

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

EASTMAN

Skydrol® PE-5

Version	Revision Date:	SDS Number:	Date of last issue: 03.08.2020
5.3	14.12.2022	150000093410	Date of first issue: 18.09.2013
PRD		SDSEU / EN / 0001	

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

1.1 Product identifier

Trade name : Skydrol® PE-5

Product code : 34103-00, P3410305, P3410304, P3410302, P3410301, P3410306, P3410313, P3410312, P3410303, P3410311, P3410309, E3410301

Unique Formula Identifier (UFI) : 4HVG-VWJ8-HU0D-KTT0

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

Use of the Substance/Mixture : Hydraulic fluids

Recommended restrictions on use : None known.

1.3 Details of the supplier of the safety data sheet

Company : Eastman Chemical Company
200 South Wilcox Drive
37660-5280 Kingsport

Telephone : +14232292000

E-mail address of person responsible for the SDS : Visit our website at www.EASTMAN.com or email emnmsds@eastman.com

1.4 Emergency telephone number

NCEC +44 (0)1235 239 670

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Acute toxicity, Category 4	H302: Harmful if swallowed.
Skin irritation, Category 2	H315: Causes skin irritation.
Carcinogenicity, Category 2	H351: Suspected of causing cancer.
Reproductive toxicity, Category 2	H361: Suspected of damaging fertility or the unborn child if swallowed.

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Long-term (chronic) aquatic hazard, Category 2 H411: Toxic to aquatic life with long lasting effects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :



Signal word : Warning

Hazard statements : H302 Harmful if swallowed.
H315 Causes skin irritation.
H351 Suspected of causing cancer.
H361 Suspected of damaging fertility or the unborn child if swallowed.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statements : **Prevention:**
P201 Obtain special instructions before use.
P264 Wash skin thoroughly after handling.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P391 Collect spillage.

Hazardous components which must be listed on the label:

Tributyl phosphate
Phenol, isopropylated, phosphate (3:1)

Additional Labelling

EUH208 Contains Triisobutyl phosphate, 7-Oxabicyclo[4.1.0]heptane-3-carboxylic acid, 2-ethylhexyl ester. May produce an allergic reaction.

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

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SECTION 3: Composition/information on ingredients

3.2 Mixtures

Components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
Tributyl phosphate	126-73-8 204-800-2 015-014-00-2 01-2119492859-14-0002, 01-2119967407-27-0000	Acute Tox. 4; H302 Skin Irrit. 2; H315 Carc. 2; H351 Aquatic Chronic 3; H412	>= 50 - < 70
Triisobutyl phosphate	126-71-6 204-798-3 01-2119957118-xxx	Skin Sens. 1; H317	>= 10 - < 20
Phenol, isopropylated, phosphate (3:1)	68937-41-7 273-066-3 01-2119535109-14-xxxx	Repr. 2; H361 STOT RE 2; H373 (Adrenal gland) Aquatic Chronic 1; H410 M-Factor (Acute aquatic toxicity): 1 M-Factor (Chronic aquatic toxicity): 1	>= 3 - < 10
7-Oxabicyclo[4.1.0]heptane-3-carboxylic acid, 2-ethylhexyl ester	62256-00-2 263-471-3 01-2120767056-51-xxxx	Skin Sens. 1; H317	>= 1 - < 10
triphenylphosphate	115-86-6 204-112-2 01-2119457432-41-xxxx	Aquatic Acute 1; H400 Aquatic Chronic 2; H411	>= 1 - < 2,5
butylated hydroxytoluene	128-37-0 204-881-4 01-2119565113-46-xxxx	Aquatic Acute 1; H400 Aquatic Chronic 1; H410 M-Factor (Acute aquatic toxicity): 1 M-Factor (Chronic aquatic toxicity): 1	>= 0,25 - < 1

For explanation of abbreviations see section 16.

Eastman is committed to the safety, health and environment of our employees, our customers, and the communities we operate within. As part of this commitment, Eastman's Safety Data Sheets (SDS) are prepared in accordance with all applicable national and local regulations. The compositions of our

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documents reflect these requirements which include, but are not limited to, requirements under the Globally Harmonized System of Classification and Labeling (GHS). These compositions commonly involve the use of ranges versus specific analytical values. If you require a composition that is more specific, please refer to the Certificate of Analysis, sales specification, or contact your Customer Service Representative.

SECTION 4: First aid measures

4.1 Description of first aid measures

- | | | |
|-------------------------|---|--|
| If inhaled | : | Move to fresh air.
Call a physician or poison control center immediately. |
| In case of skin contact | : | Wash off with soap and plenty of water.
Wash contaminated clothing before re-use.
Get medical attention.
Thoroughly clean shoes before reuse. |
| In case of eye contact | : | In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice. |
| If swallowed | : | Seek medical advice. |

4.2 Most important symptoms and effects, both acute and delayed

- | | | |
|-------|---|---|
| Risks | : | Harmful if swallowed.
Causes skin irritation.
Suspected of causing cancer.
Suspected of damaging fertility or the unborn child if swallowed.
May cause damage to organs through prolonged or repeated exposure. |
|-------|---|---|

4.3 Indication of any immediate medical attention and special treatment needed

- | | | |
|-----------|---|------------------------|
| Treatment | : | Treat symptomatically. |
|-----------|---|------------------------|

SECTION 5: Firefighting measures

5.1 Extinguishing media

- | | | |
|--------------------------------|---|--|
| Suitable extinguishing media | : | Carbon dioxide (CO2)
Dry chemical
Water spray |
| Unsuitable extinguishing media | : | Do not use a solid water stream as it may scatter and spread fire. |

5.2 Special hazards arising from the substance or mixture

- | | | |
|-------------------------------|---|---|
| Hazardous combustion products | : | Carbon monoxide
Carbon dioxide (CO2) |
|-------------------------------|---|---|

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oxides of phosphorus

5.3 Advice for firefighters

Special protective equipment for firefighters : Wear an approved positive pressure self-contained breathing apparatus in addition to standard fire fighting gear.

Further information : None known.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Wear appropriate personal protective equipment.
Avoid breathing mist or vapours.
Local authorities should be advised if significant spillages cannot be contained.

6.2 Environmental precautions

Environmental precautions : Prevent further leakage or spillage if safe to do so.
Clear up spills immediately and dispose of waste safely.
Avoid release to the environment.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Prevent runoff from entering drains, sewers, or streams.
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).

6.4 Reference to other sections

For personal protection see section 8., For disposal considerations see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling : Avoid inhalation of vapor or mist.
Do not get on skin or clothing.
Avoid contact with skin, eyes and clothing.
Do not swallow.
Ensure adequate ventilation.
Wash thoroughly after handling.

Advice on protection against fire and explosion : None known.

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice.

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Triisobutyl phosphate	Workers	Skin contact	Long-term exposure, Systemic effects	1,71 mg/kg bw/day
	Workers	Inhalation	Long-term exposure, Systemic effects	6,03 mg/m3
	General Population	Oral	Long-term exposure, Systemic effects	0,86 mg/kg bw/day
	General Population	Skin contact	Long-term exposure, Systemic effects	0,86 mg/kg bw/day
	General Population	Inhalation	Long-term exposure	1,49 mg/m3

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

Substance name	Environmental Compartment	Value
Tributyl phosphate	Water	0,082 mg/l
	Fresh water sediment	1,84 mg/kg
	Remarks:dry	
	Marine water	0,0082 mg/l
	Marine sediment	0,184 mg/kg
	Remarks:dry	
Triisobutyl phosphate	Sewage treatment plant	1 mg/l
	Soil	3,63 mg/kg
	Remarks:dry	
	Fresh water	0,011 mg/l
	Marine water	0,0011 mg/l
	Fresh water sediment	1,58 mg/l
	Remarks:dry	
	Marine sediment	0,158 mg/l
	Remarks:dry	
	Aqua Intermittent	0,11 mg/l
	Soil	0,308 mg/kg
	Remarks:dry	
	Sewage treatment plant	3,72 mg/l

