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Safety Data Sheet ST-386 Heat Transfer Opti-Speed

1. IDENTIFICATION

Synonyms none
CAS# see Part 3, below
Material Use

IN AN EMERGENCY CALL: INFOTRAC 1-800-535-5053

2. HAZARD IDENTIFICATION

GHS Class **NOT HAZARDOUS**
(Category)
Signal Words

Hazard Statements NONE

GHS Precautionary Statements for Label NONE

3. COMPOSITION

	CAS NUMBER	%	TLV ppm / mg/m ³	LD ₅₀ (mg/kg) ORAL	LD ₅₀ (mg/kg) SKIN	LC ₅₀ ppm INHALATION
1,2,3 hydroxypropane	56-81-5	>99%	2.7/10	4090	>10,000	150

4. FIRST AID

SKIN: Wash with water. Remove contaminated clothing and do not reuse until laundered.
EYES: Wash eyes with plenty of water, holding eyelids open. Seek medical assistance if there is any irritation.
INHALATION: Remove from contaminated area promptly. **CAUTION: Rescuer must not endanger himself!** If victim's breathing stops, administer artificial respiration and seek medical aid promptly.
INGESTION: Give plenty of water to dilute product. Do not induce vomiting (NOTE below). Keep victim quiet. If vomiting occurs, lower victim's head below hips to prevent inhalation of vomited material. Seek medical help promptly.

NOTE: Inadvertent inhalation of vomited material may seriously damage the lungs. The danger of this is greater than the risk of poisoning through absorption of this relatively low-toxicity product. The stomach should only be emptied under medical supervision, after the installation of an airway to protect the lungs.

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5. FLAMMABILITY & FIRE-FIGHTING

Flash Point	199°C / 390°F (closed cup)
Autoignition Temperature	370°C / 698°F – <i>This represents the autoignition of decomposition products.</i>
Flammable Limits	not known
Combustion Products	carbon monoxide; nitrogen oxides, smoke, acrolein, part oxidized hydrocarbon fragments
Firefighting Precautions	alcohol foam is best, dry chemical, water fog- water jet spreads flames & causes frothing; firefighters must wear SCBA
Static Charge Accumulation	cannot accumulate a static charge

6. ACCIDENTAL RELEASE MEASURES

Leak Precaution	dike to control spillage and prevent environmental contamination
Handling Spill	ventilate contaminated area; recover free liquid with suitable pumps; absorb residue on an inert sorbent, sweep, shovel & store in closed containers for disposal

7. HANDLING & STORAGE

Glycerol absorbs moisture from air. Store and use in a dry environment, away from oxidizing agents. Never cut, drill, weld or grind on or near this container, whether empty or full. Always replace drum, pail or IBC cap prior to moving the container!

Avoid generating or breathing product mist. Use with adequate ventilation to maintain airborne concentration of the product below the TLV (see IV, IX above). Avoid prolonged contact with skin and wash work clothes frequently. An eye bath should be available near the workplace.

NOTE: Glycerol is very sweet. Keep away from children and animals!

8. EXPOSURE CONTROL & PERSONAL PROTECTION

ACGIH TLV	2.7 ppm/10 mg/m ³
OSHA PEL	2.7 ppm/10 mg/m ³
STEL	4 ppm/15 mg/m ³
Ventilation	mechanical ventilation may be required to control airborne concentration if a mist is generated
Hands	no special protective gloves required – <i>if desired, consult supplier for suitably resistant gloves</i>
Eyes	safety glasses with side shields – <i>always protect the eyes</i>
Clothing	no special protective clothing required

9. PHYSICAL AND CHEMICAL PROPERTIES

Odor & Appearance	clear, colorless, odorless, viscous, hygroscopic liquid with a sweet taste
Odor Threshold	not known – <i>odorless</i>
Vapor Pressure	0.0023mmHg/ 0.0031kPa (20°C / 68°F)
Evaporation Rate (<i>Butyl Acetate = 1</i>)	not considered volatile
Vapor Density (air = 1)	3.2
Boiling Range	decomposes at 290°C / 554°F without boiling
Freezing Point	18°C / 64°F- <i>NOTE: glycerol supercools readily; may not freeze until below 0°C / 32°F</i>
Specific Gravity	1.264 (20/20°C)
Water Solubility	complete
Also soluble in	alcohols, glycols; insoluble in hydrocarbons, chlorinated hydrocarbons and ethers
Viscosity	1490 centipoise (20°C / 68°F)
pH	N/A
Conversion Factor	1ppm=3.76mg/m ³
Molecular Weight	92 grams per mole

