

# SAFETY DATA SHEET

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

### 1.1 Product identifier

**Product name:** Skydrol® LD4 Fire Resistant Hydraulic Fluid

**Product No.:** 34102-00, P3410207, P3410200, P3410206, P3410204, P3410202, P3410205, P3410203, E3410201

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

**Identified uses:** Hydraulic fluid

**Uses advised against:** None known.

### 1.3 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](http://www.EASTMAN.com) or email [emnmsds@eastman.com](mailto:emnmsds@eastman.com)

#### National Supplier

Eastman Chemical B.V.  
Fascinatio Boulevard 602-614  
2909 Capelle aan den IJssel  
The Netherlands  
Telephone: (31) 10 2402 111  
Fax: (31) 10 2402 100

### 1.4 Emergency telephone number:

For emergency health, safety, and environmental information: telephone 800-EASTMAN or 423 229-4511 in the United States; or +44 (0)1235 239 670 in Europe.

For emergency transportation information, call +44(0)1235 239 670; or 800 964214 in England; 01800559700 in Ireland; or 423-229-4511 in the United States. Identify the call as a transportation emergency.

## SECTION 2: Hazards identification

## 2.1 Classification of the substance or mixture

The product has been classified according to the legislation in force.

### Regulation No. 1272/2008.

#### Health Hazards

Skin Corrosion/Irritation                      Category 2                      H315: Causes skin irritation.

Carcinogenicity                                      Category 2                      H351: Suspected of causing cancer.

#### Environmental Hazards

Chronic hazards to the aquatic environment                      Category 3                      H412: Harmful to aquatic life with long lasting effects.

#### Hazard summary

**Physical Hazards:**                      None known.

#### Health Hazards

**Inhalation:**                                      None known.

**Eye contact:**                                      Eye may become red, tear, and become painful.

**Skin contact:**                                      Irritating to skin. The product contains a small amount of sensitizing substance which may provoke an allergic reaction among sensitive individuals in contact with skin.

**Ingestion:**                                      None known.

**Other Health Effects:**                      Contains a substance which may be potentially carcinogenic.

**Environmental hazards:**                      Harmful to aquatic life with long lasting effects.

#### Classification according to Directive 67/548/EEC or 1999/45/EC as amended.

Carc. 3: Carcinogen category 3.

R40: Limited evidence of a carcinogenic effect.

Xi: Irritant

R38: Irritating to skin.

R52/53: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

## 2.2 Label Elements



**Signal Words:** Warning

**Hazard Statement(s):** H315: Causes skin irritation.  
H351: Suspected of causing cancer.  
H412: Harmful to aquatic life with long lasting effects.

#### Precautionary Statement

**Prevention:** P201: Obtain special instructions before use. P273: Avoid release to the environment. P280: Wear protective gloves/protective clothing/eye protection/face protection.

**Response:** P302+P352: IF ON SKIN: Wash with plenty of soap and water.  
P308+P313: IF exposed or concerned: Get medical advice/attention.

**Disposal:** P501: Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

#### Supplemental label information

Contains: 2-Ethylhexyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate. May produce an allergic reaction.

**2.3 Other hazards:** None known.

### SECTION 3: Composition/information on ingredients

#### 3.2 Mixture

##### General information:

Chemical name	Concentration	Additional identification	Notes
Tributyl phosphate	55 - 65%	CAS-No.: 126-73-8 EC No.: 204-800-2 REACH Registration No.: 01-2119492859-14-0002 01-2119967407-27-0000	
Reaction mass of butyl diphenyl phosphate and dibutyl phenyl phosphate and tributyl phosphate	20 - 40%	EC No.: 907-672-2 REACH Registration No.: 01-2119967407-27-0000	
2-Ethylhexyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate	<10%	CAS-No.: 62256-00-2 EC No.: 263-471-3	

butylated hydroxytoluene	1 - 5%	CAS-No.: 128-37-0 EC No.: 204-881-4	
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Explanation for Notes (if applicable):

\* 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).

PBT: persistent, bioaccumulative and toxic substance.

vPvB: very persistent and very bioaccumulative substance.

