



Material Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

ADVASTAB™ TM-694OM Heat Stabilizer

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Supplier PMC Organometallics Inc.
PMC Cincinnati, Inc.
2000 West Street
Cincinnati, OH 45215

For non-emergency information contact: **Phone:** (855) 638-2549
Fax: (855) 289-2885

Emergency telephone number

Medical: CHEMTREC (CNN 677024): (800) 424-9300 (24 hrs / 7 days a week)
Rocky Mountain Poison Center: (877) 741-3777
Local: 303-389-1605 (24 hrs / 7 days a week)

2. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No.	Concentration
Mixed alkylmetallic mercaptoester sulfides	201687-58-3	40.0 - 50.0 %
Mercaptoethylallate	68440-24-4	35.0 - 45.0 %
Mercaptoethyl oleate	59118-78-4	35.0 - 45.0 %
Mercaptoethanol	60-24-2	1.0 - 5.0 %
Solvent dewaxed heavy paraffinic distillates	64742-65-0	1.0 - 5.0 %

Note

Solvent dewaxed heavy paraffinic distillates:

The classification as a carcinogen need not to apply because the substance contains less than 3 % DMSO extract as measured by IP 346.Note L of Annex 1.

NOTE: The "*", or "asterisk", in the CONCENTRATION column is used to denote 2 or more components whose identical concentrations sum to the total indicated to the left of the "asterisk".

3. HAZARDS IDENTIFICATION

Emergency Overview

Appearance

Form liquid
 Colour Yellow to amber Clear to hazy
 Odour Mercaptan

Hazard Summary	<p><u>DANGER!</u> INHALATION OF VAPOR OR MIST CAN CAUSE HEADACHE, NAUSEA AND IRRITATION OF THE NOSE, THROAT AND LUNGS. MAY CAUSE EYE AND SKIN IRRITATION. CAN BE ABSORBED THROUGH INTACT SKIN. MAY CAUSE SENSITIZATION BY SKIN CONTACT. MATERIAL CAN CAUSE THE FOLLOWING: KIDNEY DAMAGE LIVER DAMAGE BLOOD CHANGES HYDROGEN SULFIDE, H₂S, A DECOMPOSITION BY-PRODUCT OF THIS MATERIAL, WHICH MAY BE FATAL IF INHALED, MAY BE PRESENT IN THE HEAD SPACE.</p>
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Potential Health Effects

Primary Routes of Entry: Eye contact
 Inhalation
 Skin contact
 Dermal Absorption

Eyes: May cause eye irritation.

Skin: May cause skin irritation.
 Can be absorbed through intact skin.
 May cause sensitization by skin contact.

Ingestion: Material can cause the following:
 Abdominal pain
 Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.

Inhalation: Inhalation of vapor or mist can cause the following:
 irritation of nose, throat, and lungs
 Hydrogen sulfide, H₂S, a decomposition by-product of this material, which may be fatal if inhaled, may be present in the head space.

Chronic Exposure: Prolonged or repeated overexposure can cause the following:
 kidney damage
 liver damage
 Blood changes
 Suspected of causing genetic defects.

Carcinogenicity

Component	List	Classification
Solvent dewaxed heavy paraffinic distillates	IARC	Human carcinogen.

Solvent dewaxed heavy paraffinic distillates	IARC	Human carcinogen.
Solvent dewaxed heavy paraffinic distillates	US NTP	Known to be human carcinogen
Solvent dewaxed heavy paraffinic distillates	US NTP	Known to be human carcinogen

4. FIRST AID MEASURES

Inhalation: Move to fresh air. Give artificial respiration if breathing has stopped. Consult a physician.

Skin contact: Take off all contaminated clothing immediately. Wash off with soap and plenty of water. Wash contaminated clothing before re-use. Do not take clothing home to be laundered. In the case of skin irritation or allergic reactions see a physician.

Eye contact: Rinse with plenty of water. If eye irritation persists, consult a specialist.

Ingestion: Drink 1 or 2 glasses of water. Never give anything by mouth to an unconscious person. Consult a physician.

Notes to physician: For inhalation exposure consider treatment for hydrogen sulfide (H₂S) exposure.

5. FIREFIGHTING MEASURES

Flash point 125 °C (257.00 °F) SETAFLASH CLOSED CUP

Lower explosion limit no data available

Upper explosion limit no data available

Suitable extinguishing media:Extinguishing media - small fires

Dry chemical

Carbon dioxide (CO₂)

Water spray

Extinguishing media - large fires

Foam

Thermal decomposition Combustion generates toxic fumes of the following:, Carbon oxides, sulfur oxides

Specific hazards during firefighting: High temperatures can cause sealed containers to rupture due to a build up or of internal pressure. During a fire, irritating and highly toxic gases and/or fumes may be generated during combustion or decomposition.

