

SAFETY DATA SHEET

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product identifier

Product name: Eastman(TM) Turbo Oil 2197

Product No.: 34358-00, P3435807, P3435809, E3435801, P3435800, P3435801, P3435802, P3435803, P3435804, P3435805, P3435806

Relevant identified uses of the substance or mixture and uses advised against

Identified uses: Lubricating oils

Uses advised against: None known.

Details of the supplier of the safety data sheet

Manufacturer / Supplier

Eastman Chemical Company
200 South Wilcox Drive
Kingsport, TN 37660-5280 US
+14232292000

Visit our website at www.EASTMAN.com or email emnmsds@eastman.com

Emergency telephone number:

For emergency health, safety, and environmental information, call 1-423-229-4511 or 1-423-229-2000.

For emergency transportation information, in the United States: call CHEMTREC at 800-424-9300 or call 423-229-2000.

SECTION 2: Hazards identification

Hazard Classification: The product has not been classified as hazardous according to the legislation in force.

OSHA Specified Hazards: not applicable

Hazard(s) not otherwise classified (HNOC): None known.

SECTION 3: Composition/information on ingredients

Substances / Mixtures

General information:

Chemical name	Concentration	Additional identification	Notes
tricresyl phosphate	1 - <2.5%	CAS-No.: 1330-78-5	

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

This substance has workplace exposure limit(s).

SECTION 4: First aid measures

General: Get medical attention if symptoms occur. Show this safety data sheet to the doctor in attendance. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Place unconscious person on the side in the recovery position and ensure breathing can take place. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

Description of first aid measures

Inhalation: In case of inhalation of spray mist: Move person into fresh air and keep at rest. For breathing difficulties, oxygen may be necessary. Consult a physician for specific advice. Persons who have inhaled vapours or smoke fumes have to be put under medical observation for at least 48 hours, due to the delayed appearance of poisoning.

Eye contact: Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention if symptoms occur.

Skin contact: Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. If skin irritation or an allergic skin reaction develops, get medical attention. Wash contaminated clothing before reuse. Destroy or thoroughly clean contaminated shoes.

Ingestion: If swallowed, rinse mouth with water (only if the person is conscious). Call a physician or poison control center immediately. Do not induce vomiting. Never give liquid to an unconscious person. Provide fresh air, warmth and rest, preferably in comfortable upright sitting position. Loosen tight clothing such as a collar, tie, belt or waistband. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.

Most important symptoms and effects, both acute and delayed: Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis. Contact with hot material can cause thermal burns which may result in permanent damage. Inhalation of thermal decomposition products may lead to adverse effects including pulmonary edema.

Indication of any immediate medical attention and special treatment needed

Hazards: None known.

Treatment: Treat symptomatically.

SECTION 5: Firefighting measures

General Fire Hazards: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. Keep upwind. In case of fire and/or explosion do not breathe fumes.

Extinguishing media

Suitable extinguishing media: Water spray, foam, dry powder or carbon dioxide.

Unsuitable extinguishing media: Avoid water in straight hose stream; will scatter and spread fire.

Special hazards arising from the substance or mixture: May ignite at high temperature. During fire, gases hazardous to health may be formed. Risk of chemical pneumonia after aspiration. Hazardous Combustion Products : carbon dioxide, carbon monoxide , oxides of phosphorus .

Advice for firefighters

Special fire fighting procedures: In case of fire: Evacuate area. Move container from fire area if it can be done without risk. Use water spray to keep fire-exposed containers cool. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

Special protective equipment for fire-fighters: Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures: No action shall be taken involving any personal risk or without suitable training. Keep unauthorized personnel away. Ventilate closed spaces before entering them. Avoid inhalation of vapors and spray mists. Wear appropriate personal protective equipment. Caution: Contaminated surfaces may be slippery. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Reference to other sections See Section 8 of the SDS for Personal Protective Equipment.

Environmental Precautions: Prevent further leakage or spillage if safe to do so. Clear up spills immediately and dispose of waste safely. Do not contaminate water sources or sewer.

Methods and material for containment and cleaning up: Small Liquid Spills: Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Large Spillages: Dike for later disposal. Collect spillage in containers, seal securely and deliver for disposal according to local regulations. Otherwise, absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Clean surface thoroughly to remove residual contamination. Prevent runoff from entering drains, sewers, or streams.

