

Eastman(TM) Turbo Oil 2389

Version 1.3 PRD Revision Date: 07/02/2021 SDS Number: 150000097796 SDSUS / Z8 / 0001 Date of last issue: 12/11/2019 Date of first issue: 09/06/2016

SECTION 1. IDENTIFICATION

Product name : Eastman(TM) Turbo Oil 2389
Product code : 34360-00, E3436001, P3436000, P3436001, P3436002

Manufacturer or supplier's details

Company name of supplier : Eastman Chemical Company
Address : 200 South Wilcox Drive
Kingsport TN 37660-5147
Telephone : (423) 229-2000
Emergency telephone : CHEMTREC: +1-800-424-9300, +1-703-527-3887 CCN7321
For emergency transportation information, in the United States: call CHEMTREC at 800-424-9300 or call 423-229-2000.

Recommended use of the chemical and restrictions on use

Recommended use : Lubricant
Restrictions on use : None known.

SECTION 2. HAZARDS IDENTIFICATION**GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)**

Not a hazardous substance or mixture.

GHS label elements

Not a hazardous substance or mixture.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**Components**

Chemical name	CAS-No.	Concentration (% w/w)
Tricresyl phosphate	1330-78-5	>= 1 - < 5
N-phenyl-1-naphthylamine	90-30-2	>= 0.1 - < 1

Actual concentration is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

If inhaled : Move to fresh air.

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- If breathing is difficult, give oxygen.
Consult a physician if necessary.
- In case of skin contact : Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes.
Wash contaminated clothing before reuse.
If symptoms persist, call a physician.
- In case of eye contact : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes.
Get medical attention if symptoms occur.
- If swallowed : Rinse mouth.
Call a physician or poison control center immediately.
Do NOT induce vomiting.
Never give anything by mouth to an unconscious person.
- Most important symptoms and effects, both acute and delayed : Prolonged skin contact may defat the skin and produce dermatitis.
Contact with hot product will cause thermal burns.
Inhalation of thermal decomposition products may lead to adverse effects including pulmonary edema.
- Notes to physician : Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

- Suitable extinguishing media : Water spray
Foam
Dry powder
Carbon dioxide (CO₂)
- Unsuitable extinguishing media : Do not use a solid water stream as it may scatter and spread fire.
- Hazardous combustion products : Carbon monoxide
Carbon dioxide (CO₂)
Oxides of phosphorus
- Further information : In case of fire and/or explosion do not breathe fumes.
Use water spray to cool unopened containers.
Prevent fire extinguishing water from contaminating surface water or the ground water system.
- Special protective equipment for fire-fighters : Wear an approved positive pressure self-contained breathing apparatus in addition to standard fire fighting gear.

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Ventilate the area.
Material can create slippery conditions.
Use personal protective equipment.
Local authorities should be advised if significant spillages

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cannot be contained.

- Environmental precautions : Avoid release to the environment.
- Methods and materials for containment and cleaning up : Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13).

SECTION 7. HANDLING AND STORAGE

- Advice on safe handling : Handle in accordance with good industrial hygiene and safety practice.
Do not get in eyes.
Do not get on skin or clothing.
Wash thoroughly after handling.
Do not breathe vapors or spray mist.
Use only in area provided with appropriate exhaust ventilation.
Drain or remove substance from equipment prior to break-in or maintenance.
Wear appropriate personal protective equipment.
- Conditions for safe storage : Keep containers tightly closed in a cool, well-ventilated place.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Contains no substances with occupational exposure limit values.

- Engineering measures** : 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.

Personal protective equipment

Respiratory protection : Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines.

Hand protection

Material : Recommended gloves:

Material : Nitrile rubber

Remarks : Wear suitable gloves. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions.

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Eye protection	:	Wear safety glasses with side shields (or goggles).
Protective measures	:	Ensure that eye flushing systems and safety showers are located close to the working place.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	liquid
Color	:	amber
Odor	:	No data available
Odor Threshold	:	not determined
pH	:	not determined
Melting point/freezing point	:	-65 °F / -54 °C
Boiling point/boiling range	:	not determined
Flash point	:	410 °F / 210 °C Method: Cleveland open cup
Evaporation rate	:	not determined
Flammability (solid, gas)	:	Not applicable
Upper explosion limit / Upper flammability limit	:	not determined
Lower explosion limit / Lower flammability limit	:	not determined
Vapor pressure	:	not determined
Relative vapor density	:	not determined
Relative density	:	0.95 (60.1 °F / 15.6 °C)
Density	:	950 kg/m ³ (60.1 °F / 15.6 °C)
Solubility(ies) Water solubility	:	insoluble
Partition coefficient: n-octanol/water	:	Not applicable
Autoignition temperature	:	not determined

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Decomposition temperature	:	not determined
Viscosity		
Viscosity, dynamic	:	not determined
Viscosity, kinematic	:	11.5 mm ² /s (104 °F / 40 °C)
		3 mm ² /s (212 °F / 100 °C)
Explosive properties	:	Not classified
Oxidizing properties	:	Not classified

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	None reasonably foreseeable.
Chemical stability	:	Stable under normal conditions.
Conditions to avoid	:	Keep away from sources of ignition - No smoking.
Incompatible materials	:	Strong oxidizing agents
Hazardous decomposition products	:	Emits acrid smoke and fumes when heated to decomposition.