Special protective equipment for firefighters: Wear self-contained breathing apparatus and protective suit.

Further information: Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Use personal protective equipment.

If exposed to material during clean-up operations, see SECTION 4, First Aid Measures, for actions to follow.

- Take off all contaminated clothing immediately.
- Wash off with soap and plenty of water.
- Do not take clothing home to be laundered.
- Wash contaminated clothing before re-use.

Environmental precautions

CAUTION: Keep spills and cleaning runoff out of municipal sewers and open bodies of water.

Methods for cleaning up

- Keep people away from and upwind of spill/leak.
- Floor may be slippery; use care to avoid falling.
- Transfer liquids and solid diking material to separate suitable containers for recovery or disposal.

7. HANDLING AND STORAGE

Handling

Avoid contact with eyes, skin and clothing. Wash thoroughly after handling. Keep container tightly closed. Head space may contain hydrogen sulfide (H₂S) and may be fatal if inhaled; extreme caution must be used if container is opened. Vapors can be evolved when material is heated during processing operations. See SECTION 8, Exposure Controls/Personal Protection, for types of ventilation required. May cause sensitization of susceptible persons by skin contact. For personal protection see section 8.

Storage

Storage conditions: Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Hydrogen sulfide (H₂S), a decomposition by-product of this material, may be present in the headspace of the container. Lack of adequate ventilation may result in airborne levels of hydrogen sulfide in storage areas above established exposure limits.

Further information on storage conditions: Improper disposal or re-use of this container may be dangerous and illegal. Refer to applicable local, state and federal regulations.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limit(s)

Exposure limits are listed below, if they exist.

Component	Regulation	Type of listing	Value
Mercaptoethanol		TWA	0.2 ppm
Mercaptoethanol		STEL	0.6 ppm
Mercaptoethanol		Absorbed via skin	
Mercaptoethanol	US WEEL	TWA	0.2 ppm

Exposure controls

Engineering measures: Use local exhaust ventilation with a minimum capture velocity of 150 ft/min. (0.75 m/sec.) at the point of dust or mist evolution. Refer to the current edition of "Industrial Ventilation: A Manual of Recommended Practice" published by the American Conference of Governmental Industrial Hygienists for information on the design, installation, use, and maintenance of exhaust systems.

Protective measures: Wash thoroughly after handling. Shower or bathe at the end of working. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

Individual protection measures

Eye/face protection: Chemical resistant goggles must be worn. Eye protection worn must be compatible with respiratory protection system employed.

Skin protection

Hand protection: Chemical-resistant gloves should be worn whenever this material is handled. Glove permeation data does not exist for this material. The following glove(s) should be used for splash protection only: Neoprene gloves. Gloves should be removed and replaced immediately if there is any indication of degradation or chemical breakthrough. Rinse and remove gloves immediately after use. Wash hands with soap and water. NOTE: Material is a possible skin sensitizer.

Other protection: Wear as appropriate: impervious clothing. Chemical resistant apron.

Respiratory protection: A respiratory protection program meeting OSHA 1910.134 and ANSI Z88.2 requirements or equivalent must be followed whenever workplace conditions warrant a respirator's use. None required if airborne concentrations are maintained below the exposure limit listed in Exposure Limit Information. Up to 50 times the exposure limit: Wear a properly fitted NIOSH approved (or equivalent) full-facepiece, air-purifying respirator OR full-facepiece, airline respirator in the pressure demand mode. Above 50 times the exposure limit or Unknown: Wear a properly fitted NIOSH approved (or equivalent) self-contained breathing apparatus in the pressure demand mode, OR full-facepiece, airline respirator in the pressure demand mode with emergency escape provision. Air-purifying respirators should be equipped with NIOSH approved (or equivalent) organic vapor cartridges and N95 filters. If oil mist is present, use R95 or P95 filters. Hydrogen sulfide (H₂S), a decomposition by-product of this material, may be present in the headspace of the container. The occupational exposure limits for hydrogen sulfide are: ACGIH and OSHA 15-min STEL: 15 ppm, 8-hr TWA: 10 ppm, 15-min STEL: 10 ppm, 8-hr TWA: 3 ppm. When conditions exist where hydrogen sulfide exposure above these exposure limits is possible the following respiratory protection is required. Above the exposure limit: Wear a properly fitted NIOSH approved (or equivalent) self-contained breathing apparatus in the pressure demand mode, OR full-facepiece, airline respirator in the pressure demand mode with emergency escape provision.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	liquid
Colour	Yellow to amber Clear to hazy
Odour	Mercaptan
pH	not applicable
Boiling point/boiling range	> 270 °C (> 518.00 °F)
Flash point	125 °C (257.00 °F) SETAFLASH CLOSED CUP

