CITRIC ACID

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2. CHEMICAL COMPOSITION:

Table with 5 columns: CHEMICAL NAME/COMMON NAME, CAS #, %, EXPOSURE LIMITS (OSHA PEL, ACGIH TLV). Row 1: CITRIC ACID, 77-92-9, 100, NIF, NIF.

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NA = Not Applicable NE = Not Established
NL = Not Listed NIF = No Information Found

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3. HAZARD IDENTIFICATION:

EMERGENCY OVERVIEW

PRIMARY ROUTE(S) OF ENTRY:

INHALATION? X SKIN? X INGESTION? X

ACUTE EFFECT OF OVEREXPOSURE:

EYES: CAN CAUSE SEVERE EYE IRRITATION. SYMPTOMS INCLUDE STINGING, TEARING, REDNESS, AND SWELLING OF EYES. CAN INJURE EYE TISSUE.

SKIN: CAN CAUSE SKIN IRRITATION. SYMPTOMS MAY INCLUDE REDNESS AND BURNING OF SKIN AND OTHER SKIN DAMAGE.

INHALATION: BREATHING SMALL AMOUNTS OF THIS MATERIA DURING NORMAL HANDLING IS NOT LIKELY TO CAUSE HARMFUL EFFECTS. BREATHING LARGE AMOUNTS MAY BE HARMFUL.

INGESTION: SWALLOWING SMALL AMOUNTS OF THIS MATERIAL DURING NORMAL HANDLING IS NOT LIKELY TO CAUSE HARMFUL EFFECTS. SWALLOWING LARGE AMOUNTS MAY BE HARMFUL.

CHRONIC EFFECTS OF EXPOSURE: PROLONGED EXPOSURE MAY DAMAGE TOOTH ENAMEL.

4. FIRST AID MEASURES:

EYE CONTACT: FLUSH EYES GENTLY WITH WATER FOR AT LEAST 15 MINUTES WHILE HOLDING EYELIDS APART; SEEK IMMEDIATE MEDICAL ATTENTION.

SKIN CONTACT: REMOVE CONTAMINATED CLOTHING. WASH EXPOSED AREA WITH SOAP AND WATER. IF SYMPTOMS PERSISTS, SEEK MEDICAL ATTENTION. LAUNDER CLOTHING BEFORE REUSE.

INHALATION: IF SYMPTOMS DEVELOP, MOVE INDIVIDUAL AWAY FROM EXPOSURE AND INTO FRESH AIR. IF SYMPTOMS PERSISTS, SEEK MEDICAL ATTENTION. IF BREATHING IS DIFFICULT, ADMINISTER OXYGEN. KEEP PERSON WARM AND QUIET; SEEK IMMEDIATE MEDICAL ATTENTION.

INGESTION: SEEK MEDICAL ATTENTION. IF INDIVIDUAL IS DROWSY OR UNCONSCIOUS, DO NOT GIVE ANYTHING BY MOUTH; PLACE INDIVIDUAL ON THE LEFT SIDE WITH THE HEAD DOWN. CONTACT A PHYSICIAN, MEDICAL FACILITY, OR POISON CONTROL CENTER FOR ADVICE ABOUT WHETHER TO INDUCE VOMITING. IF POSSIBLE, DO NOT LEAVE INDIVIDUAL UNATTENDED.

5. FIRE AND EXPLOSION HAZARD DATA:

FLASH POINT (METHOD USED): >100°C

FLAMMABLE LIMITS: NIF LEL UEL

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5. FIRE AND EXPLOSION HAZARD DATA (cont):

EXTINGUISHING MEDIA: WATER SPRAY, CARBON DIOXIDE (CO2), DRY CHEMICAL.

SPECIAL FIRE FIGHTING PROCEDURES: NO SPECIAL FIRE HAZARDS ARE KNOWN TO BE ASSOCIATED WITH THIS PRODUCT. WEAR FULL FIREFIGHTING TURN-OUT GEAR (FULL BUNKER GEAR), AND RESPIRATORY PROTECTION (SCBA).

UNUSUAL FIRE AND EXPLOSION HAZARDS: NIF

6. SPILL OR LEAK PROCEDURES:

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: SHOVEL MATERIALS INTO CONTAINERS. THOROUGHLY SWEEP AREA OF SPILL TO CLEAN UP ANY RESIDUAL MATERIAL. SWEEP UP MATERIAL FOR DISPOSAL OR RECOVERY.

7. HANDLING AND STORAGE:

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: CONTAINERS OF THIS MATERIAL MAY BE HAZARDOUS WHEN EMPITED. SINCE EMPTIED CONTAINERS RETAIN PRODUCT RESIDUES (VAPOR, LIQUID, AND/OR SOLID), ALL HAZARD PRECAUTIONS GIVEN IN THE DATA SHEET MUST BE OBSERVED. STORE IN A COOL, DRY, VENTILATED AREA, AWAY FROM INCOMPATIBLE SUBSTANCE.

OTHER PRECAUTIONS: NIF

8. EXPOSURE CONTROL/PERSONAL PROTECTION:

RESPIRATORY PROTECTION (SPECIFY TYPE): IF NEEDED, USE A NIOSH-APPROVED DUST RESPIRATOR. (ASK YOUR SAFETY REPRESENTATIVE.)

VENTILATION: LOCAL EXHAUST: X MECHANICAL: OTHER:

PROTECTIVE GLOVES: CHEMICAL RESISTANT GLOVES.

EYE PROTECTION: GOGGLES OR SAFETY GLASSES.

OTHER PROTECTIVE EQUIPMENT: WEAR NORMAL WORK CLOTHING COVERING ARMS AND LEGS.

