Material Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

ADVASTAB(TM) TM-694 Heat Stabilizer
Revision date: 07/01/2011

Supplier Rohm and Haas Company
100 Independence Mall West
Philadelphia, PA 19106-2399 United States of America
For non-emergency information contact: 215-592-3000

Emergency telephone number

Spill Emergency	215-592-3000
Health Emergency	215-592-3000
Chemtrec	800-424-9300

2. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No.	Concentration
Mixed alkylmetallic mercaptoester sulfides	201687-58-3	40.0 - 50.0%
Mercaptoethyl oleate	59118-78-4	35.0 - 45.0%*
Mercaptoethyltallate	68440-24-4	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: 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	**DANGER!** 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.

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.

Mixed alkylmetallic mercaptoester sulfides	ACGIH	Not classifiable as a human carcinogen.
Solvent dewaxed heavy paraffinic distillates	ACGIH	Suspected human carcinogen.
Solvent dewaxed heavy paraffinic distillates	ACGIH NIC	Suspected human carcinogen.
Solvent dewaxed heavy paraffinic distillates	NTP CARC	Known carcinogen.
Solvent dewaxed heavy paraffinic distillates	IARC	Sufficient data.
Solvent dewaxed heavy paraffinic distillates	IARC	Sufficient data.
Solvent dewaxed heavy paraffinic distillates	IARC	Carcinogenic to humans.

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. FIRE-FIGHTING 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 fire fighting: 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 fire-fighters: 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.

Large spills: Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Transfer liquids and solid diking material to separate suitable containers for recovery or disposal. Do not allow into any sewer, on the ground, or into any body of water.
Small spills: Soak up with inert absorbent material. Keep in suitable, closed containers for 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
Mixed alkylmetallic mercaptoester sulfides	ACGIH	TWA	0.1 mg/m3
	ACGIH	STEL	0.2 mg/m3
	ACGIH	SKIN_DES	
	OSHA_TRANS	PEL	0.1 mg/m3
	ACGIH	TWA	0.1 mg/m3
	ACGIH	STEL	0.2 mg/m3
	ACGIH	SKIN_DES	
	OSHA_TRANS	PEL	0.1 mg/m3
	Z1A	TWA	0.1 mg/m3
	Z1A	SKIN_FINAL	

Component	Regulation	Type of listing	Value
Mercaptoethanol	Rohm and Haas	TWA	0.2 ppm
	Rohm and Haas	STEL	0.6 ppm
	Rohm and Haas	Absorbed via skin	
	WEEL	TWA	0.6 mg/m3 0.2 ppm
	WEEL	SKIN_DES	

Component	Regulation	Type of listing	Value
Solvent dewaxed heavy paraffinic distillates	OSHA_TRANS	PEL	2,000 mg/m3 500 ppm
	Z1A	TWA	1,600 mg/m3 400 ppm
	ACGIHLIS_P	TWA Inhalable fraction.	0.2 mg/m3
	ACGIHLIS_P	Mist.	
	NIOSH/GUIDE	REL Mist.	5 mg/m3
	NIOSH/GUIDE	STEL Mist.	10 mg/m3
	OSHA_TRANS	PEL Mist.	5 mg/m3
	Z1A	TWA Mist.	5 mg/m3
	ACGIH		
	ACGIH		

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, Rohm and Haas Company 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) Decomposes
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	
Water solubility	insoluble
Density	1.02 g/cm3 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 (H2S), a combustible and toxic gas., Thermal decomposition may yield the following:, Hydrogen sulfide,
Polymerisation	Product will not undergo polymerization.

11. TOXICOLOGICAL INFORMATION

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 h 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 h 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 h 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: **Mercaptoethyl oleate**
Mutagenicity
Mouse Lymphoma Point Mutation: Negative
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: **Mercaptoethanol**

Respiratory system irritation	irritant effects
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.
Component: **Solvent dewaxed heavy paraffinic distillates**

Respiratory system irritation	irritant effects

12. ECOLOGICAL INFORMATION

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 h OECD Test Guideline 203 or Equivalent 0.1 - 1 mg/l
Toxicity to aquatic invertebrates	Daphnia 48 h 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 h OECD Test Guideline 203 187 mg/l
Toxicity to algae	EC50 Algae (Scenedesmus subspicatus) 72 h Method Not Specified 12 mg/l
Toxicity to aquatic invertebrates	EC50 Daphnia magna (Water flea) 48 h 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

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

US. Toxic Substances Control Act (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: * = Chronic Effects (See Hazards Identification)

HMIS Hazard Rating

Health	Fire	Reactivity	Physical Hazard	PPE
*3	1	0		

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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