Lower explosion limit	no data available
Upper explosion limit	no data available
Relative vapour density	no data available
Water solubility	insoluble
Density	1.02 g/cm ³ at 25.00 °C (77.00 °F)
Percent volatility	0 % open vessel, room temperature, 8 hrs

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Hazardous reactions	At elevated temperature and in the presence of additives, such as strong acid, ethylene sulfide (CASRN 420-12-2) can form, which can polymerize and deposit on equipment, with the potential to plug pipes. Stable
Materials to avoid	Contact with acids can generate hydrogen sulfide (CAS Reg. No. 7783-06-4).
Hazardous decomposition products	Decomposes under the influence of moisture, water, or acids to form hydrogen sulfide (H ₂ S), a combustible and toxic gas., Thermal decomposition may yield the following: Hydrogen sulfide,
polymerisation	Product will not undergo polymerization.

11. TOXICOLOGICAL INFORMATION

Toxicological information on this product or its components appear in this section when such data is available.

No toxicity data are available for this material.

Component: **Mixed alkylmetallic mercaptoester sulfides**

Acute oral toxicity LD50 rat > 4,000 mg/kg

Component: **Mercaptoethyl oleate**

Acute oral toxicity LD50 rat 2,100 mg/kg OECD Test Guideline 401

Component: **Mercaptoethanol**

Acute oral toxicity LD50 rat 244 mg/kg

Component: **Mercaptoethanol**

Acute oral toxicity LD50 mouse 190 mg/kg

Component: **Mercaptoethanol**

Acute inhalation toxicity LC50 mouse 2 Hour 13.2 mg/l

Component: **Mercaptoethyltallate**

Acute dermal toxicity LD50 rabbit >2,000 mg/kg OECD Test Guideline 402

Component: **Mercaptoethanol**

Acute dermal toxicity LD50 rabbit 150 mg/kg

Component: **Mercaptoethanol**

Acute dermal toxicity LD50 guinea pig 300 mg/kg

Component: **Mixed alkylmetallic mercaptoester sulfides**

Skin irritation No skin irritation

Component: **Mercaptoethyltallate**

Skin irritation rabbit OECD Test Guideline 404 4 Hour Moderate irritation.

Component: **Mercaptoethanol**

Skin irritation irritant effects

Component: **Solvent dewaxed heavy paraffinic distillates**

Skin irritation irritant effects

Component: **Mixed alkylmetallic mercaptoester sulfides**

Eye irritation No eye irritation

Component: **Mercaptoethyltallate**

Eye irritation rabbit OECD Test Guideline 405 24 Hour slight irritation

Component: **Mercaptoethanol**

Eye irritation irritant effects

Component: **Solvent dewaxed heavy paraffinic distillates**

Eye irritation irritant effects

Component: **Mixed alkylmetallic mercaptoester sulfides**

Subchronic toxicity Oral rat
90-day In oral studies of 28 days (gavage) and 90 days (dietary) a dose of approximately 50 mg/kg-day in rats produced blood chemistry changes suggestive of diuresis, plus increases in hemoglobin, hematocrit, and red blood cells in the absence of other histopathological effects. The No Observable Effect Level (NOEL) was approximately 15 mg/kg body weight - day.

Component: **Mixed alkylmetallic mercaptoester sulfides**

Mutagenicity

Not mutagenic in Ames Test. In vivo micronucleus assay (mouse bone marrow cells): Not mutagenic

Component: **Mercaptoethyltallate**

Reproductive toxicity

Adverse effects on the female reproductive system have been reported in laboratory animals following repeated exposure.

Component: **Mercaptoethyltallate**

Teratogenicity

Developmental effects were seen in laboratory animals only at dose levels that were maternally toxic.

Component: **Mercaptoethyltallate**

Mutagenicity

Not mutagenic in Ames Test. In vivo tests did not show mutagenic effects. In vivo micronucleus assay (mouse): Negative. In vitro cytogenetic assay (Chinese hamster ovary cells): Positive with metabolic activation.