**Classification**

Chemical name	Classification		Notes
Tributyl phosphate	DSD:	Carc. 3 R40 Xn, R22 Xi, R38	
	CLP:	Carc. 2, H351; Acute Tox.4, H302; Skin Irrit.2, H315; Aquatic Chronic3, H412	
Reaction mass of butyl diphenyl phosphate and dibutyl phenyl phosphate and tributyl phosphate	DSD:	Carc. 3 Xn, R40 R52/53	
	CLP:	Carc. 2, H351; Aquatic Chronic3, H412	
2-Ethylhexyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate	DSD:	Xi, R43	
	CLP:	Skin Sens. 1, H317	
butylated hydroxytoluene	DSD:	N, R50/53	
	CLP:	Aquatic Acute 1, H400; Aquatic Chronic1, H410	

DSD: Directive 67/548/EEC.

CLP: Regulation No. 1272/2008.:

The full text for all R-phrases and H-statements is displayed in section 16.

**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.

**4.1 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 without advice from poison control center. 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.

**4.2 Most important symptoms and effects, both acute and delayed:** Eye may become red, tear, and become painful. The product contains a small amount of sensitizing substance which may provoke an allergic reaction among sensitive individuals. Limited evidence of a carcinogenic effect.

**4.3 Indication of any immediate medical attention and special treatment needed**

**Hazards:** No data available.

**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.

**5.1 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.

**5.2 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 .

**5.3 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

- 6.1 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.
- 6.2 Environmental Precautions:** Prevent further leakage or spillage if safe to do so. Clear up spills immediately and dispose of waste safely. Prevent spillage entering a watercourse or sewer, contaminating soil or vegetation. If this is not possible notify police and appropriate authorities immediately.
- 6.3 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:

- 7.1 Precautions for safe handling:** Do not handle until all safety precautions have been read and understood. Handle product only in closed system or provide appropriate exhaust ventilation at machinery. 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. In case of inadequate ventilation, use respiratory protection. 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.
- 7.2 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.

**7.3 Specific end use(s):** This safety data sheet contains an ES in an integrated form. Contents of the exposure scenario have been included into sections 1.2, 8, 9, 12, 15 and 16 of this safety data sheet. See section 15 for more information.  
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**SECTION 8: Exposure controls/personal protection**

**8.1 Control Parameters**

**Occupational Exposure Limits**

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

**DNEL-Values**

Critical component	type	Route of Exposure		Remarks
Tributyl phosphate	Workers	DNEL Human, dermal, short-term (acute);, local	1,78 mg/cm <sup>2</sup>	
Tributyl phosphate		DNEL Human, dermal, long-term (repeated);, local	0,44 mg/cm <sup>2</sup>	
Tributyl phosphate		DNEL Human, dermal, short-term (acute);, systemic	1,78 mg/kg bw/day	
Tributyl phosphate		DNEL Human, dermal, long-term (repeated);, systemic	0,44 mg/kg bw/day	
Tributyl phosphate		DNEL Human, inhalation, short-term (acute);, local	12,52 mg/m <sup>3</sup>	
Tributyl phosphate		DNEL Human, inhalation, long-term (repeated);, local	3,13 mg/m <sup>3</sup>	
Tributyl phosphate		DNEL Human, inhalation, short-term (acute);, systemic	12,52 mg/m <sup>3</sup>	
Tributyl phosphate		DNEL Human, inhalation, long-term (repeated);, systemic	3,13 mg/m <sup>3</sup>	
Tributyl phosphate	General Population	DNEL Human, oral, short-term (acute);, systemic	0,88 mg/kg bw/day	
Tributyl phosphate		DNEL Human, oral, long-term (repeated);, systemic	0,22 mg/kg bw/day	
Tributyl phosphate		DNEL Human, dermal, short-term (acute);, local	0,88 mg/cm <sup>2</sup>	
Tributyl phosphate		DNEL Human, dermal, long-term (repeated);, local	0,22 mg/cm <sup>2</sup>	