9. PHYSICAL DATA:

BOILING POINT: NA SPECIFIC GRAVITY (H2O = 1): pH .2.2@10 g/L

VAPOR PRESSURE (MM HG.): 0 MELTING POINT: 153°C AUTOIGNITION TEMP: 1010°C

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9. PHYSICAL DATA (cont):

VAPOR DENSITY (AIR = 1): NO DATA

SOLUBILITY IN WATER: SOLUBLE APPEARANCE AND ODOR: ODORLESS

WHITE CRYSTALLINE

10. STABILITY AND REACTIVITY:

STABILITY: UNSTABLE: STABLE: X

INCOMPATIBILITY (MATERIALS TO AVOID): STRONG ALKALIS

HAZARDOUS DECOMPOSITION OF BY-PRODUCTS: CARBON DIOXIDE AND CARBON MONOXIDE, HYDROCARBONS

HAZARDOUS POLYMERIZATION: MAY OCCUR: WILL NOT OCCUR: X

11. TOXICOLOGICAL INFORMATION:

LD50/LC50: LD50 MOUSE: 5040 MG/KG

REPRODUCTIVE TOXICITY: CITRIC ACID DID NOT CAUSE HARMFUL EFFECTS ON DEVELOPING FETUS WHEN GIVEN IN THE DIET OF LABORATORY ANIMALS, EVEN AT CONCENTRATIONS WHICH WERE HARMFUL TO THE PREGNANT ANIMALS.

IRRITANCY, SENSITIVITY: NIF

CARCINOGENICITY: NL NTP? IARC? OSHA?

POTENTIAL HEALTH EFFECTS:

12. ECOLOGICAL INFORMATION: NIF

13. DISPOSAL CONSIDERATIONS: DISPOSE OF IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.

14. TRANSPORTATION INFORMATION: NOT DANGEROUS GOODS

15. REGULATORY INFORMATION:

CALIFORNIA PROPOSITION 65: THIS PRODUCT DOES NOT CONTAIN ANY CHEMICALS KNOWN TO STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH, OR ANY OTHER REPRODUCTIVE DEFECTS.

	HEALTH	FLAMMABILITY	REACTIVITY	OTHER
HMIS	1	1	0	
NFPA	1	1	0	

16. OTHER INFORMATION: NONE

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DATE PREPARED: 3/22/2010
REVISION: 5

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1. IDENTIFICATION:

NAME: TRIZMA BASE

FORMULA: C4H11N03
MOLECULAR WEIGHT: 121.14

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2. CHEMICAL COMPOSITION:

Table with 5 columns: CHEMICAL NAME/COMMON NAME, CAS #, %, EXPOSURE LIMITS (OSHA PEL, NIF), and LIMITS (ACGIH TLV, NIF). Row 1: TRIZMA BASE, 77-86-1, 100, NIF, NIF.

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NA = Not Applicable NE = Not Established
NL = Not Listed NIF = No Information Found

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3. HAZARD IDENTIFICATION:

EMERGENCY OVERVIEW: IRRITANT

PRIMARY ROUTE(S) OF ENTRY:

INHALATION? X SKIN? X INGESTION? X

ACUTE EFFECT OF OVEREXPOSURE:

EYES: MAY CAUSE EYE IRRITATION.

SKIN: MAY BE HARMFUL IF ABSORBED THROUGH SKIN. CAUSES SKIN IRRITATION.

INHALATION: MAY BE HARMFUL IF INHALED. MATERIAL IS IRRITATING TO MUCUS MEMBRANES AND UPPER RESPIRATORY TRACT.

INGESTION: MAY BE HARMFUL IF SWALLOWED.

CHRONIC EFFECTS OF EXPOSURE: NIF

4. FIRST AID MEASURES:

EYE CONTACT: RINSE THOROUGHLY WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES AND CONSULT A PHYSICIAN.

SKIN CONTACT: WASH OFF WITH SOAP AND PLENTY OF WATER. CONSULT A PHYSICIAN.

INHALATION: IF BREATHED IN, MOVE PERSON INTO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL RESPIRATION. CONSULT A PHYSICIAN.

INGESTION: NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS. RINSE MOUTH WITH WATER. CONSULT A PHYSICIAN.

5. FIRE AND EXPLOSION HAZARD DATA:

FLASH POINT (METHOD USED): NA

FLAMMABLE LIMITS: NA LEL UEL

EXTINGUISHING MEDIA: WATER SPRAY, ALCOHOL-RESISTANT FOAM, DRY CHEMICAL OR CARBON DIOXIDE.

SPECIAL FIRE FIGHTING PROCEDURES: WEAR SELF CONTAINED BREATHING APPARATUS FOR FIRE FIGHTING IF NECESSARY.

UNUSUAL FIRE AND EXPLOSION HAZARDS: EMIT TOXIC FUMES UNDER FIRE CONDITIONS.

6. SPILL OR LEAK PROCEDURES:

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STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: **USE PERSONAL PROTECTIVE EQUIPMENT. AVOID DUST FORMATION. AVOID BREATHING DUST. ENSURE ADEQUATE VENTILATION. DO NOT LET PRODUCT ENTER DRAINS. PICK UP AND ARRANGE DISPOSAL WITHOUT CREATING DUST. KEEP IN SUITABLE CLOSED CONTAINERS FOR DISPOSAL.**

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**7. HANDLING AND STORAGE:**

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: **AVOID CONTACT WITH SKIN AND EYES. AVOID FORMATION OF DUST AND AEROSOLS. PROVIDE APPROPRIATE EXHAUST VENTILATION AT PLACES WHERE DUST IS FORMED. NORMAL MEASURES FOR PREVENTIVE FIRE PROTECTION.**

STORAGE: **HYGROSCOPIC. STORE IN COOL PLACE. KEEP CONTAINER TIGHTLY CLOSED IN A DRY AND WELL-VENTILATED PLACE.**

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**8. EXPOSURE CONTROL/PERSONAL PROTECTION:**

RESPIRATORY PROTECTION (SPECIFY TYPE): **NIOSH/MSHA-APPROVED RESPIRATOR**

VENTILATION: LOCAL EXHAUST: MECHANICAL: **X**  
OTHER:

PROTECTIVE GLOVES: **COMPATIBLE CHEMICAL-RESISTANT GLOVES**

EYE PROTECTION: **SAFETY GOGGLES**

OTHER PROTECTIVE EQUIPMENT: **WEAR SUITABLE PROTECTIVE CLOTHING**

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**9. PHYSICAL DATA:**

BOILING POINT: **219-220°C** SPECIFIC GRAVITY (H<sub>2</sub>O = 1): **NIF**  
pH: **10.5-12**

VAPOR PRESSURE (MM HG.): **NA** MELTING POINT: **171.2-172.3°C**

VAPOR DENSITY (AIR = 1): **NA**

SOLUBILITY IN WATER: **SOLUBLE** APPEARANCE AND ODOR: **COLORLESS WHITE CRYSTALS**

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**10. STABILITY AND REACTIVITY:**

STABILITY: UNSTABLE: STABLE: **X**

INCOMPATIBILITY (MATERIALS TO AVOID): STRONG OXIDIZING AGENT.