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10. REACTIVITY

Dangerously Reactive With	strong oxidizing agents (chromium trioxide, potassium chlorate, or potassium permanganate) may cause an explosion
Also Reactive With	acetic anhydride
Chemical Stability	stable; may polymerize above 150°C / 300°F
Decomposes in Presence of	heat above 290°C / 554°F
Decomposition Products	toxic acrolein fumes may form on thermal decomposition
Mechanical Impact	not sensitive

11. TOXICITY INFORMATION**i. ACUTE EXPOSURE**

Skin Contact	no effect apart from softening skin
Skin Absorption	slight, no toxic effects likely by this route
Eye Contact	may be mildly irritating
Inhalation	mist may be slightly irritating
Ingestion	little to no effect; <i>very large doses-1/2 liter-may damage red cells and cause bloody urine; this effect is brief as glycerol is eliminated from the body within 2-3 hours.</i>

ii. CHRONIC EXPOSURE

General	little to no known effect
Sensitizing	not a sensitizer
Carcinogen/Tumorigen	not known to be a tumorigen or a carcinogen in humans or animals
Reproductive Effect	no known effect on humans or animals
Mutagen	not known to be a mutagen or teratogen in humans or animals
Synergistic With	not known
LD ₅₀ (oral)	12,600 & 27, 200 mg/kg (rat), 4090, 23,000 & 38,000 mg/kg (mouse), 27,000 mg/kg (rabbit), 7750 & 10,000-11,500 mg/kg (guinea pig)
LD ₅₀ (skin)	>10,000, 21,900 & 23, 000 mg/kg (rabbit)
LC ₅₀ (inhalation)	38 ppm/ 143 mg/m ³ (rat)

12. ECOLOGICAL INFORMATION

Bioaccumulation	readily metabolized (biological ½-life 30-40 min); cannot bioaccumulate
Biodegradation	biodegrades readily & very rapidly in the absence of oxygen; better than 50%
Abiotic Degradation	reacts with atmospheric hydroxyl (OH) radicals; its estimated ½ life in air is 7 hours
Mobility in soil, water	water soluble; moves readily through soil & the water column; <i>rapid biodegradation limits movement</i>
Aquatic Toxicity	
LC ₅₀ (Fish, 96hr)	51,000-57,000 mg/liter (Oncorhynchus mykiss), 10,000 mg/liter (Leuciscus idus & Idus idus, 48 hr)
EC ₅₀ (Crustacea, 24hr)	>10,000mg/ liter (Daphnia magna)
EC ₅₀ (Algae)	46,000 mg/liter (Braciomonas submarina) – <i>but some algae grow better with glycerol</i>
EC ₀ (Bacteria)	>10,000 mg/liter (Pseudomonas putida)

13. DISPOSAL CONSIDERATIONS

Waste Disposal	do not flush to sewer; may be incinerated in approved facility with flue gas monitoring & scrubbing, mix with a suitable flammable waste before incineration
Containers	Drums should be reused. Recondition and pressure test by a licensed reconditioner prior to re-use. Pails must be vented and thoroughly dried prior to crushing and recycling. IBCs (intermediate bulk containers): polyethylene bottle must be pressure tested & recertified at 30 months. Replace at 60 months (5 years). Steel containers must be inspected, pressure tested & recertified every 5 years. Warning: never cut, drill, weld or grind on or near this container, even if empty.

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14. TRANSPORT INFORMATION

USA 49 CFR & Canada/International TDG

Product Identification Number	UN – not regulated for transport
Shipping Name	not regulated for transport
Classification	not regulated for transport
Marine Pollution	not a marine pollutant
ERAP Required	No

15. REGULATIONS

Canada DSL	on inventory
U.S.A. TSCA	on inventory
Europe EINECS	on inventory

U.S.A. Regulations:

Allowable Tolerances: Residues resulting from the use of the following substances as either an inert or an active ingredient in a pesticide chemical formulation, including antimicrobial pesticide chemicals, are exempted from the requirement of a tolerance under FFCA section 408, if such use is in accordance with good agricultural or manufacturing practices. Glycerin is included on this list.

