Material Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

ADVASTAB™ TM-404 ER HEAT STABILIZER

Revision Date: 01/31/2013

Supplier

ROHM AND HAAS CHEMICALS LLC
A Subsidiary of The Dow Chemical Company
100 INDEPENDENCE MALL WEST
PHILADELPHIA, PA 19106-2399 United States

For non-emergency information contact: 215-592-3000

Emergency telephone number
1 800 424 9300
Local emergency telephone number
989-636-4400

2. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No.	Concentration
Bis(2-ethylhexylthioglycolate) dimethyltin	57583-35-4	60.0 - <= 80.0 %
Tris(2-ethylhexylthioglycolate)methyl tin	57583-34-3	20.0 - <= 40.0 %
Ethylhexyl thioglycolate	7659-86-1	1.0 - <= 5.0 %

3. HAZARDS IDENTIFICATION

Emergency Overview

Appearance

Form	liquid
Colour	clear Pale yellow
Odour	Mercaptan

Hazard Summary	**CAUTION!** INHALATION OF VAPOR OR MIST CAN CAUSE HEADACHE, NAUSEA AND IRRITATION OF THE NOSE, THROAT AND LUNGS. MAY CAUSE EYE AND SKIN IRRITATION. DERMAL ABSORPTION POSSIBLE MAY CAUSE SENSITIZATION BY SKIN CONTACT. MATERIAL CAN CAUSE THE FOLLOWING: MUTAGENIC EFFECTS DEVELOPMENTAL EFFECTS

Potential Health Effects
Primary Routes of Entry:
Eye contact
Inhalation
Skin contact
Dermal Absorption

Eyes: Direct contact with material can cause the following:
slight irritation

Skin: Prolonged or repeated skin contact can cause the following:
slight irritation
Can be absorbed through intact skin.
May cause sensitization by skin contact.

Ingestion: 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

Chronic Exposure: Prolonged or repeated overexposure can cause the following:
mutagenic effects
developmental effects
Kidney effects
- thymus effects

4. FIRST AID MEASURES

Inhalation: Move to fresh air. Get prompt medical attention. Give artificial respiration if breathing has stopped.

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: Immediately flush eye(s) with plenty of water. Call a physician immediately.

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

Notes to physician: Treatment should be directed at preventing absorption, administering to symptoms (if they occur), and providing supportive therapy.

5. FIREFIGHTING MEASURES

Flash point	150 °C (302 °F) SETAFLASH CLOSED CUP
Ignition temperature	no data available
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
WARNING: KEEP SPILLS AND CLEANING RUNOFFS 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. 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.
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
Tris(2-ethylhexylthioglycolate)methyl tin	OSHA P1	TWA	0.1 mg/m3 , Tin
Tris(2-ethylhexylthioglycolate)methyl tin	ACGIH	TWA	0.1 mg/m3 , Tin
Tris(2-ethylhexylthioglycolate)methyl tin	ACGIH	STEL	0.2 mg/m3 , Tin
Tris(2-ethylhexylthioglycolate)methyl tin	OSHA P0	TWA	0.1 mg/m3 , Tin
Tris(2-ethylhexylthioglycolate)methyl tin	NIOSH REL	TWA	0.1 mg/m3 , Tin
Ethylhexyl thioglycolate	Rohm and Haas	TWA	0.2 ppm
Ethylhexyl thioglycolate	Rohm and Haas	Absorbed via skin	

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.

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 under normal operating conditions. Where vapors and/or mists may occur, wear a properly fitted NIOSH approved (or equivalent) half-mask, air-purifying respirator. 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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	
Form	liquid
Colour	clear Pale yellow
Odour	Mercaptan
pH	not applicable
Melting point/range	not applicable
Boiling point/boiling range	>221 °C (430.0 °F) Decomposes
Flash point	150 °C (302 °F) SETAFLASH CLOSED CUP
Lower explosion limit	no data available
Upper explosion limit	no data available
Vapour pressure	<0.5 mmHg at 25 °C (77 °F)
Relative vapor density	
Water solubility	insoluble
Auto-ignition temperature	no data available
Density	1.17 g/cm3 at 25 °C (77 °F)
Percent volatility	3 %

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

10. STABILITY AND REACTIVITY

Hazardous reactions	None known. Stable
Materials to avoid	Avoid contact with the following: Acids
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.

Component: **Bis(2-ethylhexylthioglycolate) dimethyltin**
Acute oral toxicity LD50 rat 1,150 mg/kg OECD Test Guideline 401

Component: **Tris(2-ethylhexylthioglycolate)methyl tin**
Acute oral toxicity Low toxicity if swallowed.
Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.

Component: **Tris(2-ethylhexylthioglycolate)methyl tin**
Acute oral toxicity LD50 rat male and female 880 mg/kg OECD 401 or equivalent

Component: **Ethylhexyl thioglycolate**
Acute oral toxicity Moderate toxicity if swallowed.
Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause serious injury, even death.

Component: **Ethylhexyl thioglycolate**
Acute oral toxicity LD50 rat male 303 mg/kg

Component: **Ethylhexyl thioglycolate**
Acute oral toxicity LD50 rat female 334 mg/kg

Component: **Bis(2-ethylhexylthioglycolate) dimethyltin**
Acute inhalation toxicity As product:
The LC50 has not been determined.

Component: **Tris(2-ethylhexylthioglycolate)methyl tin**
Acute inhalation toxicity Prolonged exposure is not expected to cause adverse effects.
Excessive exposure may cause irritation to upper respiratory tract (nose and throat) and lungs.

Component: **Tris(2-ethylhexylthioglycolate)methyl tin**
Acute inhalation toxicity LC50 rat male and female 1 Hour 240 mg/l

Component: **Ethylhexyl thioglycolate**

Acute inhalation toxicity LC50 rat 6 Hour 0.51 mg/l

Component: **Bis(2-ethylhexylthioglycolate) dimethyltin**
Acute dermal toxicity LD50 rabbit > 1,050 mg/kg OECD Test Guideline 402

Component: **Tris(2-ethylhexylthioglycolate)methyl tin**
Acute dermal toxicity Prolonged or widespread skin contact may result in absorption of potentially harmful amounts.

Component: **Tris(2-ethylhexylthioglycolate)methyl tin**
Acute dermal toxicity LD50 rabbit > 1,000 - 2,150 mg/kg OECD Test Guideline 402

Component: **Ethylhexyl thioglycolate**
Acute dermal toxicity Prolonged skin contact is unlikely to result in absorption of harmful amounts.

Component: **Ethylhexyl thioglycolate**
Acute dermal toxicity LD50 rat > 2,000 mg/kg OECD Test Guideline 402

Component: **Bis(2-ethylhexylthioglycolate) dimethyltin**
Skin irritation rabbit OECD Test Guideline 404 4 Hour slight irritation
Brief contact may cause slight skin irritation with local redness.

Component: **Tris(2-ethylhexylthioglycolate)methyl tin**
Skin irritation Brief contact is essentially nonirritating to skin.

Component: **Ethylhexyl thioglycolate**
Skin irritation rabbit OECD Test Guideline 404 No skin irritation
Brief contact may cause slight skin irritation with local redness.

Component: **Bis(2-ethylhexylthioglycolate) dimethyltin**
Eye irritation rabbit OECD Test Guideline 405 non-irritating

Component: **Tris(2-ethylhexylthioglycolate)methyl tin**
Eye irritation May cause slight temporary eye irritation.
Corneal injury is unlikely.

Component: **Ethylhexyl thioglycolate**
Eye irritation rabbit OECD Test Guideline 405 No eye irritation
Essentially nonirritating to eyes.

Component: **Bis(2-ethylhexylthioglycolate) dimethyltin**
Sensitisation guinea pig Maurer Optimization Causes sensitization.

Has caused allergic skin reactions when tested in guinea pigs.

Component: **Tris(2-ethylhexylthioglycolate)methyl tin**
Sensitisation May cause sensitization by skin contact.
Has demonstrated the potential for contact allergy in mice.

Component: **Tris(2-ethylhexylthioglycolate)methyl tin**
Sensitisation For respiratory sensitization:
No relevant data found.

Component: **Ethylhexyl thioglycolate**

Sensitisation guinea pig The product is a skin sensitizer, sub-category 1B. OECD Test Guideline 406 Causes sensitization.

Skin contact may cause an allergic skin reaction.

Component: **Ethylhexyl thioglycolate**

Sensitisation For respiratory sensitization:
No relevant data found.

Component: **Bis(2-ethylhexylthioglycolate) dimethyltin**

Subchronic toxicity Oral Data is based on substance from simulated gastric hydrolysis of component(s) of this product.
In animals, effects have been reported on the following organs:
Kidney
Blood
central nervous system (CNS) effects

Component: **Bis(2-ethylhexylthioglycolate) dimethyltin**

Carcinogenicity: No relevant information found.

Component: **Bis(2-ethylhexylthioglycolate) dimethyltin**

Reproductive toxicity

In animal studies, did not interfere with fertility.

Component: **Bis(2-ethylhexylthioglycolate) dimethyltin**

Teratogenicity

Developmental effects were seen in laboratory animals only at dose levels that were maternally toxic. Data is based on substance from simulated gastric hydrolysis of component(s) of this product.

Component: **Bis(2-ethylhexylthioglycolate) dimethyltin**

Mutagenicity

Data is based on substance from simulated gastric hydrolysis of component(s) of this product. In vitro tests did not show genotoxic effects In vivo tests did not show genotoxic effects

Component: **Tris(2-ethylhexylthioglycolate)methyl tin**

Subchronic toxicity For similar material(s):
In animals, effects have been reported on the following organs:
Blood.
Thymus.
Central nervous system.

Component: **Tris(2-ethylhexylthioglycolate)methyl tin**

Carcinogenicity: No relevant data found.

Component: **Tris(2-ethylhexylthioglycolate)methyl tin**

Teratogenicity

Has caused birth defects in laboratory animals only at doses toxic to the mother.

Component: **Tris(2-ethylhexylthioglycolate)methyl tin**

Mutagenicity

In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were positive.