HAZARDOUS DECOMPOSITION OF BY-PRODUCTS: THERMAL DECOMPOSITION MAY PRODUCE CARBON MONOXIDE, CARBON DIOXIDE AND NITROGEN OXIDES.

HAZARDOUS POLYMERIZATION:
MAY OCCUR: WILL NOT OCCUR: X

11. TOXICOLOGICAL INFORMATION:

LD50/LC50: ORAL-RAT 5900 MG/KG

REPRODUCTIVE TOXICITY: NO DATA AVAILABLE

IRRITANCY, SENSITIVITY: NO DATA AVAILABLE

CARCINOGENICITY: NL NTP? NL IARC? NL OSHA? NL

POTENTIAL HEALTH EFFECTS: IRRITANT TO EYE, SKIN AND RESPIRATORY SYSTEM.

12. ECOLOGICAL INFORMATION: NO DATA AVAILABLE

13. DISPOSAL CONSIDERATIONS: OBSERVE ALL FEDERAL, STATE AND LOCAL REGULATIONS.

14. TRANSPORTATION INFORMATION: NOT DANGEROUS GOODS

15. REGULATORY INFORMATION:
SARA LISTED: NO

16. OTHER INFORMATION: NONE

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DATE PREPARED: 3/22/2010
REVISION: 5

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1. IDENTIFICATION:

NAME: TRIS HYDROCHLORIDE

MOLECULAR FORMULA: C4H11NO3
MOLECULAR WEIGHT: 157.64

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2. CHEMICAL COMPOSITION:

Table with 5 columns: CHEMICAL NAME/COMMON NAME, CAS #, %, EXPOSURE LIMITS (OSHA PEL, ACGIH TLV). Row 1: TRIS HYDROCHLORIDE, 1185-53-1, 100, NIF, NIF.

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NA = Not Applicable NE = Not Established
NL = Not Listed NIF = No Information Found

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3. HAZARD IDENTIFICATION:

EMERGENCY OVERVIEW: IRRITANT

PRIMARY ROUTE(S) OF ENTRY:

INHALATION? X SKIN? X INGESTION? X

ACUTE EFFECT OF OVEREXPOSURE:

EYES: CAUSE EYE IRRITATION

SKIN: CAUSE SKIN IRRITATION

INHALATION: IRRITANT TO RESPIRATORY SYSTEM

INGESTION: MAY BE HARMFUL IF SWALLOWED

CHRONIC EFFECTS OF EXPOSURE: NIF

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4. FIRST AID MEASURES:

EYE CONTACT: IN CASE OF CONTACT IMMEDIATELY FLUSH EYES WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES.

SKIN CONTACT: IN CASE OF CONTACT IMMEDIATELY WASH SKIN WITH SOAP AND COPIOUS AMOUNTS OF WATER.

INHALATION: IF INHALED REMOVE TO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL RSPARATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.

INGESTION: IF SWALLOWED WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONCIOUS. CALL A PHYSICIAN.

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5. FIRE AND EXPLOSION HAZARD DATA:

FLASH POINT (METHOD USED): NA

FLAMMABLE LIMITS: NA LEL UEL

EXTINGUISHING MEDIA: WATER SPRAY. CARBON DIOXIDE, DRY CHEMICAL POWDER, OR APPROPRIATE FOAM.

SPECIAL FIRE FIGHTING PROCEDURES: WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO PREVENT CONTACT WITH SKIN AND EYES.

UNUSUAL FIRE AND EXPLOSION HAZARDS: EMITS TOXIC FUMES UNDER FIRE CONDITIONS.

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6. SPILL OR LEAK PROCEDURES:

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: WEAR RESPIRATOR, CHEMICAL SAFETY GOGGLES, BOOTS AND HEAVY GLOVES. SWEEP UP, PLACE IN A BAG AND HOLD FOR WASTE DISPOSAL. AVOID RAISING DUST. VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICK UP IS COMPLETE.

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7. HANDLING AND STORAGE:

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: AVOID CONTACT WITH SKIN AND EYES. AVOID FORMATION OF DUST AND AEROSOLS. PROVIDE APPROPRIATE EXHAUST VENTILATION AT PLACES WHERE DUST IS FORMED. NORMAL MEASURES FOR PREVENTIVE FIRE PROTECTION.

STORAGE: HYGROSCOPIC.  
STORE IN COOL PLACE. KEEP CONTAINER TIGHTLY CLOSED IN A DRY AND WELL-VENTILATED PLACE.

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8. EXPOSURE CONTROL/PERSONAL PROTECTION:

RESPIRATORY PROTECTION (SPECIFY TYPE): NIOSH/MSHA - APPROVED

VENTILATION: LOCAL EXHAUST: MECHANICAL: X  
OTHER:

PROTECTIVE GLOVES: CHEMICAL RESISTANT GLOVES

EYE PROTECTION: SAFETY GOGGLES OR GLASSES

OTHER PROTECTIVE EQUIPMENT: SAFETY SHOWER AND EYE BATH.

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9. PHYSICAL DATA:

BOILING POINT: NIF SPECIFIC GRAVITY (H<sub>2</sub>O = 1): NA  
pH: NIF

VAPOR PRESSURE (MM HG.): NIF MELTING POINT: 150-152°C

VAPOR DENSITY (AIR = 1): NIF

SOLUBILITY IN WATER: SOLUBLE APPEARANCE AND ODOR: ODORLESS CRYSTALS

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10. STABILITY AND REACTIVITY:

STABILITY: UNSTABLE: STABLE:

INCOMPATIBILITY (MATERIALS TO AVOID): BASES, MOISTURE, OXIDIZING AGENTS.

HAZARDOUS DECOMPOSITION OF BY-PRODUCTS: HAZARDOUS DECOMPOSTION PRODUCTS FORMED UNDER FIRE CONDITIONS - CARBON OXIDES, NITROGEN OXIDES, HYDROGEN CHLORIDE GAS.