Component: **Mercaptoethyl oleate**

Mutagenicity

Mouse Lymphoma Point Mutation: Negative

Genetic Toxicity in vitro Chemical has tested positive in in vitro assay of DNA synthesis in rat liver mitochondria.

Genetic Toxicity in vivo Positive results were obtained in the micronucleus assay.

Component: **Mercaptoethanol**

Mutagenicity

Not mutagenic in Ames Test.

Component: **Mercaptoethanol**

Further information

Can cause liver and kidney injury. May affect blood cells, hematopoiesis, and/or bone marrow.

12. ECOLOGICAL INFORMATION

Ecotoxicological information on this product or its components appear in this section when such data is available.

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Mixed alkylmetallic mercaptoester sulfides

Elimination information (persistence and degradability)

Biodegradability

Not readily biodegraded.

Ecotoxicity effects

Toxicity to fish

Freshwater fish 96 Hour OECD Test Guideline 203 or Equivalent
0.1 - 1 mg/l

Toxicity to aquatic invertebrates

Daphnia 48 Hour OECD Test Guideline 202 or Equivalent
0.1 - 1 mg/l

Mercaptoethanol

Elimination information (persistence and degradability)

Biodegradability

Method Not Specified
>20 %
10-day Window: Fail

Bioaccumulation

Fish Calculated
Bioconcentration factor (BCF): 0.3

Ecotoxicity effects

Toxicity to fish

LC50 *Poecilia reticulata* (guppy) 96 Hour OECD Test Guideline 203
187 mg/l

Toxicity to algae

EC50 Algae (*Scenedesmus subspicatus*) 72 Hour Method Not Specified
12 mg/l

Toxicity to aquatic invertebrates EC50 Daphnia magna (Water flea) 48 Hour OECD Test Guideline 202
1.52 mg/l

13. DISPOSAL CONSIDERATIONS

Environmental precautions: CAUTION: Keep spills and cleaning runoff out of municipal sewers and open bodies of water.

Disposal

Waste Classification: When a decision is made to discard this material as supplied, it does not meet RCRA's characteristic definition of ignitability, corrosivity, or reactivity, and is not listed in 40 CFR 261.33. The toxicity characteristic (TC), however, has not been evaluated by the Toxicity Characteristic Leaching Procedure (TCLP).

Refer to all federal, state and local regulations prior to disposition of container and unused contents by reuse, recycle, or disposal. For disposal, incinerate this material at a facility that complies with local, state, and federal regulations.

Contaminated packaging: Improper disposal or reuse of this container may be dangerous and illegal. Can be landfilled or incinerated, when in compliance with local regulations. Refer to applicable federal, state, and local regulations.

14. TRANSPORT INFORMATION

DOT

Not regulated for transport

Classification for SEA transport (IMO-IMDG):

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Dimethyltin compound)
UN number	UN 3082
Class	9
Packing group	III
Marine pollutant	Dimethyltin compound

Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations.

15. REGULATORY INFORMATION

Workplace Classification

OSHA: This product is considered hazardous under the OSHA Hazard Communication Standard (29 CFR 1910.1200).

WHMIS: This product is a 'controlled product' under the Canadian Workplace Hazardous Materials Information System (WHMIS).

SARA TITLE III: Section 311/312 Categorizations (40CFR370): Acute Health Hazard

Chronic Health Hazard

SARA TITLE III: Section 313 Information (40CFR372)

This product does not contain a chemical which is listed in Section 313 at or above de minimis concentrations.

SARA TITLE III: Section 313 Information (40CFR372)

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

CERCLA Information (40CFR302.4)

Releases of this material to air, land, or water are not reportable to the National Response Center under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) or to state and local emergency planning committees under the Superfund Amendments and Reauthorization Act (SARA) Title III Section 304.

United States TSCA Inventory (US.TSCA): All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

Pennsylvania

Any material listed as "Not Hazardous" in the CAS REG NO. column of SECTION 2, Composition/Information On Ingredients, of this MSDS is a trade secret under the provisions of the Pennsylvania Worker and Community Right-to-Know Act.

16. OTHER INFORMATION

HMIS Hazard Rating

Health	Fire	Reactivity	Physical Hazard	PPE
*3	1	0		

* = Chronic Effects (See Hazards Identification)

Legend

ACGIH	American Conference of Governmental Industrial Hygienists
BAC	Butyl acetate
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
STEL	Short Term Exposure Limit (STEL):
TLV	Threshold Limit Value
TWA	Time Weighted Average (TWA):
	Bar denotes a revision from prior MSDS.

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.

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