SECTION 11. TOXICOLOGICAL INFORMATION**Acute toxicity**

Not classified based on available information.

Product:

Acute oral toxicity	:	LD50 (Rat): > 10,000 mg/kg Assessment: Not classified
Acute inhalation toxicity	:	Acute toxicity estimate: Exposure time: 4 h Assessment: The substance or mixture has no acute inhalation toxicity Remarks: Read-across from a similar material
Acute dermal toxicity	:	LD50 Dermal (Rabbit): > 3,160 mg/kg Assessment: The substance or mixture has no acute dermal toxicity

Components:**Tricresyl phosphate:**

Acute oral toxicity	:	LD50 Oral (Rat): > 5,000 mg/kg
Acute inhalation toxicity	:	LC50 (Rat): > 5.2 mg/l Exposure time: 4 h

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Acute dermal toxicity : LD50 Dermal (Rabbit): > 10,000 mg/kg

N-phenyl-1-naphthylenamine:

Acute oral toxicity : LD50 Oral (Rat): 1,250 mg/kg

Acute dermal toxicity : LD50 Dermal (Rabbit): > 2,000 mg/kg

Skin corrosion/irritation

Not classified based on available information.

Product:

Species : Rabbit
Exposure time : 24 h
Assessment : Not classified
Result : slight
Remarks : Based on available data, the classification criteria are not met.

Components:**Tricresyl phosphate:**

Species : Rabbit
Exposure time : 24 h
Assessment : Not classified as hazardous.
Result : Non-irritating to the skin.

N-phenyl-1-naphthylenamine:

Species : Rabbit
Assessment : Not classified
Result : none

Serious eye damage/eye irritation

Not classified based on available information.

Product:

Species : Rabbit
Result : slight
Assessment : No eye irritation

Components:**Tricresyl phosphate:**

Species : Rabbit
Assessment : Not classified

N-phenyl-1-naphthylenamine:

Species : Rabbit
Result : slight
Assessment : Not classified

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Respiratory or skin sensitization**Skin sensitization**

Not classified based on available information.

Respiratory sensitization

Not classified based on available information.

Product:

Test Type : Skin sensitization
Species : Humans
Assessment : Not classified
Method : Human Repeat Insult Patch Test
Result : Does not cause skin sensitization.
Remarks : Read-across from a similar material

Components:**Tricresyl phosphate:**

Test Type : Skin Sensitization
Assessment : Not classified

N-phenyl-1-naphthylamine:

Assessment : Skin sensitization
Result : sensitizing

Germ cell mutagenicity

Not classified based on available information.

Product:

Genotoxicity in vitro : Test Type: Mutagenicity
Metabolic activation: Read-across from a similar material
Result: Based on available data, the classification criteria are not met.

Genotoxicity in vivo : Test Type: Mutagenicity
Result: Based on available data, the classification criteria are not met.
Remarks: Read-across from a similar material

Components:**Tricresyl phosphate:**

Genotoxicity in vitro : Test Type: various
Result: Based on available data, the classification criteria are not met.
Remarks: Not classified

Genotoxicity in vivo : Test Type: various
Result: Based on available data, the classification criteria are not met.

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Carcinogenicity

Not classified based on available information.

IARC No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

Not classified based on available information.

Product:

Reproductive toxicity - Assessment : No toxicity to reproduction

Components:**Tricresyl phosphate:**

Reproductive toxicity - Assessment : May damage the unborn child. Suspected of damaging fertility.

STOT-single exposure

Not classified based on available information.

Product:

Routes of exposure : inhalation (dust/mist/fume)
Assessment : The substance or mixture is not classified as specific target organ toxicant, single exposure.

Components:**Tricresyl phosphate:**

Assessment : Based on available data, the classification criteria are not met.

STOT-repeated exposure

Not classified based on available information.

Product:

Assessment : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Components:**Tricresyl phosphate:**

Assessment : Based on available data, the classification criteria are not met.

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N-phenyl-1-naphthylamine:

Assessment : Not classified

Repeated dose toxicity**Product:**

Remarks : No known significant effects or critical hazards.