HAZARDOUS POLYMERIZATION: MAY OCCUR: WILL NOT OCCUR: X

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11. TOXICOLOGICAL INFORMATION:

LD50/LC50: NO DATA AVAILABLE

REPRODUCTIVE TOXICITY: NO DATA AVAILABLE

IRRITANCY, SENSITIVITY: NO DATA AVAILABLE

CARCINOGENICITY: NL NTP? NL IARC? NL OSHA? NL

POTENTIAL HEALTH EFFECTS: MAY BE HARMFUL BY INHALATION, INGESTION OR SKIN ABSORPTION. CAUSES EYE AND SKIN IRRITATION. MATERIAL IS IRRITATING TO MUCUS MEMBRANES AND UPPER RESPIRATORY TRACT.

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12. ECOLOGICAL INFORMATION: NO DATA AVAILABLE

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13. DISPOSAL CONSIDERATIONS: OBSERVE ALL FEDERAL, STATE AND LOCAL REGULATIONS.

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14. TRANSPORTATION INFORMATION: NOT REGULATED

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15. REGULATORY INFORMATION:

SARA LISTED: NO

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16. OTHER INFORMATION: NONE

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DATE PREPARED: 3/22/2010  
 REVISION: 6

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1. IDENTIFICATION:

NAME: BARBITAL SODIUM

SYNONYMS: SODIUM-5,5-DIETHYLBARBITURATE

MOLECULAR FORMULA: C8H11N2NAO3

MOLECULAR WEIGHT: 206.2

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2. CHEMICAL COMPOSITION:

CHEMICAL NAME/COMMON NAME	CAS #	%	EXPOSURE LIMITS	
			OSHA PEL	ACGIH TLV
BARBITAL SODIUM	144-02-5	100	NIF	NIF

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NA = Not Applicable

NE = Not Established

NL = Not Listed

NIF = No Information Found

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3. HAZARD IDENTIFICATION:

EMERGENCY OVERVIEW:

PRIMARY ROUTE(S) OF ENTRY:

INHALATION? X SKIN? INGESTION?

ACUTE EFFECT OF OVEREXPOSURE: BARBITAL SODIUM IS A SLEEPING DRUG. THE LETHAL DOSE FOR HUMAN IS 3-6 g.

4. FIRST AID MEASURES:

EYES: IN CASE OF CONTACT, FLUSH EYES WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES. CALL A PHYSICIAN.

SKIN: IN CASE OF CONTACT, IMMEDIATELY WASH SKIN WITH SOAP AND COPIOUS AMOUNTS OF WATER FOR 15 MINUTES. CALL A PHYSICIAN.

INHALATION: REMOVE TO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.

INGESTION: MAKE VICTIM DRINK PLENTY OF WATER, INDUCE VOMITING. CALL A PHYSICIAN.

5. FIRE AND EXPLOSION HAZARD DATA:

FLASH POINT (METHOD USED): NA

FLAMMABLE LIMITS: LEL NE UEL NE

EXTINGUISHING MEDIA: FOAM, WATER SPRAY, CARBON DIOXIDE, DRY CHEMICAL

SPECIAL FIRE FIGHTING PROCEDURES: MAY PRODUCE TOXIC FUMES OF CARBON MONOXIDE, CARBON DIOXIDE, NITROGEN OXIDES. PREVENT FIRE-FIGHTING WATER FROM ENTERING SURFACE WATER OR GROUDWATER.

UNUSUAL FIRE AND EXPLOSION HAZARDS: NA

6. SPILL OR LEAK PROCEDURES:

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: WEAR RESPIRATOR, CHEMICAL SAFETY GOGGLES, BOOTS AND HEAVY GLOVES. SWEEP UP, PLACE IN A BAG AND HOLD FOR WASTE DISPOSAL. AVOID RAISING DUST. VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICK UP IS COMPLETE.

7. HANDLING AND STORAGE:

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: STORE AT 15°C TO 25°C. TIGHTLY CLOSED. DRY.

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8. EXPOSURE CONTROL/PERSONAL PROTECTION:

RESPIRATORY PROTECTION (SPECIFY TYPE): DUST RESPIRATOR NIOSH APPROVED

VENTILATION: LOCAL EXHAUST: X MECHANICAL: OTHER:

PROTECTIVE GLOVES: PROTECTIVE GLOVES

EYE PROTECTION: SAFETY GLASSES OR GOGGLES

OTHER PROTECTIVE EQUIPMENT: WEAR SUITABLE PROTECTIVE CLOTHING. TAKE OFF CONTAMINATED CLOTHES IMMEDIATELY.

9. PHYSICAL DATA:

BOILING POINT: NA SPECIFIC GRAVITY (H2O = 1): NA pH: 10-11

VAPOR PRESSURE (MM HG.): NA MELTING POINT: NOT AVAILABLE

VAPOR DENSITY (AIR = 1): NA

SOLUBILITY IN WATER: SOLUBLE APPEARANCE AND ODOR: ODORLESS CRYSTALLINE POWDER

10. STABILITY AND REACTIVITY:

STABILITY: UNSTABLE: STABLE: X

INCOMPATIBILITY (MATERIALS TO AVOID): ACIDS, OXIDIZING AGENTS

HAZARDOUS DECOMPOSITION OF BY-PRODUCTS: IN CASE OF FIRE: CARBON DIOXIDE, CARBON MONOXIDE, NITROGEN OXIDE

HAZARDOUS POLYMERIZATION: MAY OCCUR: WILL NOT OCCUR: X

11. TOXICOLOGICAL INFORMATION:

BARBITAL IS A SLEEPING DRUG. THE LETHAL DOSE FOR HUMAN IS 3-6 g.

LD <sub>50</sub> (ORAL, MUS)	600 mg/Kg
LD <sub>50</sub> (SCU, RAT)	280 mg/Kg
LD <sub>0</sub> (IPR, RAT)	300 mg/Kg
LDL0 (SCU, RBT)	300 mg/Kg

HUMAN EFFECTS:

SYMPTOMS FOR ACUTE POISONING ARE:

- INCREASING RESTLESSNESS
- LOW BLOOD PRESSURE
- RESPIRATORY SLOW DOWN
- FIRST DILATION, LATER CONTRACTION OF THE PUPILS
- SLOW PULSE WITH A HIGH PULSE RATE
- PATIENTS DO NOT REACT TO PAIN

CARCINOGENICITY: NTP? NA IARC? NA OSHA? NA

CHRONIC EFFECTS OF EXPOSURE: THE CHRONIC EFFECTS OF THE BARBITURATES ON NEUROLOGICAL AND PSYCHIC FUNCTIONS INCLUDE DISORIENTATION, MENTAL CONFUSION, ATAXIA, DIZZINESS, DEPRESSION, AND SKIN RASHES. CONTINUED USE OF BARBITURATES, EVEN IN THERAPEUTIC DOSES, MAY RESULT IN PSYCHIC OR PHYSICAL DEPENDENCE. ABRUPT WITHDRAWAL OF THE DRUG MAY RESULT IN A SEVERE ABSTINENCE SYNDROME WHICH INCLUDES GRAND MAL SEIZURES AND DELIRIUM.