Tributyl phosphate		DNEL Human, dermal, short-term (acute);, systemic	0,88 mg/kg bw/day	
Tributyl phosphate		DNEL Human, dermal, long-term (repeated);, systemic	0,22 mg/kg bw/day	
Tributyl phosphate		DNEL Human, inhalation, short-term (acute);, local	3,08 mg/m <sup>3</sup>	
Tributyl phosphate		DNEL Human, inhalation, long-term (repeated);, local	0,77 mg/m <sup>3</sup>	
Tributyl phosphate		DNEL Human, inhalation, short-term (acute);, systemic	3,08 mg/m <sup>3</sup>	
Tributyl phosphate		DNEL Human, inhalation, long-term (repeated);, systemic	0,77 mg/m <sup>3</sup>	
Reaction mass of butyl diphenyl phosphate and dibutyl phenyl phosphate and tributyl phosphate	Workers	DNEL Human, dermal, long-term (repeated);, local	0,48 mg/cm <sup>2</sup>	
Reaction mass of butyl diphenyl phosphate and dibutyl phenyl phosphate and tributyl phosphate		DNEL Human, dermal, long-term (repeated);, systemic	1,39 mg/kg bw/day	
Reaction mass of butyl diphenyl phosphate and dibutyl phenyl phosphate and tributyl phosphate		DNEL Human, inhalation, long-term (repeated);, local	0,67 mg/m <sup>3</sup>	
Reaction mass of butyl diphenyl phosphate and dibutyl phenyl phosphate and tributyl phosphate		DNEL Human, inhalation, long-term (repeated);, systemic	0,67 mg/m <sup>3</sup>	
Reaction mass of butyl diphenyl phosphate and dibutyl phenyl phosphate and tributyl phosphate	General Population	DNEL Human, oral, long-term (repeated);, systemic	0,025 mg/kg bw/day	
Reaction mass of butyl diphenyl phosphate and dibutyl phenyl phosphate and tributyl phosphate		DNEL Human, dermal, long-term (repeated);, local	0,24 mg/cm <sup>2</sup>	
Reaction mass of butyl diphenyl phosphate and dibutyl phenyl phosphate and tributyl phosphate		DNEL Human, dermal, long-term (repeated);, systemic	0,69 mg/kg bw/day	
Reaction mass of butyl diphenyl phosphate and dibutyl phenyl phosphate and tributyl phosphate		DNEL Human, inhalation, long-term (repeated);, local	0,167 mg/m <sup>3</sup>	



Reaction mass of butyl diphenyl phosphate and dibutyl phenyl phosphate and tributyl phosphate		DNEL Human, inhalation, long-term (repeated); systemic	0,167 mg/m <sup>3</sup>	
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**PNEC-Values**

Critical component	Environmental compartment		Remarks
Tributyl phosphate	Water	0,082 mg/l	
Tributyl phosphate	freshwater sediment	1,84 mg/kg	dry
Tributyl phosphate	Seawater	0,0082 mg/l	
Tributyl phosphate	Saltwater Sediment	0,184 mg/kg	dry
Tributyl phosphate	Sewage Treatment Plant	1 mg/l	
Tributyl phosphate	soil	3,63 mg/kg	dry
Reaction mass of butyl diphenyl phosphate and dibutyl phenyl phosphate and tributyl phosphate	Water	0,0106 mg/l	
Reaction mass of butyl diphenyl phosphate and dibutyl phenyl phosphate and tributyl phosphate	Seawater	0,00106 mg/l	
Reaction mass of butyl diphenyl phosphate and dibutyl phenyl phosphate and tributyl phosphate	Aqua Intermittent	0,014 mg/l	
Reaction mass of butyl diphenyl phosphate and dibutyl phenyl phosphate and tributyl phosphate	freshwater sediment	1,02 mg/kg	dry
Reaction mass of butyl diphenyl phosphate and dibutyl phenyl phosphate and tributyl phosphate	Saltwater Sediment	0,102 mg/kg	dry
Reaction mass of butyl diphenyl phosphate and dibutyl phenyl phosphate and tributyl phosphate	Sewage Treatment Plant	10 mg/l	
Reaction mass of butyl diphenyl phosphate and dibutyl phenyl phosphate and tributyl phosphate	soil	0,199 mg/kg	dry

