



MATERIAL SAFETY DATA SHEET
CARBOXYLIC ACID-CAPPED TETRA(ETHYLENE GLYCOL)UNDECANETHIOL, ETHANOL SOLUTION
PN 706083 Rev 0

Asemblon has evaluated its products in light of OSHA regulations and European Union Directives. As of the date of this publication, the chemical, physical, and toxicological properties of these products have not been thoroughly investigated. This MSDS is written to apply to known hazards of these products and Good Laboratory Practices.

<u>REF</u> 191047-013	<u>Name</u> Carboxylic acid-capped tetra(ethylene glycol)undecanethiol, Ethanol Solution
--------------------------	---

MANUFACTURER/SUPPLIER:	Asemblon, Inc. 15340 NE 92 nd St, Ste B, Redmond, WA 98052-3521 USA	Phone: Toll free: 888.465.3710
EMERGENCY CONTACT:	(800) 424-9300 (CHEMTREC)	Outside US: +1.425.558.5100 FAX: +1.425.558.5119

COMPOSITION/INFORMATION ON INGREDIENTS

<u>Substance Name</u>	<u>CAS #</u>	<u>Percent</u>	<u>SARA 313</u>
Carboxylic acid-capped tetra(ethylene glycol)undecanethiol**	716339-41-2	0.02	No
Ethyl alcohol, 200 proof	64-17-5	99.98	Yes

** **Formula:** C19 H38 O6 S

Synonyms: Carboxylic acid-capped tetra(ethylene glycol)undecanethiol, 1mmol/L in Ethanol
Carboxylic acid-capped tetra(ethylene glycol)undecanethiol, 0.001 mol/L in Ethanol

3. HAZARDS IDENTIFICATION

Emergency Overview: Irritant. Irritating to eyes, respiratory system & skin. Stench

HMIS Rating	NFPA Rating
Health: 2	Health: 2
Flammability: 3	Flammability: 3
Reactivity: 1	Reactivity: 1

See Section 11 for additional information

4. FIRST-AID MEASURES

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Ingestion: Wash out mouth with water. Get medical attention. Never give anything by mouth to an unconscious person.

Skin Contact: Immediately wash area with soap and plenty of water.

Eye Contact: Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Call a physician.

5. FIRE-FIGHTING MEASURES

FLASH POINT: 15 °C (60 °F)
AUTOIGNITION TEMPERATURE: NA
FLAMMABILITY: NA

Extinguishing Media: Carbon dioxide, dry chemical powder, or appropriate foam.
Protective Equipment for Fire-Fighting: Wear full protective clothing to prevent contact with skin and eyes and NIOSH-approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode.
Specific Hazard(s): Flammable liquid. Vapor may travel and flash back.
Specific Method(s) of Fire Fighting: Use water spray to cool fire-exposed containers.

6. ACCIDENTAL RELEASE MEASURES

In case of spill or leak: Evacuate area and shut off all ignition sources.
For clean-up: Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves. Cover with sand, soda-ash or dry-lime and place into appropriate covered receptacle using non-sparking tools. Transport outdoors and hold for waste disposal. Ventilate area and wash spill site after material pickup is complete.

7. HANDLING AND STORAGE

HANDLING: Do not breathe vapor. Avoid contact with eyes, skin, and clothing.
SUITABLE STORAGE: Keep tightly closed. Store away from heat and ignition sources.

8. EXPOSURE CONTROLS /PERSONAL PROTECTION



MATERIAL SAFETY DATA SHEET
CARBOXYLIC ACID-CAPPED TETRA(ETHYLENE GLYCOL)UNDECANETHIOL, ETHANOL SOLUTION
PN 706083 Rev 0

ENGINEERING CONTROLS

Use only in chemical fume hood. Safety shower and eye wash

PERSONAL PROTECTIVE EQUIPMENT

Wear appropriate government approved respirator, chemical-resistant gloves, safety goggles, other protective clothing.

GENERAL HYGIENE MEASURES

Wash thoroughly after handling.

EXPOSURE LIMITS

Country: Poland, Type: NDS, Value 1900 mg/m³

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Form: Liquid
Odor:	Slight thiol odor
<u>Property</u>	<u>Value</u>
MP, MP range	No information found.
Density	0.79 g/cm ³
Boiling Point	No information found.
Freezing Point	No information found.
Solubility in water	No information found.
Explosion Limits	No information found.
Flash Point	15 °C (60 °F)
Flammability	Flammable
Autoignition	No information found.