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12. ECOLOGICAL INFORMATION: DO NOT LET ATTAIN IN GROUND WATER, SEWERAGE SYSTEM OR SOIL. THE COMPOUND IS COMPLETELY DEGRADATED.

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13. DISPOSAL CONSIDERATIONS: SODIUM BARBITAL IS A RESTRICTED CHEMICAL. OBSERVE ALL FEDERAL, STATE AND LOCAL REGULATIONS.

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14. TRANSPORTATION INFORMATION: NOT CLASSIFIED AS DANGEROUS GOODS

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15. REGULATORY INFORMATION: SUBJECT TO NARCOTICS REGULATIONS

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16. OTHER INFORMATION: NONE

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DATE PREPARED: 3/22/2010
REVISION: 4

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1. IDENTIFICATION:

NAME: TRICHLOROACETIC ACID

CHEMICAL FORMULA: CCL3C00H
MOLECULAR WEIGHT: 163.39

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2. CHEMICAL COMPOSITION:

Table with 5 columns: CHEMICAL NAME/COMMON NAME, CAS #, %, EXPOSURE LIMITS (OSHA PEL, ACGIH TLV). Row 1: TRICHLOROACETIC ACID, 76-03-9, 100, NIF, 1 ppm.

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NA = Not Applicable NE = Not Established
NL = Not Listed NIF = No Information Found

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3. HAZARD IDENTIFICATION:

EMERGENCY OVERVIEW: DANGER! CORROSIVE. CAUSES SEVERE BURNS TO EVERY AREA OF CONTACT. HARMFUL IF SWALLOWED OR IHALED. INHALATION MAY CAUSE LUNG DAMAGE.

PRIMARY ROUTE(S) OF ENTRY:

INHALATION? X SKIN? X INGESTION? X

ACUTE EFFECT OF OVEREXPOSURE:

EYES: CORROSIVE. REDNESS, PAIN, BLURRED VISION CAN OCCUR. CAN CAUSE BURNS AND PERMANENT EYE DAMAGE.

SKIN: CORROSIVE. REDNESS, PAIN, SKIN BURNS CAN OCCUR.

INHALATION: INHALATION OF DUST MAY CAUSE COUGHING, CHOKING, WITH VARIABLE SYMPTOMS OF HEADACHE, DIZZINESS, AND WEAKNESS. MAY CAUSE LUNG EDEMA.

INGESTION: CORROSIVE. SORE THROAT, SEVERE ABDOMINAL PAIN, VOMITING, AND TISSUE DAMAGE MAY OCCUR.

CHRONIC EFFECTS OF EXPOSURE: LONG EXPOSURES TO ACID FUMES MAY CAUSE EROSION OF THE TEETH FOLLOWED BY JAW NECROSIS. BRONCHIAL IRRITATION WITH CHRONIC COUGH AND FREQUENT ATTACKS OF BRONCHIAL PNEUMONIA MAY ALSO OCCUR.

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4. FIRST AID MEASURES:

EYE CONTACT: IMMEDIATELY FLUSH EYES WITH GENTLE BUT LARGE STREAM OF WATER FOR AT LEAST 15 MINUTES, LIFTING LOWER AND UPPER EYELIDS OCCASIONALLY. CALL A PHYSICIAN IMMEDIATELY.

SKIN CONTACT: IMMEDIATELY FLUSH SKIN WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES WHILE REMOVING CONTAMINATED CLOTHING AND SHOES. CALL A PHYSICIAN, IMMEDIATELY. WASH CLOTHING BEFORE REUSE. EXCESS ACID ON SKIN CAN BE NEUTRALIZED WITH A 2% BICARBONATE OF SODA SOLUTION.

INHALATION: REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN. CALL A PHYSICIAN IMMEDIATELY.

INGESTION: IF SWALLOWED, DO NOT INDUCE VOMITING. GIVE LARGE QUANTITIES OF WATER. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. GET MEDIAL ATTENTION IMMEDIATELY

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5. FIRE AND EXPLOSION HAZARD DATA: NOT CONSIDERED TO BE A FIRE HAZARD

FLASH POINT (METHOD USED): NA

FLAMMABLE LIMITS: NA LEL NA UEL NA

EXTINGUISHING MEDIA: USE ANY MEANS SUITABLE FOR EXTINGUISHING SURROUNDING FIRE. WATER SPRAY MAY BE USED TO KEEP FIRE EXPOSED CONTAINERS COOL. WATER SPRAY WILL ALSO REDUCE FUMES AND IRRITANT GASES. AQUEOUS SOLUTIONS ARE ACIDIC AND CAN REACT WITH MOST COMMON METALS TO RELEASE FLAMMABLE HYDROGEN GAS.

SPECIAL INFORMATION: IN THE EVENT OF A FIRE, WEAR FULL PROTECTIVE CLOTHING AND NIOSH-APPROVED SELF-CONTAINED BREATHING APPARATUS WITH FULL FACEPIECE OPERATED IN THE PRESSURE DEMAND OR OTHER POSITIVE PRESSURE MODE.

6. SPILL OR LEAK PROCEDURES:

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: VENTILATE AREA OF LEAK OR SPILL. CLEAN-UP PERSONNEL NEED PROTECTION AGAINST INHALATION OR CONTACT WITH SUBSTANCE. COVER SPILL WITH EXCESS SODIUM BICARBONATE. CAREFULLY SWEEP UP THE MATERIAL AND PLACE IN A CORROSIVE RESISTANT CONTAINER FOR DISPOSAL. IF MATERIAL HAS MIXED WITH WATER, AFTER NEUTRALIZING MATERIAL WITH SODIUM BICARBONATE, ABSORB WITH AN INERT MATERIAL (EXAMPLE: VERMICULITE, DRY SAND, EARTH) AND PLACE IN A CORROSION RESISTANT CONTAINER. DO NOT USE COMBUSTIBLE MATERIALS, SUCH AS SAWDUST. DO NOT FLUSH TO SEWER.

7. HANDLING AND STORAGE:

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: KEEP IN TIGHTLY CLOSED CONTAINER, STORED IN A COOL, DRY, VENTILATED AREA. PROTECT AGAINST PHYSICAL DAMAGE. ISOLATE FROM INCOMPATIBLE SUBSTANCES. CONTAINERS OF THIS MATERIAL MAY BE HAZARDOUS WHEN EMPTY SINCE THEY RETAIN PRODUCT RESIDUES (DUST, SOLIDS); OBSERVE ALL WARNINGS AND PRECAUTIONS LISTED FOR THE PRODUCT.

8. EXPOSURE CONTROL/PERSONAL PROTECTION:

RESPIRATORY PROTECTION (SPECIFY TYPE): NIOSH-MSHA-APPROVED

VENTILATION: LOCAL EXHAUST: X MECHANICAL: OTHER:

PROTECTIVE GLOVES: COMPATIBLE CHEMICAL RESISTANT GLOVES

EYE PROTECTION: SAFETY GOGGLES/OR FULL FACE SHIELD

OTHER PROTECTIVE EQUIPMENT: WEAR SUITABLE PROTECTIVE CLOTHING TO PREVENT SKIN CONTACT.

9. PHYSICAL DATA:

BOILING POINT: 198°C (388°F) pH: 1.2

VAPOR PRESSURE (MM HG.): 1.3 @ 51°C (124°F) SPECIFIC GRAVITY (H2O = 1): 1.6

MELTING POINT: 58°C (136°F)

VAPOR DENSITY (AIR = 1): NIF APPEARANCE AND ODOR: WHITE HYGROSCOPIC CRYSTALS. PUNGENT ODOR.

SOLUBILITY IN WATER: VERY SOLUBLE IN WATER

10. STABILITY AND REACTIVITY:

STABILITY: UNSTABLE: STABLE: X HYGROSCOPIC

INCOMPATIBILITY (MATERIALS TO AVOID): STRONG BASES. HEATING WITH ALKALI YIELDS CHLOROFORM AND ALKALI CARBONATE. ACID SOLUTIONS IN WATER CAN REACT WITH METALS TO LIBERATE HYDROGEN GAS.

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS: CARBON MONOXIDE, CARBON DIOXIDE, CHLOROFORM, HYDROGEN CHLORIDE, PHOSGENE.

HAZARDOUS POLYMERIZATION:

MAY OCCUR: WILL NOT OCCUR: X

11. TOXICOLOGICAL INFORMATION:

TOXICITY DATA: SKIN RABBIT, STANDARD DRAIZE, 210 UG, MILD; EYE RABBIT, STANDARD DRAIZE, 3500 UG/5S, SEVERE.

IRRITANCY, SENSITIVITY:

CARCINOGENICITY: NTP? NO IARC? 3 OSHA?

POTENTIAL HEALTH EFFECTS: INVESTIGATED AS A TUMORIGEN, MUTAGEN, AND REPRODUCTIVE EFFECTOR.

12. ECOLOGICAL INFORMATION: WHEN RELEASED INTO THE SOIL, THIS MATERIAL MAY BIODEGRADE TO A MODERATE EXTENT. WHEN RELEASED INTO THE SOIL, THIS MATERIAL MAY LEACH INTO GROUNDWATER. DANGEROUS TO THE ENVIRONMENT. VERY TOXIC TO AQUATIC ORGANISMS; MAY CUASE LONG TERM ADVERSE EFFECTS IN THE AQUATIC ENVIRONMENT.

13. DISPOSAL CONSIDERATIONS: OBSERVE ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS.

14. TRANSPORTATION INFORMATION:

DOT: PROPER SHIPPING NAME: TRICHLOROACETIC ACID HAZARD CLASS: 8 UN/NA#: UN1839

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**15. REGULATORY INFORMATION:**

SARA 311/312: ACUTE: **YES** CHRONIC: **YES** FIRE: **NO**

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**16. OTHER INFORMATION:**

NFPA: **HEALTH: 3**  
**FLAMMABILITY: 0**  
**REACTIVITY: 0**

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The information herein is given in good faith but no warranty, expressed or implied, is made.

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MATERIAL SAFETY DATA SHEET

HELENA LABORATORIES
1530 Lindbergh Dr./P.O. Box 752
Beaumont, TX 77704-0752
USA Toll Free 800-231-5663

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DATE PREPARED: 3/22/2010
REVISION: 4

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1. IDENTIFICATION:

NAME: 5-SULFOSALICYLIC ACID

MOLECULAR FORMULA: HOC6H3(COOH)SO3H.2H2O
MOLECULAR WEIGHT: 254.222

2. CHEMICAL COMPOSITION:

Table with 5 columns: CHEMICAL NAME/COMMON NAME, CAS #, %, EXPOSURE LIMITS (OSHA PEL, ACGIH TLV). Row 1: 5-SULFOSALICYLIC ACID, 5965-8-3, 99, NIF, NIF.

NA = Not Applicable NE = Not Established
NL = Not Listed NIF = No Information Found

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3. HAZARD IDENTIFICATION:

EMERGENCY OVERVIEW: HARMFUL! HARMFUL IF SWALLOWED. IRRITATING TO SKIN, EYES AND RESPIRATORY TRACT.

PRIMARY ROUTE(S) OF ENTRY:

INHALATION? X SKIN? X INGESTION? X

ACUTE EFFECT OF OVEREXPOSURE:

EYES: MAY CAUSE EYE IRRITATION AND POSSIBLE BURNS.

SKIN: EXPOSURE MAY CAUSE IRRITATION AND POSSIBLE BURNS.

INHALATION: MAY CAUSE SEVERE GASTROINTESTINAL TRACT IRRITATION WITH NAUSEA, VOMITING AND POSSIBLE BURNS.

INGESTION: MAY CAUSE SEVERE IRRITATION OF THE UPPER RESPIRATORY TRACT WITH PAIN, BURNS, AND INFLAMMATION.

CHRONIC EFFECTS OF EXPOSURE: NIF

4. FIRST AID MEASURES:

EYE CONTACT: REMOVE CONTACT LENSES IF WORN. HOLD EYELIDS OPEN AND FLUSH WITH A STEADY, GENTLE STREAM OF WATER FOR AT LEAST 15 MINUTES. SEEK MEDICAL ATTENTION IF IRRITATION DEVELOPS OR PERSISTS OR IF VISUAL CHANGES OCCUR.