Notification Procedures: In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

SECTION 7: Handling and storage:

Precautions for safe handling:	Do not handle until all safety precautions have been read and understood. An eye wash bottle must be available at the work site. Wear appropriate personal protective equipment. See Section 8 of the SDS for Personal Protective Equipment. Do not taste or swallow. Do not breathe mist or vapor from heated material. Use only with adequate ventilation. Do not get in eyes and avoid contact with skin and clothing. Wash promptly with soap and water if skin becomes contaminated. Remove contaminated clothing and wash it before reuse. Destroy or thoroughly clean contaminated shoes. Drain or remove substance from equipment prior to break-in or maintenance. Handle in accordance with good industrial hygiene and safety practice. See also Section 8 for additional information on hygiene measures.
Conditions for safe storage, including any incompatibilities:	Store in a cool, dry place out of direct sunlight. Keep container tightly closed and in a well-ventilated place. Keep upright. Keep in original container. Store locked up. Store away from incompatible materials. Keep away from food, drink and animal feeding stuffs. Store in accordance with local/regional/national/international regulations.
Specific end use(s):	www.EastmanAviationSolutions.com

SECTION 8: Exposure controls/personal protection**Control Parameters****Occupational Exposure Limits**

Country specific exposure limits have not been established or are not applicable unless listed below.

Exposure controls

Appropriate engineering controls:	Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.
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Individual protection measures, such as personal protective equipment

General information:	An eye wash bottle must be available at the work site. Provide access to washing facilities including soap, skin cleanser and fatty cream.
Eye/face protection:	Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. Recommendations: Wear safety glasses with side shields (or goggles). Use safety goggles and face shield in case of splash risk.

Skin protection**Hand Protection:**

Recommended gloves: Nitrile rubber. Wear chemical-resistant gloves and protective clothing appropriate for the risk of exposure. Contact glove manufacturer for specific information. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. After contamination with product change the gloves immediately and dispose of them according to relevant national and local regulations.

Other:

Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Recommendations: If prolonged or repeated contact is likely, chemical resistant clothing is recommended. In case of splashes: Wear apron or special protective clothing. Promptly remove non-impervious clothing that becomes wet or contaminated.

Respiratory Protection:

Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Recommendations: Use respiratory equipment with particle filter, type P2.

Hygiene measures:

Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink or smoke when using the product. Wash at the end of each work shift and before eating, smoking and using the toilet. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse. Keep away from food, drink and animal feeding stuffs.

Environmental Controls:

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels. Do not contaminate water sources or sewer.

SECTION 9: Physical and chemical properties**Information on basic physical and chemical properties****Appearance**

Physical state:	liquid
Form:	liquid
Color:	Amber
Odor:	No data available.
Odor Threshold:	Not determined.
pH:	No data available.
Freezing Point:	-54 °C
Boiling Point:	No data available.
Flash Point:	246 °C (Cleveland open cup)

Evaporation Rate:	Not determined.
Flammability (solid, gas):	not applicable
Flammability Limit - Upper (%)-:	No data available.
Flammability Limit - Lower (%)-:	No data available.
Vapor pressure:	Not determined.
Vapor density (air=1):	No data available.
Specific Gravity:	0.997
Solubility(ies)	
Solubility in Water:	Insoluble in water
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	No data available.
Autoignition Temperature:	No data available.
Decomposition Temperature:	No data available.
Dynamic viscosity:	No data available.
Kinematic viscosity:	26 mm ² /s (40 °C) 5.19 mm ² /s (100 °C)
Explosive properties:	Not classified.
Oxidizing properties:	Not classified.

SECTION 10: Stability and reactivity

Reactivity:	Material is stable under normal conditions.
Chemical Stability:	Material is stable under normal conditions.
Possibility of Hazardous Reactions:	None under normal conditions.
Conditions to Avoid:	Open flames and high energy ignition sources.
Incompatible Materials:	Strong oxidizing agents.
Hazardous Decomposition Products:	Emits acrid smoke and fumes when heated to decomposition.

SECTION 11: Toxicological information

Information on likely routes of exposure

Inhalation:	None known.
Ingestion:	None known.
Skin contact:	Product has a defatting effect on skin.
Eye contact:	Eye may become red, tear, and become painful.

Information on toxicological effects

Oral

Product:	ATEmix (Rat): > 5,000 mg/kg Not classified. Read-across from a similar material
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Dermal	
Product:	ATEmix (Expert judgement): Not classified for acute toxicity based on available data. Read-across from a similar material
Inhalation	
Product:	ATEmix (Expert judgement., 4 h): Not classified for acute toxicity based on available data. Read-across from a similar material
Repeated dose toxicity	
Product:	NOAEL : No known significant effects or critical hazards.
Skin Corrosion/Irritation	
Product:	Acute Dermal Irritation / Corrosion (Rabbit): Slightly irritating.
Serious Eye Damage/Eye Irritation	
Product:	(Rabbit): Slightly irritating. Read-across from a similar material
Respiratory or Skin Sensitization	
Product:	Skin Sensitization, Human Repeat Insult Patch Test (Human): non-sensitizing Read-across from a similar material
Carcinogenicity	
Product:	This product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC or NTP.
Toxicity to reproduction	
Product:	(Rat); Remarks: No known significant effects or critical hazards.
Developmental toxicity	
Product:	Rat; Remarks: No known significant effects or critical hazards.
Germ Cell Mutagenicity	
In vitro	
Product:	Various: Based on available data, the classification criteria are not met.
In vivo	
Product:	Mutagenicity: Read-across from a similar material Based on available data, the classification criteria are not met.
Specific Target Organ Toxicity - Single Exposure	
Product:	Based on available data, the classification criteria are not met.
Specific Target Organ Toxicity - Repeated Exposure	
Product:	Based on available data, the classification criteria are not met.
Aspiration Hazard	
Product:	Not classified.
Other effects:	No data available.