**8.2 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.

**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:** If prolonged or repeated contact is likely, chemical resistant gloves are recommended. If contact with forearms is likely, wear gauntlet style gloves. 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. 1) The breakthrough time of the glove material, with regard to the amount and duration of dermal exposure: > 8 hours. 2) The breakthrough time of the glove material, with regard to the amount and duration of dermal exposure: 1 to 4 hours.  
1) Nitrile rubber. 2) Neoprene. Rubber (natural, latex).
- 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: Apron or other light protective clothing and boots. If prolonged or repeated contact is likely, chemical resistant clothing is recommended. Promptly remove non-impervious clothing that becomes wet or contaminated.
- Respiratory Protection:** If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment. Respirator type: Particle filter device (DIN EN 143) Recommendations: Dust filter P2 (for fine dust).
- 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

### 9.1 Information on basic physical and chemical properties

#### Appearance

<b>Physical state:</b>	liquid
<b>Form:</b>	Oily liquid
<b>Color:</b>	purple
<b>Odor:</b>	Odorless
<b>Odor Threshold:</b>	No data available.
<b>pH:</b>	No data available.
<b>Melting Point</b>	< -62 °C
<b>Boiling Point:</b>	No data available.
<b>Flash Point:</b>	160 °C (Cleveland open cup)
<b>Evaporation Rate:</b>	No data available.
<b>Flammability (solid, gas):</b>	not applicable
<b>Flammability Limit - Upper (%)-:</b>	
<b>Flammability Limit - Lower (%)-:</b>	
<b>Vapor pressure:</b>	0,27 hPa (25 °C)
<b>Vapor density (air=1):</b>	No data available.
<b>Specific Gravity:</b>	1,004 - 1,014 (25 °C)
<b>Solubility(ies)</b>	
<b>Solubility in Water:</b>	No data available.
<b>Solubility (other):</b>	Not available.
<b>Partition coefficient (n-octanol/water):</b>	Not available.
<b>Autoignition Temperature:</b>	> 400 °C (ASTM D2155)
<b>Decomposition Temperature:</b>	No data available.
<b>Dynamic viscosity:</b>	Not available.
<b>Kinematic viscosity:</b>	< 2.000 mm <sup>2</sup> /s (-54 °C)   11,15 mm <sup>2</sup> /s (38 °C)   3,83 mm <sup>2</sup> /s (99 °C)
<b>Explosive properties:</b>	Not classified.
<b>Oxidizing properties:</b>	Not classified.

**SECTION 10: Stability and reactivity**

<b>10.1 Reactivity:</b>	Material is stable under normal conditions.
<b>10.2 Chemical Stability:</b>	Material is stable under normal conditions.
<b>10.3 Possibility of Hazardous Reactions:</b>	None under normal conditions.
<b>10.4 Conditions to Avoid:</b>	None known.
<b>10.5 Incompatible Materials:</b>	Strong oxidizing agents.
<b>10.6 Hazardous Decomposition Products:</b>	Emits acrid smoke and fumes when heated to decomposition.

**SECTION 11: Toxicological information****Information on likely routes of exposure**

<b>Inhalation:</b>	None known.
<b>Ingestion:</b>	None known.
<b>Skin contact:</b>	May cause irritation.
<b>Eye contact:</b>	Eye may become red, tear, and become painful.

**11.1 Information on toxicological effects****Acute toxicity****Oral**

**Product:** Oral LD-50: (Rat, Male and Female): 2.100 mg/kg Not classified.

**Dermal**

**Product:** Dermal LD-50: (Rabbit, Male and Female): > 3.160 mg/kg  
Not classified.

**Inhalation**

**Product:** Dusts, mists and fumes: LC50 (Rat, Male., 4 h): > 5,8 mg/l Not classified.  
(highest concentration tested)

**Repeated dose toxicity**

**Product:** NOAEL (Rat(Male and Female), Inhalation): 40 mg/m<sup>3</sup> (Target Organ(s): Blood, Respiratory system) Irritating to eyes and respiratory system.