8.2 Exposure controls

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

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

Hand protection

Material : Rubber gloves
Break through time : 80 min
Rate of permeability : 108 min
Glove thickness : 0,2 mm

Material : Nitrile rubber

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Break through time	: 213 min
Rate of permeability	: 120 min
Glove thickness	: 0,46 mm

Material	: Neoprene
Break through time	: 287 min
Rate of permeability	: 108 min
Glove thickness	: 0,2 mm

Material	: Rubber gloves
Break through time	: 290 min
Rate of permeability	: 144 min
Glove thickness	: 0,61 mm

Remarks	: 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. The breakthrough time of the glove material, with regard to the amount and duration of dermal exposure: 1 to 4 hours.
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Skin and body protection	: Wear suitable protective clothing.
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Respiratory protection	: Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines.
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Protective measures	: Remove respiratory and skin/eye protection only after vapors have been cleared from the area. Ensure that eye flushing systems and safety showers are located close to the working place. Use personal protective equipment as required.
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SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	: oily
Colour	: purple
Odour	: odourless
Odour Threshold	: not determined
Melting point/range	: < -62 °C
Boiling point/boiling range	: not determined

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Flammability	:	Not applicable
Upper explosion limit / Upper flammability limit	:	not determined
Lower explosion limit / Lower flammability limit	:	not determined
Flash point	:	171 °C Method: Cleveland open cup
Auto-ignition temperature	:	424 °C Method: ASTM D2155
Decomposition temperature	:	not determined
pH	:	not determined
Viscosity		
Viscosity, dynamic	:	not determined
Viscosity, kinematic	:	9,02 - 10,02 mm ² /s (38 °C)
Vapour pressure	:	0,4 hPa (25 °C)
Relative density	:	0,9956 (25 °C)
Density	:	995 kg/m ³ (25 °C)
Relative vapour density	:	not determined

9.2 Other information

Explosives	:	Not classified
Oxidizing properties	:	Not classified
Evaporation rate	:	not determined

SECTION 10: Stability and reactivity

10.1 Reactivity

None reasonably foreseeable.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions	:	Stable
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10.4 Conditions to avoid

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Conditions to avoid : None known.

10.5 Incompatible materials

Materials to avoid : Strong oxidizing agents

10.6 Hazardous decomposition products

Carbon dioxide (CO₂)

Carbon monoxide

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity

Harmful if swallowed.

Product:

Acute oral toxicity : Remarks: Harmful if swallowed.

Acute inhalation toxicity : Remarks: No significant adverse effects were reported

Acute dermal toxicity : Remarks: No significant adverse effects were reported

Components:

Tributyl phosphate:

Acute oral toxicity : LD50 Oral (Rat, male and female): 1.553 mg/kg
Assessment: Harmful if swallowed.

LD50 Oral (Rat, male and female): 1.400 mg/kg

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

Triisobutyl phosphate:

Acute inhalation toxicity : LC50 (Rat): > 5,14 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): > 5.000 mg/kg
Assessment: The substance or mixture has no acute dermal

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toxicity

Phenol, isopropylated, phosphate (3:1):

- Acute oral toxicity : LD50 Oral (Rat): > 5.000 mg/kg
Assessment: The substance or mixture has no acute oral toxicity
- Acute inhalation toxicity : LC50 (Rat): > 200 mg/m³
Exposure time: 1 h
Assessment: The substance or mixture has no acute inhalation toxicity
- Acute dermal toxicity : LD50 Dermal (Rabbit): > 10.000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

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

triphenylphosphate:

- Acute oral toxicity : LD50 Oral (Rat, male): > 6.400 mg/kg
- Acute dermal toxicity : LD50 Dermal (Guinea pig, male): > 5.000 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

Causes skin irritation.

Product:

- Remarks : Causes skin irritation.

Components:

Tributyl phosphate:

- Species : Rabbit
Exposure time : 4 h
Assessment : Causes skin irritation.
Result : irritating

Triisobutyl phosphate:

- Species : Rabbit
Exposure time : 4 h

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Result : Mild skin irritation

Phenol, isopropylated, phosphate (3:1):

Species : Rabbit
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

triphenylphosphate:

Species : Guinea pig
Remarks : Non-irritating to the skin.

butylated hydroxytoluene:

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

Serious eye damage/eye irritation

Not classified based on available information.

Components:

Tributyl phosphate:

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

Triisobutyl phosphate:

Species : Rabbit
Assessment : Not classified
Result : slight

Phenol, isopropylated, phosphate (3:1):

Species : Rabbit
Assessment : Not classified
Result : none

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

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

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triphenylphosphate:

Species : Rabbit
Result : slight

butylated hydroxytoluene:

Species : Rabbit
Result : none

Respiratory or skin sensitisation

Skin sensitisation

Not classified based on available information.

Respiratory sensitisation

Not classified based on available information.

Product:

Test Type : OECD 429: LLNA
Species : Mouse
Result : Not a skin sensitizer.

Components:

Tributyl phosphate:

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

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

Triisobutyl phosphate:

Test Type : OECD 406: Guinea pig sensitization
Species : Guinea pig
Method : OECD 406: Guinea pig sensitization
Result : May cause sensitization by skin contact.

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

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

butylated hydroxytoluene:

Test Type : Skin sensitization
Species : Guinea pig

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Result : non-sensitizing

Germ cell mutagenicity

Not classified based on available information.

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

Triisobutyl phosphate:

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

Genotoxicity in vivo : 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

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Test
Result: equivocal

Carcinogenicity

Suspected of causing cancer.

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.

Reproductive toxicity

Suspected of damaging fertility or the unborn child if swallowed.

Components:

Phenol, isopropylated, phosphate (3:1):

Effects on fertility : Species: Rat, male and female
Application Route: Oral
General Toxicity - Parent: NOAEL: 25 milligram per kilogram
Remarks: Suspected of damaging fertility or the unborn child.

triphenylphosphate:

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

STOT - single exposure

Not classified based on available information.

Components:

Tributyl phosphate:

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

Triisobutyl phosphate:

Assessment : Not classified

Phenol, isopropylated, phosphate (3:1):

Remarks : Not classified due to data which are conclusive although insufficient for classification.

STOT - repeated exposure

May cause damage to organs (Adrenal gland) through prolonged or repeated exposure.

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Components:

Tributyl phosphate:

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

Triisobutyl phosphate:

Assessment : Not classified

Phenol, isopropylated, phosphate (3:1):

Assessment : May cause damage to organs through prolonged or repeated exposure.

Repeated dose toxicity

Components:

Tributyl phosphate:

Species : Mouse, male and female
: 75 mg/kg
Application Route : in feed
Exposure time : 90 days

Triisobutyl phosphate:

Species : Rat, male
: 68,4 mg/kg
Application Route : Oral Study
Exposure time : 90 days

Aspiration toxicity

Not classified based on available information.

Product:

No aspiration toxicity classification

Components:

Triisobutyl phosphate:

Not classified

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

Not applicable

11.2 Information on other hazards

Experience with human exposure

Product:

Inhalation : Remarks: May cause damage to organs through prolonged or

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repeated exposure.

Skin contact : Remarks: Causes skin irritation.

Eye contact : Remarks: None known.

Ingestion : Remarks: Harmful if swallowed.

Further information

Product:

Remarks : None known.

SECTION 12: Ecological information

12.1 Toxicity

Components:

Tributyl phosphate:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 4,2 mg/l
Exposure time: 96 h

Toxicity to daphnia and other : EC50 (Daphnia magna (Water flea)): 1,8 mg/l
aquatic invertebrates Exposure time: 48 h

Toxicity to algae/aquatic : EC50 (Desmodesmus subspicatus (green algae)): 1,1 mg/l
plants Exposure time: 72 h

Toxicity to fish (Chronic tox- : NOEC: 0,82 mg/l
icity) Exposure time: 95 d
Species: Oncorhynchus mykiss (rainbow trout)

1,7 mg/l

Toxicity to daphnia and other : NOEC: 1,3 mg/l
aquatic invertebrates (Chron- Exposure time: 21 d
ic toxicity) Species: Daphnia magna (Water flea)

Triisobutyl phosphate:

Toxicity to fish : EC50 (Danio rerio (zebra fish)): > 12,6 mg/l
Exposure time: 96 h

Toxicity to daphnia and other : EC50 (Daphnia magna (Water flea)): 24 mg/l
aquatic invertebrates Exposure time: 48 h

Toxicity to algae/aquatic : ErC50 (Pseudokirchneriella subcapitata (algae)): 14,3 mg/l
plants Exposure time: 72 h

EC10 (Pseudokirchneriella subcapitata (algae)): 10,4 mg/l
Exposure time: 72 h

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Phenol, isopropylated, phosphate (3:1):

- Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 0,36 mg/l
Exposure time: 96 h
- LC50 (Cyprinodon variegatus (sheepshead minnow)): > 1,3 mg/l
Exposure time: 96 h
- Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia magna (Water flea)): 1 mg/l
Exposure time: 48 h
- LC50 (Mysidopsis bahia (opossum shrimp)): > 1 mg/l
- Toxicity to algae/aquatic plants : NOEC (Desmodesmus subspicatus (green algae)): 0,25 - 2,5 mg/l
Exposure time: 72 h
Test Type: Alga, Growth Inhibition Test
- M-Factor (Acute aquatic toxicity) : 1
- M-Factor (Chronic aquatic toxicity) : 1

triphenylphosphate:

- Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 0,4 mg/l
Exposure time: 96 h
- Toxicity to daphnia and other aquatic invertebrates : LC50 (Americamysis): > 0,18 - < 0,32 mg/l
Exposure time: 96 h
- Toxicity to algae/aquatic plants : NOEC (Pseudokirchneriella subcapitata (algae)): 0,25 mg/l
Exposure time: 72 h
- Toxicity to fish (Chronic toxicity) : EC10: 0,037 mg/l
Exposure time: 30 d
Species: Oncorhynchus mykiss (rainbow trout)
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 0,254 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)

butylated hydroxytoluene:

- Toxicity to fish : LC50 (Danio rerio (zebra fish)): > 0,57 mg/l
Exposure time: 96 h
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0,48 mg/l
Exposure time: 48 h
- Toxicity to algae/aquatic : EC50 (Pseudokirchneriella subcapitata (algae)): > 0,24 mg/l

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plants	Exposure time: 72 h
	NOEC (Pseudokirchneriella subcapitata (algae)): 0,24 mg/l Exposure time: 72 h
M-Factor (Acute aquatic toxicity)	: 1
Toxicity to fish (Chronic toxicity)	: NOEC: 0,053 mg/l Exposure time: 30 d Species: Oryzias latipes (Orange-red killifish)
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	: NOEC: 0,069 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea)
M-Factor (Chronic aquatic toxicity)	: 1

12.2 Persistence and degradability

Components:

Tributyl phosphate:

Biodegradability : Result: Readily biodegradable.

Triisobutyl phosphate:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 70 - 80 %
Exposure time: 28 d
Method: Ready Biodegradability: CO2 Evolution Test

Phenol, isopropylated, phosphate (3:1):

Biodegradability : 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

triphenylphosphate:

Biodegradability : Result: Readily biodegradable.

12.3 Bioaccumulative potential

Components:

Tributyl phosphate:

Bioaccumulation : Species: Cyprinus carpio (Carp)

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Exposure time: 56 d
Bioconcentration factor (BCF): 20
Method: OECD Test Guideline 305

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

Partition coefficient: n-octanol/water : Pow: 10.100

Triisobutyl phosphate:

Bioaccumulation : Remarks: Bioaccumulation is unlikely.

Partition coefficient: n-octanol/water : log Pow: 3,72

Phenol, isopropylated, phosphate (3:1):

Bioaccumulation : Remarks: Potential bioaccumulation

triphenylphosphate:

Partition coefficient: n-octanol/water : log Pow: 4,63

12.4 Mobility in soil

Components:

Phenol, isopropylated, phosphate (3:1):

Distribution among environmental compartments : log Koc: 3,43 - 3,93

12.5 Results of PBT and vPvB assessment

Product:

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Endocrine disrupting properties

No data available

12.7 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : Dispose of in accordance with local regulations.

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SECTION 14: Transport information

14.1 UN number or ID number

ADN	:	UN 3082
ADR	:	UN 3082
IMDG	:	UN 3082
IATA	:	UN 3082

14.2 UN proper shipping name

ADN	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (triphenyl phosphate)
ADR	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (triphenyl phosphate)
IMDG	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (triphenyl phosphate)
IATA	:	Environmentally hazardous substance, liquid, n.o.s. (triphenyl phosphate)

14.3 Transport hazard class(es)

	Class	Subsidiary risks
ADN	:	9
ADR	:	9
IMDG	:	9
IATA	:	9

14.4 Packing group

ADN	
Packing group	: III
Classification Code	: M6
Hazard Identification Number	: 90
Labels	: 9
ADR	
Packing group	: III
Classification Code	: M6
Hazard Identification Number	: 90
Labels	: 9
Tunnel restriction code	: (-)
IMDG	
Packing group	: III
Labels	: 9

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EmS Code : F-A, S-F
Remarks : Shipping in package sizes of less than 5 L (liquids) or 5 KG (solids) may lead to a non-regulated classification.

IATA (Cargo)

Packing instruction (cargo aircraft) : 964
Packing instruction (LQ) : Y964
Packing group : III
Labels : Miscellaneous
Remarks : Shipping in package sizes of less than 5 L (liquids) or 5 KG (solids) may lead to a non-regulated classification.

IATA (Passenger)

Packing instruction (passenger aircraft) : 964
Packing instruction (LQ) : Y964
Packing group : III
Labels : Miscellaneous
Remarks : Shipping in package sizes of less than 5 L (liquids) or 5 KG (solids) may lead to a non-regulated classification.

14.5 Environmental hazards

ADN

Environmentally hazardous : yes

ADR

Environmentally hazardous : yes

IMDG

Marine pollutant : yes

14.6 Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

SECTION 15: Regulatory information

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

REACH - Candidate List of Substances of Very High Concern for Authorization (Article 59) : Not applicable

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer : Not applicable

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Regulation (EC) No 850/2004 on persistent organic pollutants : Not applicable

Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals : Not applicable

REACH - List of substances subject to authorisation (Annex XIV) : Not applicable

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances. E2 ENVIRONMENTAL HAZARDS

Volatile organic compounds : Directive 2010/75/EU of 24 November 2010 on industrial emissions (integrated pollution prevention and control)
Not applicable

Other regulations:

Take note of Directive 92/85/EEC regarding maternity protection or stricter national regulations, where applicable.

Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.

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

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

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

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

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

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

TSCA : All substances listed as active on the TSCA inventory

15.2 Chemical safety assessment

None.

SECTION 16: Other information

Full text of H-Statements

H302 : Harmful if swallowed.

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H315	: Causes skin irritation.
H317	: May cause an allergic skin reaction.
H351	: Suspected of causing cancer.
H361	: Suspected of damaging fertility or the unborn child if swallowed.
H373	: May cause damage to organs through prolonged or repeated exposure.
H400	: Very toxic to aquatic life.
H410	: Very toxic to aquatic life with long lasting effects.
H411	: Toxic to aquatic life with long lasting effects.
H412	: Harmful to aquatic life with long lasting effects.

Full text of other abbreviations

Acute Tox.	: Acute toxicity
Aquatic Acute	: Short-term (acute) aquatic hazard
Aquatic Chronic	: Long-term (chronic) aquatic hazard
Carc.	: Carcinogenicity
Repr.	: Reproductive toxicity
Skin Irrit.	: Skin irritation
Skin Sens.	: Skin sensitization
STOT RE	: Specific target organ toxicity - repeated exposure

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; 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; 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; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; 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; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA

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- Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Further information

Classification of the mixture:

Acute Tox. 4	H302
Skin Irrit. 2	H315
Carc. 2	H351
Repr. 2	H361
Aquatic Chronic 2	H411

Classification procedure:

Calculation method
Calculation method
Calculation method
Calculation method
Calculation method

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