MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Material name	**PROPARGYLALDEHYDE DIETHYL ACETAL, 95%**
Catalog #	5354
Version #	01
Revision date	03-Sep-2009
CAS #	10160-87-9
Synonym(s)	3,3-DIETHOXY-1-PROPYNE * PROPIOLALDEHYDE DIETHYL ACETAL * 3,3-Diethoxypropyne
Manufacturer information	GFS Chemicals, Inc. P.O. Box 245 Powell, OH 43065 US www.gfschemicals.com Fax 740-881-5989 Phone 740-881-5501 Toll Free 800-858-9682 Emergency Assistance Chemtrec 800-424-8300

2. Hazards Identification

Emergency overview	WARNING FLAMMABLE LIQUID AND VAPOR. Will be easily ignited by heat, spark or flames. Irritating to eyes, respiratory system and skin. The physical-chemical properties of this material have not been fully investigated. The toxicological properties of this material have not been fully investigated.
OSHA regulatory status	This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).
Potential health effects	
Routes of exposure	Inhalation. Skin contact. Eye contact.
Eyes	Irritating to eyes. Avoid contact with eyes.
Skin	Irritating to skin. Avoid contact with the skin.
Inhalation	Irritating to respiratory system. Do not breathe dust/fume/gas/mist/vapors/spray.
Ingestion	Irritating to mouth, throat, and stomach. Do not ingest.
Potential environmental effects	Ecological injuries are not known or expected under normal use.

3. Composition / Information on Ingredients

Components	CAS #	Percent
PROPARGYLALDEHYDE DIETHYL ACETAL	10160-87-9	90 - 100

4. First Aid Measures

First aid procedures

Eye contact	Flush eyes immediately with large amounts of water. Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.
Skin contact	Take off immediately all contaminated clothing. Wash off immediately with plenty of water. Rinse skin with water/shower. Get medical attention if irritation develops and persists.
Inhalation	If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. Move to fresh air. For breathing difficulties, oxygen may be necessary. Get medical attention, if needed.
Ingestion	Rinse mouth. Do not induce vomiting without advice from poison control center. Do not use mouth-to-mouth method if victim ingested the substance. If ingestion of a large amount does occur, call a poison control center immediately. Rinse mouth thoroughly.

General advice Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire Fighting Measures

Flammable properties Flammable by OSHA criteria. Heat may cause the containers to explode. Runoff to sewer may cause fire or explosion hazard.

Extinguishing media

- **Suitable extinguishing media** Water. Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).
- **Unsuitable extinguishing media** Do not use a solid water stream as it may scatter and spread fire.

Protection of firefighters

- **Specific hazards arising from the chemical** Fire may produce irritating, corrosive and/or toxic gases.
- **Protective equipment and precautions for firefighters** In case of fire and/or explosion do not breathe fumes. Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also consider initial evacuation for 800 meters (1/2 mile) in all directions. ALWAYS stay away from tanks engulfed in flame. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. Move containers from fire area if you can do so without risk. In the event of fire, cool tanks with water spray. Use water spray to cool unopened containers. Cool containers exposed to flames with water until well after the fire is out. For massive fire in cargo area, use unmanned hose holder or monitor nozzles, if possible. If not, withdraw and let fire burn out.

Specific methods In the event of fire and/or explosion do not breathe fumes. In the event of fire, cool tanks with water spray. Use water spray to cool unopened containers.

6. Accidental Release Measures

Personal precautions Keep unnecessary personnel away. Keep upwind. Keep out of low areas. Keep people away from and upwind of spill/leak. Ventilate closed spaces before entering them. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

Methods for containment ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Prevent entry into waterways, sewer, basements or confined areas.

Methods for cleaning up Large Spills: Dike far ahead of spill for later disposal. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Following product recovery, flush area with water.

Never return spills in original containers for re-use.

7. Handling and Storage

Handling Vapors may form explosive mixtures with air. DO NOT handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Do not smoke. All equipment used when handling the product must be grounded. Avoid breathing dust/fume/gas/mist/vapors/spray. Avoid contact with skin. Avoid contact with eyes. Use only in area provided with appropriate exhaust ventilation. Wear personal protective equipment. Wash thoroughly after handling.

Storage The pressure in sealed containers can increase under the influence of heat. Keep away from heat, sparks and open flame. Keep away from heat and sources of ignition. This material can accumulate static charge which may cause spark and become an ignition source. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in cool place. Keep refrigerated. Store in a well-ventilated place. Keep container tightly closed. Keep in an area equipped with sprinklers. Use care in handling/storage.

8. Exposure Controls / Personal Protection

Engineering controls Ensure adequate ventilation, especially in confined areas.

Personal protective equipment

Respiratory protection	In case of insufficient ventilation, wear suitable respiratory equipment. Avoid breathing dust/fume/gas/mist/vapors/spray.
Hand protection	Rubber gloves.
Eye / face protection	Wear chemical goggles.
Skin protection	Avoid contact with the skin. Wear suitable protective clothing. Wear protective gloves.
General hygeine considerations	When using do not smoke. Avoid contact with eyes. Avoid contact with skin. Handle in accordance with good industrial hygiene and safety practice.
General	Avoid contact with skin. Avoid contact with eyes.

9. Physical & Chemical Properties

Appearance	Clear.
Color	Colorless to light yellow.
Odor	Characteristic organic odor.
Odor threshold	Not available.
Physical state	Liquid.
Form	Liquid.
pH	Not available.
Melting point	Not available.
Freezing point	Not available.
Boiling point	278.6 - 282.2 °F (137 - 139 °C)
Flash point	89.6 °F (32 °C)
Evaporation rate	Not available.
Flammability	Not available.
Flammability limits in air, upper, % by volume	Not available.
Flammability limits in air, lower, % by volume	Not available.
Vapor pressure	> 1.109 kPa at 25°C
Vapor density	Not available.
Specific gravity	0.894
Relative density	0.894 g/cm3
Solubility (water)	Not available.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Molecular weight	128.1700 g/mol
Molecular formula	(C2H5O)2CHCCH

10. Chemical Stability & Reactivity Information

Chemical stability	Stable when kept cool. Risk of explosion. Risk of ignition.
Conditions to avoid	Heat, flames and sparks.
Incompatible materials	Incompatible with acids and bases. Oxidizing agents.
Hazardous decomposition products	No hazardous decomposition products are known.
Possibility of hazardous reactions	Hazardous polymerization does not occur.

11. Toxicological Information

Toxicological information	The toxicological properties have not been fully investigated.
Acute effects	The toxicological properties of this material have not been fully investigated and its handling and use may be hazardous.
Local effects	Irritating to respiratory system. Irritating to eyes. Irritating to skin.

Carcinogenicity This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

12. Ecological Information

Ecotoxicity This product has no known eco-toxicological effects.

Persistence and degradability Not available.

13. Disposal Considerations

Waste codes D001: Waste Flammable material with a flash point <140 F

Disposal instructions Dispose of this material and its container to hazardous or special waste collection point. Incinerate the material under controlled conditions in an approved incinerator. Do not incinerate sealed containers. If discarded, this product is considered a RCRA ignitable waste, D001. Dispose in accordance with all applicable regulations.

14. Transport Information

DOT

Basic shipping requirements:

Proper shipping name	Flammable liquids, n.o.s.
Hazard class	3
UN number	UN1993
Packing group	II
Additional information:	
Special provisions	IB2, T7, TP1, TP8, TP28
Packaging exceptions	150
Packaging non bulk	202
Packaging bulk	242
ERG number	128

15. Regulatory Information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
CERCLA/SARA Hazardous Substances - Not applicable.
Not listed on TSCA

CERCLA (Superfund) reportable quantity

None

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories	Immediate Hazard - Yes Delayed Hazard - No Fire Hazard - Yes Pressure Hazard - No Reactivity Hazard - No
Section 302 extremely hazardous substance	No
Section 311 hazardous chemical	Yes

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	No
Canada	Domestic Substances List (DSL)	No
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	No
Europe	European Inventory of New and Existing Chemicals (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	No
New Zealand	New Zealand Inventory	No
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	No

A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

State regulations This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

16. Other Information

Further information HMIS® is a registered trade and service mark of the NPCA.

HMIS® ratings
Health: 2
Flammability: 3
Physical hazard: 0

NFPA ratings
Health: 0
Flammability: 0
Instability: 0

Disclaimer The information in the sheet was written based on the best knowledge and experience currently available. The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Issue date 03-Sep-2009