OSHA Standards: Permissible Exposure Limit: Table Z-1 8 hr Time Weighted Avg: 15 mg/cu m./ Mist, total dust/ Permissible Exposure Limit: table Z-1 8-hr Time Weighted Avg: 5 mg/cu m./ Mist, respirable fraction/ Vacated 1989 OSHA PEL TWA 10 mg/cu m is still enforced in some states. Mist, total/ Vacated 1989 OSHA PEL TWO 5 mg/ m3 is still enforced in some states/ Mist. resp

NIOSH Recommendations: NIOSH concluded that the documentation cited by OSHA was inadequate to support the proposed PEL (as an 8 hour TWA) of 10 mg/m3 for glycerine (mist).

Threshold Limit Values: 8 hr Time Weighted Avg (TWA): 10 mg/m3/ Glycerin mist/ Excursion Limit Recommendation: Excursion in worker exposure levels may exceed 3 times the TLV-TWA for no more than a total of 30 minutes during a work day, and under no circumstances should they exceed 5 times the TLV-TWA, provided that the TLV-TWA is not exceeded. Glycerin mist/ 2011 Notice of Intended Changes: These substances, with their corresponding values and notations, comprise those for which (1) a limit is proposed for the first time, (2) a change in the Adopted value is proposed, (3) retention as an NIC is proposed or (4) withdrawal of the Documentation and adopted TLV is proposed. In each case, the proposals should be considered trial values during the period they are on the NIC. These proposals were ratified by the ACGIH Board of Directors and will remain on the NIC for approximately one year following this ratification. If the Committee neither finds nor receives any substantive data that changes its scientific opinion regarding an NIC TLC, the Committee may change its recommendation to the ACGIH Board of Directors for the matter to be either retained on or withdrawal from the NIC. Substance: Glycerin, mist (56-81-5); Withdraw adopted Documentation and TLV.

Atmospheric Standards: This action promulgates standards of performance for equipment leaks of Volatile Organic Compounds (VOC) in the Synthetic Organic Chemical Manufacturing Industry (SOCMI). The intended effect of these standards is to require all newly constructed, modified, and reconstructed SOCMI process units to use the best demonstrated system of continuous emission reduction for equipment leaks of VOC, considering costs, non air quality health and environmental impact and energy requirements. Glycerol is produced, as an intermediate or a final product, by process units covered under this subpart.

FIFRA Requirements: Residues resulting from the use of the following substances as either an inert or an active ingredient in a pesticide chemical formulation, including antimicrobial pesticide chemical, are exempted from the requirement of a tolerance under FFCA section 408, if such use is in accordance with good agricultural or manufacturing practices. Glycerin is included on this list. As the federal pesticide law FIFRA directs, EPA is conducting a comprehensive review of older pesticides to consider their health and environmental effects and make decisions about their future use. Under this pesticide reregistration program, EPA examines health and safety data for pesticide active ingredients initially registered before November 1, 1984, and determines whether they are eligible for reregistration. In addition, all pesticides must meet the new safety standard of the Food quality Protection Act of 1996. Pesticides for which EPA had not issued Registration Standards prior to the effective date of FIFRA, as amended in 1988, were divided into three lists based upon their potential for human exposure and other factors with list B containing pesticides of less concern. Glycerol is found on List D. Case No: 4044; Case Status : No products containing the pesticide are actively registered...the case/is characterized as "cancelled" Under FIFRA, pesticide producers may voluntarily cancel their registered products. EPA also may cancel pesticide registrations if registrants fail to pay required fees or make/meet certain reregistration commitments, or if EPA reaches findings of unreasonable adverse effects. Active ingredient (AI): Glycerol AI Status: The active ingredient is no longer contained in any registered pesticide products "cancelled"

FDA Requirements: Substances migrating to food from paper and paperboard products used in food packaging that are generally recognized as safe for their intended use, within the meaning of section 409 of the Act; Glycerin is included on this list. Glycerin used as a multiple purpose GRAS food substance in food for human consumption is generally recognized as safe when used in accordance with good manufacturing practice. Glycerin used as a general purpose food additive in animal drugs, feeds and related products is generally recognized as safe when used in accordance with good manufacturing or feeding practices.

16. OTHER INFORMATION

Date of Preparation	May 2015
Date of Revision	-
Prepared for DAC Vision	

With data from the Registry of Toxic Effects of Chemical Substances (RTECS), Hazardous Substance Data Base (HSDB), Cheminfo (CCOHS), OSHA, IUCLID Datasheets (European Chemical Substance Information System - ESIS), & others sources (below if used), as required/available

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