**Skin Corrosion/Irritation:**

**Product:** Irritating.  
(Rabbit, 24 h): moderate irritation

**Serious Eye Damage/Eye Irritation:** Not classified.  
**Product:** (Rabbit, 24 h): Slightly irritating.

**Respiratory or Skin Sensitization:** Not classified.  
**Product:** Human experience., Human Repeat Insult Patch Test - very slight

**Mutagenicity**

**In vitro**  
**Product:** Salmonella typhimurium assay (Ames test), : negative +/- activation  
 Mutagenicity - Mammalian, In vitro Mammalian Chromosome Aberration Test :  
 negative +/- activation

**In vivo**  
**Product:** No data available.

**Specified substance(s)**  
 Tributyl phosphate Chromosomal aberration (Mammalian Bone Marrow Chromosome Aberration Test)  
 oral: gavage (Rat, Male and Female): negative  
 Chromosomal aberration Intraperitoneal (Rat, Male and Female): negative  
 Reaction mass of butyl diphenyl phosphate and dibutyl phenyl phosphate and tributyl phosphate  
 2-Ethylhexyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate Chromosomal aberration (Mammalian Bone Marrow Chromosome Aberration Test)  
 Intraperitoneal (Rat, Male and Female): equivocal  
 butylated hydroxytoluene No data available.

**Carcinogenicity**

**Product:** No data available.

**Specified substance(s):**  
 Tributyl phosphate Rat, Male and Female: Ingestion; EPA OTS 798.3300; Remarks: Limited evidence of a carcinogenic effect.

**Reproductive toxicity**

**Toxicity to reproduction**

**Product:** No data available.

**Specified substance(s):**  
 Tributyl phosphate Two Generation Reproductive Toxicity Study (Rat, Male and Female);  
 NOAEL: 225 mg/kg; Ingestion; EPA OTS 798.4900

**Specified substance(s):**

Reaction mass of butyl diphenyl phosphate and dibutyl phenyl phosphate and tributyl phosphate (Rat, Male and Female); NOAEL: 5 mg/l; NOAEL: 50 mg/kg; NOAEL: 50 mg/kg; Ingestion; EPA OTS 798.4900

**Developmental toxicity****Product:** No data available.**Specified substance(s):**

Tributyl phosphate Rat; NOAEL: 750 mg/kg; Gavage (Oral); EPA OTS 798.4900

**Specified substance(s):**

Reaction mass of butyl diphenyl phosphate and dibutyl phenyl phosphate and tributyl phosphate Rat; NOAEL: 300 mg/kg; NOAEL: 3 mg/kg; Gavage (Oral)

**Specific Target Organ Toxicity - Single Exposure****Product:** No data available.**Specified substance(s)**

Tributyl phosphate Based on available data, the classification criteria are not met.

Reaction mass of butyl diphenyl phosphate and dibutyl phenyl phosphate and tributyl phosphate Not classified.

2-Ethylhexyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate No data available.

butylated hydroxytoluene No data available.

**Specific Target Organ Toxicity - Repeated Exposure****Product:** No data available.**Specified substance(s)**

Tributyl phosphate Based on available data, the classification criteria are not met.

Reaction mass of butyl diphenyl phosphate and dibutyl phenyl phosphate and tributyl phosphate Inhalation - dust and mist: Respiratory system - Not classified.

2-Ethylhexyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate No data available.

butylated hydroxytoluene No data available.

**Aspiration Hazard****Product:** not applicable**Other Adverse Effects:** No data available.**SECTION 12: Ecological information****12.1 Toxicity****Acute toxicity**

**Fish**

**Product:** LC-50 (Oncorhynchus mykiss, 96 h): 5,2 mg/l

**Aquatic Invertebrates**

**Product:** LC-50 (Daphnia magna, 48 h): 5,8 mg/l

**Chronic Toxicity**

**Fish**

**Product:** No data available.

**Specified substance(s)**

Tributyl phosphate NOEC (Oncorhynchus mykiss, 95 d): 0,82 mg/l  
 LOEC 1,7 mg/l

Reaction mass of butyl  
 diphenyl phosphate and  
 dibutyl phenyl phosphate  
 and tributyl phosphate NOEC (Oncorhynchus mykiss, 60 d): > 0,11 mg/l

2-Ethylhexyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate No data available.

butylated hydroxytoluene No data available.