SECTION 12: Ecological information**Ecotoxicity:****Acute hazards to the aquatic environment:****Fish**

Product: LC-50 (Fish, 96 h): Not classified as hazardous. (limit of solubility in fresh water)
Read-across from a similar material

Aquatic Invertebrates

Product: EC-50 (Daphnia magna, 48 h): Not classified as hazardous. (limit of solubility in fresh water)
Read-across from a similar material

Chronic hazards to the aquatic environment:**Fish**

Product: NOEC (Fish): No negative effects on the aquatic environment are known. (limit of solubility in fresh water)
Read-across from a similar material

Aquatic Invertebrates

Product: NOEC : No negative effects on the aquatic environment are known. (limit of solubility in fresh water)
Read-across from a similar material

Toxicity to Aquatic Plants

Product: EC-50 (Alga, 72 h): No negative effects on the aquatic environment are known. (limit of solubility in fresh water)
Read-across from a similar material

Persistence and Degradability**Biodegradation**

Product: 92.36 % (28 d) Readily biodegradable, failing 10-d window

BOD/COD Ratio

Product: No data available.

Bioaccumulative Potential**Bioconcentration Factor (BCF)**

Product: Mixture not applicable

Partition Coefficient n-octanol / water (log Kow)

Product: No data available.

Specified substance(s):

tricresyl phosphate Log Kow: 5.93

Mobility in Soil:

No data available.

Known or predicted distribution to environmental compartments

tricresyl phosphate Log Koc: 4.31

Other Adverse Effects: No data available.

SECTION 13: Disposal considerations

Waste treatment methods

General information: The generation of waste should be avoided or minimized wherever possible. Dispose of waste and residues in accordance with local authority requirements.

Disposal methods: Recover and reclaim or recycle, if practical. Dispose of this material and its container to hazardous or special waste collection point. Dispose of waste at an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal. Do not discharge into drains, water courses or onto the ground.

Since emptied containers retain product residue, follow label warnings even after container is emptied. Recycle empty drums at an appropriate facility in accordance with current applicable laws and regulations, and product characteristics at time of disposal. Ensure drums are tightly sealed.

SECTION 14: Transport information

DOT

Class not regulated

IMDG - International Maritime Dangerous Goods Code

Class not regulated

IATA

Class not regulated

SECTION 15: Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture.:

US EPCRA (SARA Title III) Section 313 - Toxic Chemical List

NONE

OSHA: nonhazardous

TSCA (US Toxic Substances Control Act): All components of this product are listed on the TSCA inventory. Any impurities present in this product are exempt from listing.

DSL (Canadian Domestic Substances List) and CEPA (Canadian Environmental Protection Act): One or more components of this product are not listed on the DSL.

AICS / NICNAS (Australian Inventory of Chemical Substances and National Industrial Chemicals Notification and Assessment Scheme): One or more components of this product are not listed on AICS.

MITI (Japanese Handbook of Existing and New Chemical Substances): All components of this product are listed in the Handbook or have been approved in Japan by new substance notification.

ECL (Korean Toxic Substances Control Act): One or more components of this product are not listed on the Korean inventory.

Philippines Inventory (PICCS) : One or more components of this product are not listed on the Philippine inventory.

Inventory of Existing Chemical Substances in China: All intentional components of this product are listed on the Inventory of Existing Chemical Substances in China (IECSC).

SECTION 16: Other information

HMIS® Hazard Ratings: Health - 1, Flammability - 1, Chemical Reactivity - 0

HMIS® rating involves data interpretations that may vary from company to company. They are intended only for rapid, general identification of the magnitude of the specific hazard. To deal adequately with the safe handling of this material, all the information contained in this MSDS must be considered.

Revision Information: Not relevant.

Key literature references and sources for data: www.EastmanAviationSolutions.com

Training information: No data available.

Issue Date: 01/18/2016

SDS No.:

Disclaimer: This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment.