

Skydrol® LD4 Fire Resistant Hydraulic Fluid

Version 3.1 Revision Date: 2016-08-09 SDS Number: 150000093409 Date of last issue: 2015-06-02
Date of first issue: 2013-12-04
SDSSG / PRD / 0001

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Skydrol® LD4 Fire Resistant Hydraulic Fluid
Product code : 34102-00, P3410207, P3410200, P3410206, P3410204,
P3410202, P3410205, P3410203, E3410201

Manufacturer or supplier's details

Company : Eastman Chemical Company
Address : 200 South Wilcox Drive
Kingsport TN 37660-5280
Telephone : (423) 229-2000
Emergency telephone number : +(65)-6262-6462
For emergency transportation information: telephone (86) 532 83889090 in China; (65) 6262-6462 in Singapore and other Asia Pacific regions; or 00-1-423-229-4511 in the United States. Identify the call as a transportation emergency.

Recommended use of the chemical and restrictions on use

Recommended use : Hydraulic fluids
Restrictions on use : None known.

2. HAZARDS IDENTIFICATION**GHS Classification**

Skin corrosion/irritation : Category 2
Carcinogenicity : Category 2

GHS label elements

Hazard pictograms : 

Signal word : Warning

Hazard statements : H315 Causes skin irritation.
H351 Suspected of causing cancer.

Precautionary statements : **Prevention:**
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P264 Wash skin thoroughly after handling.
P280 Wear protective gloves/ protective clothing/ eye protec-

Skydrol®LD4 Fire Resistant Hydraulic Fluid

Version Revision Date: SDS Number: Date of last issue: 2015-06-02
 3.1 2016-08-09 150000093409 Date of first issue: 2013-12-04
 SDSSG / PRD / 0001

tion/ face protection.

Response:

P302 + P352 IF ON SKIN: Wash with plenty of water.

P308 + P313 IF exposed or concerned: Get medical advice/ attention.

P332 + P313 If skin irritation occurs: Get medical advice/ attention.

P362 + P364 Take off contaminated clothing and wash it before reuse.

Storage:

P405 Store locked up.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards which do not result in classification

None known.

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

Chemical name	CAS-No.	Concentration (% w/w)
Tributyl phosphate	126-73-8	55 - 65
Dibutylphenylphosphate	2528-36-1	20 - 30
Butyl diphenyl phosphate	2752-95-6	5 - 10
7-Oxabicyclo[4.1.0]heptane-3-carboxylic acid, 2-ethylhexyl ester	62256-00-2	< 10
butylated hydroxytoluene	128-37-0	1

4. FIRST AID MEASURES

- If inhaled : Move to fresh air.
 If breathing is difficult, give oxygen.
 Consult a physician if necessary.
- In case of skin contact : Wash off immediately with plenty of water for at least 15 minutes.
 Get medical attention if symptoms occur.
 Wash contaminated clothing before reuse.
- 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 : Call a physician or poison control centre immediately.
 Do not induce vomiting without medical advice.
 Rinse mouth.
 Never give anything by mouth to an unconscious person.
- Most important symptoms and effects, both acute and : Causes skin irritation.
 Suspected of causing cancer.

Skydrol®LD4 Fire Resistant Hydraulic Fluid

Version Revision Date: SDS Number: Date of last issue: 2015-06-02
3.1 2016-08-09 150000093409 Date of first issue: 2013-12-04
SDSSG / PRD / 0001

delayed

Notes to physician : Treat symptomatically.

5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Water spray
Carbon dioxide (CO₂)
Dry chemical
Foam
- Unsuitable extinguishing media : Do not use a solid water stream as it may scatter and spread fire.
- Hazardous combustion products : carbon dioxide, carbon monoxide
oxides of phosphorus
- Specific extinguishing methods : Use a water spray to cool fully closed containers.
Do not allow run-off from fire fighting to enter drains or water courses.
- Special protective equipment for firefighters : Wear an approved positive pressure self-contained breathing apparatus in addition to standard fire fighting gear.
-

6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Ventilate the area.
Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
Avoid contact with skin and eyes.
Material can create slippery conditions.
Wear appropriate personal protective equipment.
Local authorities should be advised if significant spillages cannot be contained.
- Environmental precautions : Clear up spills immediately and dispose of waste safely.
Avoid release to the environment.
Collect spillage.
- 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).
-

7. HANDLING AND STORAGE

- Advice on safe handling : Do not breathe vapours or spray mist.
Handle product only in closed system or provide appropriate exhaust ventilation at machinery.
In case of insufficient ventilation, wear suitable respiratory equipment.
-

Skydrol® LD4 Fire Resistant Hydraulic Fluid

Version Revision Date: SDS Number: Date of last issue: 2015-06-02
 3.1 2016-08-09 150000093409 Date of first issue: 2013-12-04
 SDSSG / PRD / 0001

Wear appropriate personal protective equipment.
 Avoid contact with skin, eyes and clothing.
 Wash thoroughly after handling.
 Wash contaminated clothing before reuse.
 Drain or remove substance from equipment prior to break-in or maintenance.
 Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage : Store locked up.
 Keep container tightly closed in a dry and well-ventilated place.
 Keep in a cool place away from oxidizing agents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Tributyl phosphate	126-73-8	PEL (long term)	0.2 ppm 2.2 mg/m ³	SG OEL
		TWA (Inhalable fraction and vapor)	5 mg/m ³	ACGIH
Dibutylphenylphosphate	2528-36-1	PEL (long term)	0.3 ppm 3.5 mg/m ³	SG OEL
		TWA	0.3 ppm	ACGIH
butylated hydroxytoluene	128-37-0	PEL (long term)	10 mg/m ³	SG OEL
		TWA (Inhalable fraction and vapor)	2 mg/m ³	ACGIH

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 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.
 If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits

Skydrol® LD4 Fire Resistant Hydraulic Fluid

Version	Revision Date:	SDS Number:	Date of last issue: 2015-06-02
3.1	2016-08-09	150000093409	Date of first issue: 2013-12-04
SDSSG / PRD / 0001			

have not been established), an approved respirator must be worn.

Hand protection

Remarks : Wear suitable 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.

Eye protection : Wear safety glasses with side shields (or goggles).

Skin and body protection : Wear suitable protective clothing.

Protective measures : Ensure that eye flushing systems and safety showers are located close to the working place.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: oily
Colour	: purple
Odour	: odourless
pH	: No data available
Melting point/range	: < -62 °C
Flash point	: 160 °C Method: Cleveland open cup
Vapour pressure	: 0.27 hPa (25 °C)
Relative density	: 1.004 - 1.014 (25 °C)
Viscosity	
Viscosity, kinematic	: < 2000 mm ² /s (-54 °C)
	11.15 mm ² /s (38 °C)
	3.83 mm ² /s (99 °C)

10. STABILITY AND REACTIVITY

Reactivity : None reasonably foreseeable.

Chemical stability : Stable under normal conditions.

Skydrol®LD4 Fire Resistant Hydraulic Fluid

Version Revision Date: SDS Number: Date of last issue: 2015-06-02
 3.1 2016-08-09 150000093409 Date of first issue: 2013-12-04
 SDSSG / PRD / 0001

Possibility of hazardous reactions : None known.
 Conditions to avoid : None known.
 Incompatible materials : Strong oxidizing agents
 Hazardous decomposition products : Emits acrid smoke and fumes when heated to decomposition.

11. TOXICOLOGICAL INFORMATION

Acute toxicity**Product:**

Acute oral toxicity : LD50 (Rat, Male and Female): 2,100 mg/kg
 Acute inhalation toxicity : LC50 (Rat, male): > 5.8 mg/l
 Exposure time: 4 h
 Test atmosphere: dust/mist
 Assessment: The substance or mixture has no acute inhalation toxicity
 Remarks: (highest concentration tested)
 Acute dermal toxicity : LD50 Dermal (Rabbit, Male and Female): > 3,160 mg/kg
 Assessment: The substance or mixture has no acute dermal toxicity

Components:**Tributyl phosphate:**

Acute oral toxicity : LD50 Oral (Rat, Male and Female): 1,553 mg/kg
 Method: Acute Oral Toxicity
 Assessment: Harmful if swallowed.
 Acute inhalation toxicity : LC50 (Rat, Male and Female): > 4.242 mg/l
 Exposure time: 4 h
 Test atmosphere: dust/mist
 Assessment: The substance or mixture has no acute inhalation toxicity
 Acute dermal toxicity : LD50 Dermal (Rabbit, Male and Female): > 3,100 mg/kg
 Assessment: The substance or mixture has no acute dermal toxicity

Dibutylphenylphosphate:

Acute oral toxicity : Acute toxicity estimate (Rat, Male and Female): 2,400 - 3,000 mg/kg
 Assessment: Not classified
 Acute inhalation toxicity : LCLo (Rat, Male and Female): > 5 mg/l
 Exposure time: 4 h
 Test atmosphere: dust/mist

Skydrol®LD4 Fire Resistant Hydraulic Fluid

Version Revision Date: SDS Number: Date of last issue: 2015-06-02
3.1 2016-08-09 150000093409 Date of first issue: 2013-12-04
SDSSG / PRD / 0001

LC50 (Rat, Male and Female): > 5 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Assessment: Not classified

Acute dermal toxicity : LD50 Dermal (Rabbit, Male and Female): > 5,000 mg/kg
Assessment: Not classified

7-Oxabicyclo[4.1.0]heptane-3-carboxylic acid, 2-ethylhexyl ester:

Acute oral toxicity : LD50 Oral (Rat, Male and Female): 4,470 mg/kg

Acute dermal toxicity : LD50 Dermal (Rabbit, Male and Female): > 7,940 mg/kg

butylated hydroxytoluene:

Acute oral toxicity : LD50 Oral (Rat): > 6,000 mg/kg

Acute dermal toxicity : LD50 Dermal (Guinea pig): > 20,000 mg/kg

Skin corrosion/irritation**Product:**

Species: Rabbit
Exposure time: 24 h
Assessment: irritating
Result: moderate irritation

Components:**Tributyl phosphate:**

Species: Rabbit
Exposure time: 4 h
Assessment: Causes skin irritation.
Method: Acute Dermal Irritation / Corrosion
Result: irritating

Dibutylphenylphosphate:

Species: Rabbit
Assessment: Not classified

Species: Humans
Exposure time: 24 h
Assessment: Not classified

7-Oxabicyclo[4.1.0]heptane-3-carboxylic acid, 2-ethylhexyl ester:

Species: Rabbit
Exposure time: 24 h
Assessment: Not classified as hazardous.
Result: slight to moderate irritation

butylated hydroxytoluene:

Species: Rabbit
Exposure time: 24 h
Result: very slight

Skydrol® LD4 Fire Resistant Hydraulic Fluid

Version Revision Date: SDS Number: Date of last issue: 2015-06-02
3.1 2016-08-09 150000093409 Date of first issue: 2013-12-04
SDSSG / PRD / 0001

Serious eye damage/eye irritation**Product:**

Species: Rabbit
Result: slight
Exposure time: 24 h
Assessment: Not classified

Components:**Tributyl phosphate:**

Species: Rabbit
Result: slight irritation
Exposure time: 24 h
Assessment: Not classified
Method: Acute Eye Irritation / Corrosion

Dibutylphenylphosphate:

Species: Rabbit
Result: slight
Assessment: Not classified

7-Oxabicyclo[4.1.0]heptane-3-carboxylic acid, 2-ethylhexyl ester:

Species: Rabbit
Result: slight irritation
Exposure time: 24 h
Assessment: Not classified

butylated hydroxytoluene:

Species: Rabbit
Result: none

Respiratory or skin sensitisation**Product:**

Test Type: Human experience
Assessment: Not classified
Method: Human Repeat Insult Patch Test
Result: Does not cause skin sensitisation.

Components:**Tributyl phosphate:**

Test Type: Skin Sensitization
Species: Guinea pig
Assessment: Not classified
Result: Does not cause skin sensitisation.

Test Type: Skin Sensitization
Species: Humans
Assessment: Not classified
Result: Does not cause skin sensitisation.

Skydrol® LD4 Fire Resistant Hydraulic Fluid

Version Revision Date: SDS Number: Date of last issue: 2015-06-02
3.1 2016-08-09 150000093409 Date of first issue: 2013-12-04
SDSSG / PRD / 0001

Dibutylphenylphosphate :

Test Type: Human experience
Species: Humans
Assessment: Not classified
Result: non-sensitizing

7-Oxabicyclo[4.1.0]heptane-3-carboxylic acid, 2-ethylhexyl ester:

Test Type: Skin Sensitization
Species: Guinea pig
Result: May cause sensitisation by skin contact.

butylated hydroxytoluene:

Test Type: Skin sensitisation
Species: Guinea pig
Result: non-sensitizing

Germ cell mutagenicity**Product:**

Genotoxicity in vitro : Test Type: Salmonella typhimurium assay (Ames test)
Metabolic activation: +/- activation
Result: negative

 : Test Type: Mutagenicity - Mammalian
Metabolic activation: +/- activation
Method: In vitro Mammalian Chromosome Aberration Test
Result: negative

Components:**Tributyl phosphate:**

Genotoxicity in vitro : Test Type: Mutagenicity - Bacterial
Metabolic activation: +/- activation
Method: Bacterial Reverse Mutation Assay
Result: negative

 : Test Type: Mutagenicity - Mammalian
Metabolic activation: +/- activation
Method: In vitro Mammalian Chromosome Aberration Test
Result: equivocal

Genotoxicity in vivo : Species: Rat (Male and Female)
Application Route: oral: gavage
Method: Mammalian Bone Marrow Chromosome Aberration
Test
Result: negative

Dibutylphenylphosphate :

Genotoxicity in vitro : Test Type: Salmonella typhimurium assay (Ames test)
Metabolic activation: +/- activation
Method: Bacterial Reverse Mutation Assay
Result: negative

Skydrol® LD4 Fire Resistant Hydraulic Fluid

Version 3.1 Revision Date: 2016-08-09 SDS Number: 150000093409 Date of last issue: 2015-06-02
Date of first issue: 2013-12-04
SDSSG / PRD / 0001

: Test Type: Mutagenicity - Mammalian
Metabolic activation: +/- activation
Method: In vitro Mammalian Cell Gene Mutation Test
Result: negative

: Test Type: Chromosome aberration test in vitro
Metabolic activation: +/- activation
Method: In vitro Mammalian Chromosome Aberration Test
Result: negative

: Test Type: Mutagenicity - Mammalian
Metabolic activation: - activation
Method: Genetic Toxicology: DNA Damage and Repair, Un-scheduled DNA Synthesis in Mammalian Cells In Vitro
Result: negative

Genotoxicity in vivo : Species: Rat (Male and Female)
Application Route: intraperitoneal injection
Result: negative

7-Oxabicyclo[4.1.0]heptane-3-carboxylic acid, 2-ethylhexyl ester:

Genotoxicity in vitro : Test Type: Salmonella typhimurium assay (Ames test)
Metabolic activation: +/- activation
Method: Bacterial Reverse Mutation Assay
Result: negative

: Test Type: Mutagenicity - Mammalian
Metabolic activation: +/- activation
Method: In vitro Mammalian Chromosome Aberration Test
Result: equivocal

: Test Type: Mutagenicity - Mammalian
Metabolic activation: +/- activation
Method: In vitro Mammalian Cell Gene Mutation Test
Result: negative

Genotoxicity in vivo : Species: Rat (Male and Female)
Application Route: intraperitoneal injection
Method: Mammalian Bone Marrow Chromosome Aberration Test
Result: equivocal

Carcinogenicity**Components:****Tributyl phosphate:**

Species: Rat, (Male and Female)
Application Route: Ingestion
Method: EPA OTS 798.3300
Remarks: Limited evidence of a carcinogenic effect.
May cause cancer.

Skydrol® LD4 Fire Resistant Hydraulic Fluid

Version Revision Date: SDS Number: Date of last issue: 2015-06-02
3.1 2016-08-09 150000093409 Date of first issue: 2013-12-04
SDSSG / PRD / 0001

Reproductive toxicity**Components:****Tributyl phosphate:**

Effects on fertility :
Test Type: Two Generation Reproductive Toxicity Study
Species: Rat
Sex: Male and Female
Application Route: Ingestion
NOAEL: 225 mg/kg,
Method: EPA OTS 798.4900

Effects on foetal development : Species: Rat
Application Route: Oral
750 mg/kg
Method: EPA OTS 798.4900

Dibutylphenylphosphate:

Effects on fertility :
Species: Rat
Sex: Male and Female
Application Route: Ingestion
NOAEL: 5 mg/l,
F1: Lowest observed adverse effect level 50 mg/kg,
F2: Lowest observed adverse effect level 50 mg/kg,
Method: EPA OTS 798.4900

Effects on foetal development : Species: Rat
Application Route: oral (gavage)
300 mg/kg
3 mg/kg

STOT - single exposure**Components:****Tributyl phosphate:**

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

Dibutylphenylphosphate:

Assessment: Not classified

STOT - repeated exposure**Components:****Tributyl phosphate:**

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

Dibutylphenylphosphate:

Exposure routes: inhalation (dust/mist/fume)

Target Organs: Respiratory system

Assessment: Not classified

Skydrol® LD4 Fire Resistant Hydraulic Fluid

Version Revision Date: SDS Number: Date of last issue: 2015-06-02
 3.1 2016-08-09 150000093409 Date of first issue: 2013-12-04
 SDSSG / PRD / 0001

Repeated dose toxicity**Product:**

Species: Rat, Male and Female
 NOAEL: 40 mg/m³
 Application Route: Inhalation
 Exposure time: 28 days
 Target Organs: Blood, Respiratory system
 Remarks: Irritating to eyes and respiratory system.

Components:**Tributyl phosphate:**

Species: Mouse, Male and Female
 NOEL: 75 mg/kg
 Application Route: in feed
 Exposure time: 90 days

Dibutylphenylphosphate:

Species: Rat, Male and Female
 NOAEL: 5 mg/kg
 LOAEL: 50 mg/kg
 Application Route: oral (feed)
 Exposure time: 90 days

Species: Rat, Male and Female
 NOAEC: 5 mg/m³
 Application Route: Inhalation
 Exposure time: 90 days

Species: Rabbit, Male and Female
 No observed adverse effect level: 100 mg/kg bw/day
 Application Route: Dermal Study
 Exposure time: 21 d

Aspiration toxicity**Product:**

Not applicable

Components:**7-Oxabicyclo[4.1.0]heptane-3-carboxylic acid, 2-ethylhexyl ester:**

Not applicable

Experience with human exposure**Product:**

Inhalation : Remarks: None known.
 Skin contact : Remarks: Causes skin irritation.
 Eye contact : Remarks: Contact with the eyes may be very painful but does

Skydrol® LD4 Fire Resistant Hydraulic Fluid

Version 3.1 Revision Date: 2016-08-09 SDS Number: 150000093409 Date of last issue: 2015-06-02
Date of first issue: 2013-12-04
SDSSG / PRD / 0001

not cause damage.

Ingestion : Remarks: None known.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 5.2 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia magna (Water flea)): 5.8 mg/l
Exposure time: 48 h

Toxicity to algae : EC50 (Selenastrum capricornutum (green algae)): 8.2 mg/l
Exposure time: 96 h

Further information

The following percentage of the mixture consists of ingredient(s) with unknown hazards to the aquatic environment: 9.031 %

Components:

Tributyl phosphate:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 4.2 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 1.8 mg/l
Exposure time: 48 h

Toxicity to algae : EC50 (Desmodesmus subspicatus (Scenedesmus subspicatus)): 1.1 mg/l
Exposure time: 72 h

Toxicity to fish (Chronic toxicity) : NOEC (Oncorhynchus mykiss (rainbow trout)): 0.82 mg/l
Exposure time: 95 d
1.7 mg/l

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 1.3 mg/l
Exposure time: 21 d

Dibutylphenylphosphate:

Toxicity to fish : LL50 (Cyprinus carpio (Carp)): 1.8 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 1.4 mg/l
Exposure time: 48 h

Toxicity to algae : EL50 (Selenastrum capricornutum (green algae)): 9.6 mg/l
Exposure time: 72 h
Method: EL50 method of the water accommodated fraction

Skydrol®LD4 Fire Resistant Hydraulic Fluid

Version Revision Date: SDS Number: Date of last issue: 2015-06-02
 3.1 2016-08-09 150000093409 Date of first issue: 2013-12-04
 SDSSG / PRD / 0001

(W.A.F.)

NOELR (Selenastrum capricornutum (green algae)): 3.5 mg/l
 Exposure time: 72 h
 Method: EL50 method of the water accommodated fraction
 (W.A.F.)

Toxicity to fish (Chronic toxicity) : NOEC (Oncorhynchus mykiss (rainbow trout)): > 0.11 mg/l
 Exposure time: 60 d

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.106 mg/l
 Exposure time: 21 d

butylated hydroxytoluene:

Toxicity to fish : LC50 (Fish): 0.199 mg/l
 Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia (water flea)): 0.48 mg/l
 Exposure time: 48 h

Toxicity to algae : EC50 (Chlorella pyrenoidosa (aglae)): 0.758 mg/l
 Exposure time: 96 h

Persistence and degradability**Product:**

Biochemical Oxygen Demand (BOD) : Remarks: not determined

Chemical Oxygen Demand (COD) : Remarks: not determined

Components:**Tributyl phosphate:**

Biodegradability : Result: Readily biodegradable

Dibutylphenylphosphate:

Biodegradability : Method: Ready Biodegradability: Manometric Respirometry Test
 Remarks: Readily biodegradable

Method: Ready Biodegradability: Modified MITI Test (I)
 Remarks: Not readily biodegradable.

7-Oxabicyclo[4.1.0]heptane-3-carboxylic acid, 2-ethylhexyl ester:

Biodegradability : Concentration: 100 mg/l
 Method: Ready Biodegradability: Modified MITI Test (I)
 Remarks: Readily biodegradable

Skydrol®LD4 Fire Resistant Hydraulic Fluid

Version Revision Date: SDS Number: Date of last issue: 2015-06-02
3.1 2016-08-09 150000093409 Date of first issue: 2013-12-04
SDSSG / PRD / 0001

Bioaccumulative potential**Components:****Tributyl phosphate:**

Bioaccumulation : Species: Cyprinus carpio (Carp)
Bioconcentration factor (BCF): 20
Exposure time: 56 d
Method: OECD Test Guideline 305

Bioconcentration factor (BCF): 35
Exposure time: 38 d

Partition coefficient: n- : Pow: 10,100
octanol/water

Dibutylphenylphosphate:

Bioaccumulation : Species: Cyprinus carpio (Carp)
Bioconcentration factor (BCF): 35
Method: OECD Test Guideline 305

Mobility in soil

No data available

Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS**Disposal methods**

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

14. TRANSPORT INFORMATION**International Regulation****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.

Skydrol®LD4 Fire Resistant Hydraulic Fluid

Version Revision Date: SDS Number: Date of last issue: 2015-06-02
 3.1 2016-08-09 150000093409 Date of first issue: 2013-12-04
 SDSSG / PRD / 0001

15. REGULATORY INFORMATION

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

Workplace Safety and Health Act and Workplace Safety and Health (General Provisions) Regulations: This product is subjected to the SDS, labelling, PEL and other requirements in the Act/Regulations.

Environmental Protection and Management Act and : Not applicable
 Environmental Protection and Management (Hazardous Substances) Regulations

Fire Safety (Petroleum and Flammable Materials) : Not applicable
 Regulations

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

DSL : All components of this product are on the Canadian DSL
 AICS : On the inventory, or in compliance with the inventory
 ENCS : On the inventory, or in compliance with the inventory
 KECI : Not listed
 PICCS : Not listed
 IECSC : On the inventory, or in compliance with the inventory
 TSCA : On TSCA Inventory

16. OTHER INFORMATION

Full text of other abbreviations

AICS - Australian Inventory of Chemical Substances; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; CPR - Controlled Products Regulations; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; 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; 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; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC -

Skydrol®LD4 Fire Resistant Hydraulic Fluid

Version Revision Date: SDS Number: Date of last issue: 2015-06-02
3.1 2016-08-09 150000093409 Date of first issue: 2013-12-04
SDSSG / PRD / 0001

No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; 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; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

Further information

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

Date format : dd.mm.yyyy

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.

SG / EN