**Aquatic Invertebrates**

**Product:** No data available.

**Specified substance(s)**

Tributyl phosphate NOEC (Daphnia magna, 21 d): 1,3 mg/l

Reaction mass of butyl  
 diphenyl phosphate and  
 dibutyl phenyl phosphate  
 and tributyl phosphate NOEC (Daphnia magna, 21 d): 0,106 mg/l

2-Ethylhexyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate No data available.

butylated hydroxytoluene No data available.

**Toxicity to Aquatic Plants**

**Product:** EC-50 (Selenastrum capricornutum, 96 h): 8,2 mg/l

**12.2 Persistence and Degradability**

**Biodegradation**

**Product:** No data available.

**Specified substance(s)**

Tributyl phosphate Readily biodegradable

Reaction mass of butyl  
 diphenyl phosphate and  
 dibutyl phenyl phosphate  
 and tributyl phosphate Readily biodegradable, failing 10-d window  
 Not readily degradable.

2-Ethylhexyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate Readily biodegradable.

butylated hydroxytoluene No data available.

**Biological Oxygen Demand:  
 Product** Not determined.

**Chemical Oxygen Demand:  
 Product** Not determined.

**BOD/COD Ratio  
 Product** No data available.

**Specified substance(s)**  
 Tributyl phosphate No data available.  
 Reaction mass of butyl  
 diphenyl phosphate and  
 dibutyl phenyl phosphate  
 and tributyl phosphate No data available.  
 2-Ethylhexyl 7-  
 oxabicyclo[4.1.0]heptane-3-  
 carboxylate No data available.  
 butylated hydroxytoluene No data available.

**12.3 Bioaccumulative Potential  
 Product:** No data available.

**Specified substance(s)**  
 Tributyl phosphate Common Carp, Bioconcentration Factor (BCF): 20 (OECD Guideline Test No.  
 305: Bioaccumulation in Fish: Aqueous and Dietary Exposure)  
 Bioconcentration Factor (BCF): 35  
 Reaction mass of butyl  
 diphenyl phosphate and  
 dibutyl phenyl phosphate  
 and tributyl phosphate Common Carp, Bioconcentration Factor (BCF): 35 (OECD Guideline Test No.  
 305: Bioaccumulation in Fish: Aqueous and Dietary Exposure)  
 2-Ethylhexyl 7-  
 oxabicyclo[4.1.0]heptane-3-  
 carboxylate No data available.  
 butylated hydroxytoluene No data available.

**12.4 Mobility in Soil:** No data available.

**Known or predicted distribution to environmental compartments**

Tributyl phosphate Log Koc - 3,344  
 Reaction mass of butyl  
 diphenyl phosphate and dibutyl  
 phenyl phosphate and tributyl  
 phosphate 2,97 (QSAR model)  
 2-Ethylhexyl 7-  
 oxabicyclo[4.1.0]heptane-3-  
 carboxylate No data available.  
 butylated hydroxytoluene No data available.

**12.5 Results of PBT and vPvB  
 assessment:** Not fulfilling PBT (persistent/bioaccumulative/toxic) criteria Not fulfilling vPvB (very  
 persistent, very bioaccumulative) criteria.



12.6 Other Adverse Effects: No data available.

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

**General information:** The generation of waste should be avoided or minimized wherever possible. Comply with requirements of waste disposal legislation and any local authority requirements. The generation of waste should be avoided or minimized wherever possible.

**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. Empty containers should be taken to an approved waste handling site for recycling or disposal.

#### European Waste Codes

Waste codes should be assigned by the user based on the application for which the product was used. According to the European Waste Catalogue, Waste Codes are not product specific, but application specific.

The following Waste Codes are only suggestions. Any waste marked with an asterisk (\*) is considered as a hazardous waste pursuant to Directive 91/689/EEC on hazardous waste, and subject to the provisions of that Directive unless Article 1(5) of that Directive applies.

**Unused product:** 13 01 11\*: synthetic hydraulic oils

**Used product:** 13 01 11\*: synthetic hydraulic oils

**Contaminated Packaging:** 15 01 10\*: packaging containing residues of or contaminated by dangerous substances

## SECTION 14: Transport information

*Important Note: Shipping descriptions may vary based on mode of transport, quantities, package size, and/or origin and destination. Consult your company's Hazardous Materials/Dangerous Goods expert for information specific to your situation.*

#### ADR/RID

Class not regulated

#### IMDG - International Maritime Dangerous Goods Code

Class not regulated

IATA

Class not regulated

**SECTION 15: Regulatory information****15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture.:****Directive 92/85/EEC: on the safety and health of pregnant workers and workers who have recently given birth or are breast feeding.:**

Chemical name	CAS-No.	Concentration
Tributyl phosphate	CAS-No.: 126-73-8	55 - 65%
Reaction mass of butyl diphenyl phosphate and dibutyl phenyl phosphate and tributyl phosphate		20 - 40%

**EU. Directive 94/33/EC on young people at work, OJ (L 216) 12, 20 Aug 1994**

Chemical name	CAS-No.	Concentration
Tributyl phosphate	CAS-No.: 126-73-8	55 - 65%
Reaction mass of butyl diphenyl phosphate and dibutyl phenyl phosphate and tributyl phosphate		20 - 40%

**Directive 98/24/EC on the protection of workers from the risks related to chemical agents at work.:**

Chemical name	CAS-No.	Concentration
Tributyl phosphate	CAS-No.: 126-73-8	55 - 65%
Reaction mass of butyl diphenyl phosphate and dibutyl phenyl phosphate and tributyl phosphate		20 - 40%

**15.2 Chemical safety assessment:**

For the following substances of this mixture a chemical safety assessment has been carried out: Reaction mass of dibutyl phenyl phosphate, butyl

diphenyl phosphate and tributyl phosphate, tributyl phosphate

## SECTION 16: Other information

**Revision Information:** Not relevant.

**Key literature references and sources for data:** [www.EastmanAviationSolutions.com](http://www.EastmanAviationSolutions.com)

**Wording of the R-phrases and H-statements in section 2 and 3:**

Carc. 3 = Carcinogen category 3.

Xn = Harmful.

Xi = Irritant.

R40 = Limited evidence of a carcinogenic effect.

R22 = Harmful if sw allowed.

R38 = Irritating to skin.

Carc. 3 = Carcinogen category 3.

Xn = Harmful

R40 = Limited evidence of a carcinogenic effect.

R52/53 = Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Xi = Irritant

R43 = May cause sensitisation by skin contact.

N = Dangerous for the environment

R50/53 = Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Carc. = Carcinogenicity

Acute Tox. = Acute toxicity

Skin Irrit. = Skin irritation

Aquatic Chronic = Chronic hazards to the aquatic environment

2 = Category 2

4 = Category 4

2 = Category 2

3 = Category 3

H351= Suspected of causing cancer.

H302= Harmful if sw allowed.

H315= Causes skin irritation.

H412= Harmful to aquatic life with long lasting effects.

Carc. = Carcinogenicity

Aquatic Chronic = Chronic hazards to the aquatic environment

2 = Category 2

3 = Category 3

H351= Suspected of causing cancer.

H412= Harmful to aquatic life with long lasting effects.

Skin Sens. = Skin sensitizer

1 = Category 1

H317= May cause an allergic skin reaction.

Aquatic Acute = Acute hazards to the aquatic environment

Aquatic Chronic = Chronic hazards to the aquatic environment

1 = Category 1

1 = Category 1

H400= Very toxic to aquatic life.

H410= Very toxic to aquatic life with long lasting effects.

**Training information:** No data available.

**Issue Date:** 02.06.2015

**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.