SKIN CONTACT: IMMEDIATELY WASH WITH PLENTY OF SOAP AND WATER FOR AT LEAST 5 MINUTES. SEEK MEDICAL ATTENTION IF IRRITATION DEVLOPS OR PERSISTS. REMOVE CONTAMINATED CLOTHING AND SHOES. CLEAN CONTAMINATED CLOTHING AND SHOES BEFORE REUSE.

INHALATION: IF VICTIM IS CONSCIOUS AND ALERT, GIVE 2-4 GLASSES OF MILK OR WATER TO DRINK. NEVER INDUCE VOMITING OR GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. SEEK IMMEDIATE MEDICAL ATTENTION. DO NOT LEAVE VICTIM UNATTENDED. VOMITING MAY OCCUR SPONTANEOUSLY. TO PREVENT ASPIRATION OF SWALLOWED PRODUCT, LAY VICTIM ON SIDE WITH HEAD LOWER THAN WAIST. SEEK IMMEDIATE MEDICAL ATTENTION.

INGESTION: IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN. SEEK MEDICAL ATTENTION. DO NOT LEAVE VICTIM UNATTENDED.

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5. FIRE AND EXPLOSION HAZARD DATA:

**MSDS: 5-SULFOSALICYLIC ACID**  
FLASH POINT (METHOD USED): **NA**

FLAMMABLE LIMITS: **NA** LEL UEL

EXTINGUISHING MEDIA: **WATER SPRAY, DRY CHEMICAL, CHEMICAL FOAM, OR CARBON DIOXIDE.**

SPECIAL FIRE FIGHTING PROCEDURES: **FIREFIGHTERS SHOULD WEAR NIOSH/MSHA APPROVED SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING. DURING A FIRE, IRRITATING AND HIGHLY TOXIC GASES MAY BE GENERATED BY THERMAL DECOMPOSITION OR COMBUSTION.**

UNUSUAL FIRE AND EXPLOSION HAZARDS: **EMITS TOXIC FUMES UNDER FIRE CONDITIONS.**

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**6. SPILL OR LEAK PROCEDURES:**

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: **WEAR ALL PROTECTIVE CLOTHING AS REQUIRED. AVOID RAISING DUST. SWEEP UP MATERIAL AND PLACE INTO CONTAINERS SUITABLE FOR DISPOSAL. VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.**

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**7. HANDLING AND STORAGE:**

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

HANDLING: **AVOID PROLONGED AND REPEATED EXPOSURE. AVOID DIRECT OR PROLONGED CONTACT WITH SKIN AND EYES. AVOID INGESTION OR INHALATION. CONTAINERS OF THIS MATERIAL MAY BE HAZARDOUS WHEN EMPTY.**

STORAGE: **STORE IN TIGHTLY CLOSED CONTAINERS. STORE IN AN AREA THAT IS COOL AND DRY.**

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**8. EXPOSURE CONTROL/PERSONAL PROTECTION:**

RESPIRATORY PROTECTION (SPECIFY TYPE): **NIOSH/MSHA APPROVED RESPIRATOR**

VENTILATION: LOCAL EXHAUST: **X** MECHANICAL: **X**  
OTHER:

PROTECTIVE GLOVES: **CHEMICAL-RESISTANT GLOVES**

EYE PROTECTION: **SAFETY GOGGLES OR GLASSES WITH SIDE SHIELD**

OTHER PROTECTIVE EQUIPMENT: **PROTECTIVE CLOTHING**

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**9. PHYSICAL DATA:**

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BOILING POINT: **NA** SPECIFIC GRAVITY (H<sub>2</sub>O = 1): **NA**

DECOMPOSITION TEMP: **>265°C**

VAPOR PRESSURE (MM HG.): NA

MELTING POINT: 108°-110°C

VAPOR DENSITY (AIR = 1): NA

SOLUBILITY IN WATER: SOLUBLE

APPEARANCE AND ODOR: WHITE CRYSTALLINE SOLID

10. STABILITY AND REACTIVITY:

STABILITY: UNSTABLE: STABLE: X

INCOMPATIBILITY (MATERIALS TO AVOID): STRONG OXIDIZERS, STRONG BASES.

HAZARDOUS DECOMPOSITION OF BY-PRODUCTS: MAY PRODUCE TOXIC FUMES OF CARBON MONOXIDE, CARBON DIOXIDE, AND SULFUR OXIDE.

HAZARDOUS POLYMERIZATION: MAY OCCUR: WILL NOT OCCUR: X

COMMENTS: MAY DISCOLOR ON EXPOSURE TO LIGHT.

11. TOXICOLOGICAL INFORMATION:

LD50/LC50: ORAL LD50: 2450 MG/KG (RAT)

REPRODUCTIVE TOXICITY:

IRRITANCY, SENSITIVITY:

CARCINOGENICITY: NL NTP? NL IARC? NL OSHA? NL

POTENTIAL HEALTH EFFECTS: TO THE BEST OF OUR KNOWLEDGE THE PHYSICAL, CHEMICAL, AND TOXICOLOGICAL PROPERTIES OF THIS PRODUCT HAVE NOT BEEN FULLY TESTED.

12. ECOLOGICAL INFORMATION: NO DATA AVAILABLE

13. DISPOSAL CONSIDERATIONS: DISPOSE IN ACCORDANCE WITH LOCAL, STATE, AND FEERAL REGULATIONS.

14. TRANSPORTATION INFORMATION:

DOT: PROPER SHIPPING NAME: CORROSIVE SOLID, N.O.S.