Components:**Tricresyl phosphate:**Species : Rat
: 300 mg/l**Aspiration toxicity**

Not classified based on available information.

Product:

No aspiration toxicity classification

Components:**Tricresyl phosphate:**

Not classified

Routes of exposure**Product:**Inhalation : Remarks: None known.
Skin contact : Remarks: Prolonged skin contact may defat the skin and produce dermatitis.
Eye contact : Remarks: Contact with the eyes may be very painful but does not cause damage.
Ingestion : Remarks: None known.

SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity****Product:**Toxicity to fish : LC50 (Fish):
Exposure time: 96 h
Remarks: Not classified as hazardous.
(limit of solubility in fresh water)
Read-across from a similar material
Toxicity to daphnia and other : EC50 (Daphnia magna (Water flea)):

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aquatic invertebrates		Exposure time: 48 h Remarks: Not classified as hazardous. (limit of solubility in fresh water) Read-across from a similar material
Toxicity to algae/aquatic plants	:	NOEC (Pseudokirchneriella subcapitata (algae)): Exposure time: 72 h Remarks: Not classified as hazardous. (limit of solubility in fresh water) Read-across from a similar material
Toxicity to fish (Chronic toxicity)	:	NOEC (Fish): Remarks: Not classified as hazardous. (limit of solubility in fresh water) Read-across from a similar material
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC: Remarks: Not classified as hazardous. (limit of solubility in fresh water) Read-across from a similar material

Components:**Tricresyl phosphate:**

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 0.6 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 0.146 mg/l Exposure time: 48 h
M-Factor (Acute aquatic toxicity)	:	1

N-phenyl-1-naphthylamine:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 0.44 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 0.30 - 0.68 mg/l Exposure time: 48 h
Toxicity to microorganisms	:	EC50 (Bacteria): Exposure time: 3 h

Persistence and degradability**Product:**

Biochemical Oxygen Demand (BOD)	:	Remarks: No data available
Chemical Oxygen Demand (COD)	:	Remarks: No data available

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Bioaccumulative potential**Product:**

Bioaccumulation : Remarks: Not applicable
Mixture

Components:**Tricresyl phosphate:**

Bioaccumulation : Bioconcentration factor (BCF): 2,000

Partition coefficient: n- : Pow: 860,000
octanol/water log Pow: 5.93

Mobility in soil**Components:****Tricresyl phosphate:**

Distribution among environ- : log Koc: 4.31
mental compartments

Other adverse effects

No data available

SECTION 13. DISPOSAL CONSIDERATIONS**Disposal methods**

Waste from residues : Dispose of in accordance with local regulations.

SECTION 14. TRANSPORT INFORMATION**International Regulations****IATA-DGR**

Not regulated as a dangerous good

IMDG-Code

Not regulated as a dangerous good

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Domestic regulation**49 CFR**

Not regulated as a dangerous good

SECTION 15. REGULATORY INFORMATION**CERCLA Reportable Quantity**

This material does not contain any components with a CERCLA RQ.

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SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : No SARA Hazards

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.

California Prop. 65

This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

The ingredients of this product are reported in the following inventories:

TCSI : On the inventory, or in compliance with the inventory

TSCA : All substances listed as active on the TSCA inventory

AIC : On the inventory, or in compliance with the inventory

DSL : All components of this product are on the Canadian DSL

KECI : On the inventory, or in compliance with the inventory

IECSC : On the inventory, or in compliance with the inventory

NZloC : On the inventory, or in compliance with the inventory

TSCA list

No substances are subject to a Significant New Use Rule.

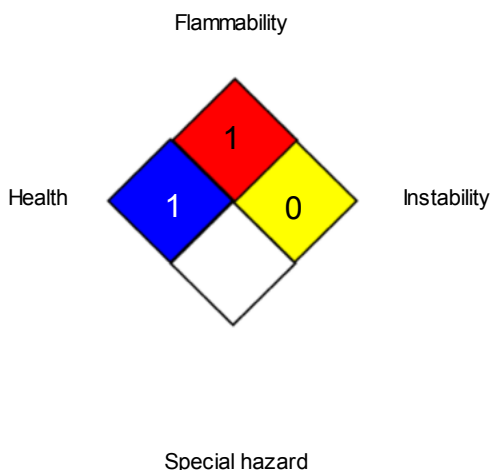
No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16. OTHER INFORMATION**Further information**

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NFPA 704:



HMIS® IV:

HEALTH	/	1
FLAMMABILITY		1
PHYSICAL HAZARD		0

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.

Full text of other abbreviations

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG -

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United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Sources of key data used to compile the Material Safety Data Sheet : www.EastmanAviationSolutions.com

Revision Date : 07/02/2021

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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