10. STABILITY AND REACTIVITY

Stability: Stable

Conditions to Avoid: Moisture

Materials to avoid: Acids, acid chlorides, acid anhydride, alkali metals, ammonia, oxidizing agents, peroxides

Hazardous Decomposition Products: Sulfur oxides, Carbon monoxide, Carbon dioxide, hydrogen sulfide gas.

11. TOXICOLOGICAL INFORMATION

ROUTE(S) OF EXPOSURE

Skin Contact: May cause skin irritation.

Skin Absorption: May be harmful if absorbed through the skin.

Eye Contact: May cause eye irritation.

Inhalation: May be irritating to the upper respiratory tract or mucus membranes.

May be harmful if inhaled.

Ingestion: May be harmful if swallowed.

Multiple Routes: May be harmful by inhalation, ingestion, or skin absorption.

TARGET ORGAN(S) OR SYSTEMS: Nerves, Heart, Liver.

SIGNS AND SYMPTOMS OF EXPOSURE: Can cause CNS depression. Can cause narcotic effect. Headache, nausea or vomiting. Damage to the heart.

CHRONIC EXPOSURE – CARCINOGEN: Contains a component that is not classifiable based upon its IARC, ACGIH, NTP or EPA classification

12. ECOLOGICAL INFORMATION

No information found.

13. DISPOSAL CONSIDERATIONS

Burn in a chemical incinerator equipped with an afterburner and scrubber.

Observe all federal, state, and local environmental regulations.

14. TRANSPORTATION INFORMATION

DOT: Proper Shipping Name: Ethanol [or] Ethyl alcohol [or] Ethanol solutions [or] Ethyl alcohol solutions

UN#: 1170

Class: 3

Packing Group: Packing Group II

Hazard Label: Class 3

PIH: Not PIH

IATA: Proper Shipping Name: Ethanol [or] Ethyl alcohol [or] Ethanol solutions [or] Ethyl alcohol solutions

IATA UN Number: 1170

Hazard Class: 3

Packing Group: II

15. REGULATORY INFORMATION

EU REGULATORY INFORMATION

Symbol of Danger: F

Indication of Danger: Highly flammable

R Phrases: 11 Highly flammable

S Phrases: .7-16. Keep container tightly closed. Keep away from sources of ignition - no smoking.

To the best of our knowledge, the information contained herein is accurate. However, all materials may present unknown hazards and should be used with caution. In particular, improper use of our products and their inappropriate combination with other products and substances may produce harmful results, which cannot be anticipated. Final determination of the suitability of any material is the sole responsibility of the user. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that may exist.



MATERIAL SAFETY DATA SHEET

CARBOXYLIC ACID-CAPPED TETRA(ETHYLENE GLYCOL)UNDECANETHIOL, ETHANOL SOLUTION
PN 706083 Rev 0

US CLASSIFICATION AND LABEL TEXT

Indication of Danger: Flammable. Irritant.

Risk Statements: Irritating to eyes, respiratory system and skin.

Safety Statements: Keep container tightly closed. Keep away from sources of ignition - no smoking. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing.

US Statements: Target organ(s): Nerves. Liver.

UNITED STATES REGULATORY INFORMATION

SARA LISTED: No TSCA: No

CANADA REGULATORY INFORMATION

WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DSL: No

NDSL: No

16. OTHER INFORMATION

PRODUCT INFORMATION: (888) 465-3710

Product Use: For R&D use only. Not for drug, household or other uses.

MSDS first issued: Mar-06

MSDS data revised:

EC Legislation: EC Directive 91/155/EEC, 67/548/EEC as amended and adapted to technical progress and 88/379/EEC relating to the classification, packaging, labeling and arrangements for provision of specific information of dangerous substances or preparations. Other EC or national legislation and standards may apply.

To the best of our knowledge, the information contained herein is accurate. However, all materials may present unknown hazards and should be used with caution. In particular, improper use of our products and their inappropriate combination with other products and substances may produce harmful results, which cannot be anticipated. Final determination of the suitability of any material is the sole responsibility of the user. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that may exist.