Component: **Ethylhexyl thioglycolate**

Carcinogenicity: No relevant data found.

Component: **Ethylhexyl thioglycolate**

Reproductive toxicity

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

Component: **Ethylhexyl thioglycolate**
Teratogenicity
Developmental effects were seen in laboratory animals only at dose levels that were maternally toxic.

12. ECOLOGICAL INFORMATION

Ecotoxicological information on this product or its components appear in this section when such data is available.
There is no data available for this product.

Bis(2-ethylhexylthioglycolate) dimethyltin
Elimination information (persistence and degradability)

Biodegradability	OECD Test Guideline 301F or Equivalent 63 % Readily biodegradable 10-day Window: Fail

Ecotoxicity effects

Toxicity to fish	static test LC50 Fathead minnow (Pimephales promelas) 96 Hour OECD Test Guideline 203 > 1,000 mg/l
Toxicity to algae	ErC50 Algae (Selenastrum capricornutum) 72 Hour OECD Test Guideline 201 270 mg/l
Toxicity to bacteria	EC50 Bacteria (active sludge) 3 Hour Activated Sludge Respiratory Inhibition (OECD 209): >100 mg/l (non- inhibiting) > 1,000 mg/l
Toxicity to aquatic invertebrates	static test EC50 Daphnia magna (Water flea) 48 Hour OECD Test Guideline 202 32 mg/l

Harmful to aquatic organisms.

Tris(2-ethylhexylthioglycolate)methyl tin
Elimination information (persistence and degradability)

Biodegradability	Readily biodegradable. Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
Biodegradability	50 mg/l OECD Test Guideline 301F or Equivalent 90 - 100 % 10-day Window: Pass

Ecotoxicity effects

Toxicity to fish	semi-static test NOEC Zebra fish (Danio/Brachydanio rerio) 96 Hour OECD Test Guideline 203 3.6 mg/l
Toxicity to fish	Not expected to be acutely toxic to aquatic organisms.

Toxicity to fish	semi-static test LC50 Danio rerio (zebra fish) 96 Hour OECD Test Guideline 203 or Equivalent > 6 mg/l Toxicity to aquatic species occurs at concentrations above material's water solubility.
Toxicity to algae	ErC50 Algae (Scenedesmus subspicatus) 72 Hour OECD Test Guideline 201 > 1.84 mg/l
Toxicity to algae	NOEC Algae (Scenedesmus subspicatus) 72 Hour OECD Test Guideline 201 6 mg/l
Toxicity to algae	EC50 Desmodesmus subspicatus (green algae) 72 Hour OECD Test Guideline 201 or Equivalent > 1.84 mg/l Toxicity to aquatic species occurs at concentrations above material's water solubility.
Toxicity to aquatic invertebrates	NOEC Daphnia magna (Water flea) 504 Hour OECD Test Guideline 211 or Equivalent 0.134 mg/l

Ethylhexyl thioglycolate

Elimination information (persistence and degradability)

Biodegradability

Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

Biodegradability	aerobic 30 mg/l OECD Test Guideline 302C or Equivalent 52 % 10-day Window: Not applicable
Biodegradability	aerobic 100 mg/l OECD Test Guideline 301C or Equivalent 80 % 10-day Window: Not applicable
Bioaccumulation	Fish Estimated. Bioconcentration factor (BCF): 136

Ecotoxicity effects

Toxicity to fish	Material is highly toxic to aquatic organisms on an acute basis (LC50/EC50 between 0.1 and 1 mg/L in the most sensitive species tested).
Toxicity to fish	static test LC50 Leuciscus idus (Golden orfe) 48 Hour OECD Test Guideline 203 or Equivalent 9 mg/l
Toxicity to algae	Growth rate EC50 Pseudokirchneriella subcapitata (green algae) 72 Hour OECD Test Guideline 201 or Equivalent 0.91 mg/l

Toxicity to bacteria	Respiration inhibition EC50 activated sludge 3 Hour OECD 209 Test 2,400 mg/l
Toxicity to aquatic invertebrates	static test EC50 Daphnia magna (Water flea) 48 Hour OECD Test Guideline 202 or Equivalent 0.38 mg/l

13. DISPOSAL CONSIDERATIONS

Environmental precautions: WARNING: KEEP SPILLS AND CLEANING RUNOFFS 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: Can be landfilled or incinerated, when in compliance with local regulations. Improper disposal or re-use of this container may be dangerous and illegal. Refer to applicable local, state and federal regulations.

14. TRANSPORT INFORMATION

DOT

Proper shipping name	Environmentally hazardous substances, liquid, n.o.s.(Bis(2-ethylhexylthioglycolate) dimethyltin, Tris(2-ethylhexylthioglycolate)methyl tin)
UN number	UN 3082
Class	9
Packing group	III
Marine Pollutant	Bis(2-ethylhexylthioglycolate) dimethyltin, Tris(2-ethylhexylthioglycolate)methyl tin

Classification for SEA transport (IMO-IMDG):
Not regulated for transport

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 not 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.

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	Flammability	Physical Hazard
*2	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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