PRIMARY HAZARD CLASS/DIVISION: 8

UN/NA#: UN1759

PG: II

15. REGULATORY INFORMATION: NOT ON TSCA INVENTORY

16. OTHER INFORMATION:

HMIS CODE HEALTH: 3 FLAMMABILITY: 0 REACTIVITY: 1

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MATERIAL SAFETY DATA SHEET

HELENA LABORATORIES  
 1530 Lindbergh Dr./P.O. Box 752  
 Beaumont, TX 77704-0752  
 USA Toll Free 800-231-5663

\*\*\*\*\*

DATE PREPARED: 3/22/2010  
 REVISION: 3

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1. IDENTIFICATION:

NAME: GUANIDINE HYDROCHLORIDE

MOLECULAR FORMULA: CH5H3HCL  
 MOLECULAR WEIGHT: 95.5

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3. CHEMICAL COMPOSITION:

CHEMICAL NAME/COMMON NAME	CAS #	%	EXPOSURE LIMITS	
			OSHA PEL	ACGIH TLV
GUANIDINE HYDROCHLORIDE	50-01-1	>99	NIF	NIF

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NA = Not Applicable                      NE = Not Established  
 NL = Not Listed                            NIF = No Information Found

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3. HAZARD IDENTIFICATION:

EMERGENCY OVERVIEW: TOXIC, IRRITANT

PRIMARY ROUTE(S) OF ENTRY:

INHALATION? X SKIN? X INGESTION? X

ACUTE EFFECT OF OVEREXPOSURE:

EYES: IRRITANT TO EYES.

SKIN: IRRITANT TO SKIN.

INHALATION: MAY BE HARMFUL IF INHALED. MAU CAUSE RESPIRATORY TRACT IRRITATION.

INGESTION: HARMFUL IF SWALLOWED.

CHRONIC EFFECTS OF EXPOSURE: NIF

4. FIRST AID MEASURES:

EYE CONTACT: IN CASE OF CONTACT WITH EYES, FLUSH WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES. ASSURE ADEQUATE FLUSHING BY SEPARATING THE EYELIDS WITH FINGERS. CALL A PHYSICIAN.

SKIN CONTACT: IN CASE OF SKIN CONTACT, FLUSH WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES. REMOVE CONTAMINATED CLOTHING AND SHOES. CALL A PHYSICIAN.

INHALATION: IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING BECOMES DIFFICULT, GIVE OXYGEN.

INGESTION: IF SWALLOWED, WASH MOUTH OUT WITH WATER, PROVIDED PERSON IS CONSCIOUS. CALL A PHYSICIAN.

5. FIRE AND EXPLOSION HAZARD DATA:

FLASHPOINT (METHOD USE): NA

FLAMMABLE LIMITS: NIF LEL NIF UEL NIF

EXTINGUISHING MEDIA: CARBON DIOXIDE, DRY CHEMICAL POWDER, OR APPROPRIATE FOAM.

SPECIAL FIRE FIGHTING PROCEDURES: WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO PREVENT CONTACT WITH SKIN AND EYES.

UNUSUAL FIRE AND EXPLOSION HAZARDS: EMITS TOXIC FUMES UNDER FIRE CONDITIONS.

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6. SPILL OR LEAK PROCEDURES:

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: WEAR SELF-CONTAINED BREATHING APPARATUS, RUBBER BOOTS, AND HEAVY RUBBER GLOVES. SWEEP UP WASTE, PLACE IN A BAG, AND HOLD FOR WASTE DISPOSAL. AVOID RAISING DUST. VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE. DO NOT LET PRODUCT ENTER DRAINS.

7. HANDLING AND STORAGE:

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: AVOID CONTACT WITH SKIN AND EYES. AVOID FORMATION OF DUST AND AEROSOLS. PROVIDE APPROPRIATE EXHAUST VENTILATION AT PLACES WHERE DUST IS FORMED. NORMAL MEASURES FOR PREVENTIVE FIRE PROTECTION. STORE IN COOL PLACE. KEEP CONTAINER TIGHTLY CLOSED IN A DRY AND WELL-VENTILATED PLACE. HYGROSCOPIC.

8. EXPOSURE CONTROL/PERSONAL PROTECTION:

RESPIRATORY PROTECTION (SPECIFY TYPE): NIOSH/MSHA-APPROVED RESPIRATOR

VENTILATION: LOCAL EXHAUST: MECHANICAL: X
OTHER: CHEMICAL FUME HOOD

PROTECTIVE GLOVES: COMPATIBLE CHEMICAL-RESISTANT GLOVES.

EYE PROTECTION: SAFETY GOGGLES

OTHER PROTECTIVE EQUIPMENT: SAFETY SHOWER AND EYE BATH.

9. PHYSICAL DATA:

BOILING POINT: NA SPECIFIC GRAVITY (H2O = 1): NA

VAPOR PRESSURE (MM HG.): NA MELTING POINT: 185-189°C

VAPOR DENSITY (AIR = 1): NA APPEARANCE AND ODOR: WHITE CRYSTALLINE POWDER

SOLUBILITY IN WATER: SOLUBLE

10. STABILITY AND REACTIVITY:

STABILITY: UNSTABLE: STABLE: X

INCOMPATIBILITY (MATERIALS TO AVOID): PROTECT FROM MOISTURE, STRONG OXIDIZING AGENTS.

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS: CARBON MONOXIDE, CARBON DIOXIDE, NITROGEN OXIDES, HYDROGEN CHLORIDE GAS.

HAZARDOUS POLYMERIZATION:

MAY OCCUR: WILL NOT OCCUR: X

11. TOXICOLOGICAL INFORMATION:

LD50/LC50: ORL-RAT LD50:475 MG/KG

REPRODUCTIVE TOXICITY: NO DATA AVAILABLE

IRRITANCY, SENSITIVITY: NO DATA AVAILABLE

CARCINOGENICITY: NL NTP? NL IARC? NL OSHA? NL

POTENTIAL HEALTH EFFECTS: HIGH CONCENTRATIONS ARE EXTREMELY DESTRUCTIVE TO TISSUES OF MUCUS MEMBRANES AND UPPER RESPIRATORY TRACT, EYES AND SKIN. SYMPTOMS OF EXPOSURE MAY INCLUDE BURNING SENSATION, COUGHING. WHEEZING, LARYNGITIS, SHORTNESS OF BREATH, HEADACHE, NAUSEA AND VOMITING. MAY CAUSE MERVIOUS SYSTEM DISTURBANCES.

TARGET ORGAN(S):  
BONE MARROW  
NERVES

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12. ECOLOGICAL INFORMATION: NO DATA AVAILABLE

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13. DISPOSAL CONSIDERATIONS: OBSERVE ALL FEDERAL, STATE, AND LOCAL ENVIRONMENTAL REGULATIONS.

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14. TRANSPORTATION INFORMATION: NOT REGULATED

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15. REGULATORY INFORMATION: NIF

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16. OTHER INFORMATION: NONE

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