SAFETY DATA SHEET
according to the OSHA Hazard Communication Standard

ROYCO LANDING GEAR FLUID RED

Version	Revision Date:	SDS Number:	Date of last issue: 10/16/2025
4.0	08/24/2026	203000016197	Country / Language: US / EN

SECTION 1. IDENTIFICATION

Product name : ROYCO LANDING GEAR FLUID RED

Product code : 000000000058323780

Manufacturer or supplier's details

Company : LANXESS Corporation
Product Safety & Regulatory Affairs
111 RIDC Park West Drive
Pittsburgh, Pennsylvania 15275-1112

Responsible Department : (800) LANXESS
(412) 809-1000
lanxesshes@lanxess.com

Emergency telephone : CHEMTREC (800) 424-9300 or
(703) 527-3887 (Outside U.S.A) and mention CCN12916.
Lanxess Emergency Phone (800) 410-3063.

Recommended use of the chemical and restrictions on use

Recommended use : Lubricant

Restrictions on use : Reserved for industrial and professional use.

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Hazards for the product as supplied

Eye irritation : Category 2A

Aspiration hazard : Category 1

Other hazards

None known.

GHS label elements

Hazard pictograms :



Signal Word : Danger

Hazard Statements : H304 May be fatal if swallowed and enters airways.
H319 Causes serious eye irritation.

Precautionary Statements :

Prevention:

P264 Wash skin thoroughly after handling.
P280 Wear eye protection/ face protection.

Response:

P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P331 Do NOT induce vomiting.
P337 + P313 If eye irritation persists: Get medical advice/ attention.

Storage:

P405 Store locked up.

Disposal:

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

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	CAS No./Unique ID	Concentration (% w/w)
Distillates (petroleum), hydrotreated light naphthenic	64742-53-6*	>= 45 - <= 70
White mineral oil (petroleum) [< 20,5 mm2/s]	8042-47-5*	>= 10 - <= 30
2,6-di-tert-butyl-p-cresol	128-37-0*	>= 1 - <= 5
Phosphorodithioic acid, mixed O,O-bis(iso-Bu and pentyl) esters, zinc salts	68457-79-4*	>= 0.5 - <= 1.5

* Indicates that the identifier is a CAS No.
Any concentration shown as a range is to protect confidentiality or is due to batch variation.

SECTION 4. FIRST AID MEASURES

If inhaled	:	If inhaled, remove to fresh air. Get medical attention if symptoms occur.
In case of skin contact	:	Wash off with soap and water. Remove contaminated clothing and shoes. Continue to rinse for at least 20 minutes. Get medical attention if symptoms occur. Wash contaminated clothing before reuse.
In case of eye contact	:	Immediately flush eye(s) with plenty of water. Continue to rinse for at least 20 minutes. Remove contact lenses. Get medical attention if symptoms appear.
If swallowed	:	Get medical attention immediately. Rinse mouth with water. Do not induce vomiting unless directed to do by medical personnel. Aspiration hazard if swallowed - can enter lungs and cause damage. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. If unconscious, place in recovery position and get medical attention immediately. Maintain open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms and effects, both acute and delayed

Symptoms	:	Skin: Causes irritation with symptoms of reddening, itching, and swelling. Eye: Causes irritation with symptoms of reddening, tearing, stinging, and swelling. Acute overexposure to this product may cause dizziness, headache, drowsiness, malaise, abdominal pain. Ingestion and/or vomiting may cause aspiration into the lungs resulting in chemical pneumonitis (inflammation of the lungs).
Effects	:	May be fatal if swallowed and enters airways. Causes serious eye irritation.
Protection of first-aiders	:	First Aid responders should pay attention to self-protection and use the recommended protective clothing

If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Notes to physician : Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media : Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable extinguishing media : High volume water jet

Specific hazards during fire fighting : Toxic and irritating gases/fumes may be given off during burning or thermal decomposition.

Combustible liquid.
In a fire or if heated, a pressure increase will occur and the container may burst.
Do not allow run-off from fire fighting to enter drains or water courses.

Hazardous combustion products : Carbon monoxide
Carbon dioxide (CO2)

Further information : Use a water spray to cool fully closed containers.
Move containers from fire if this can be done without risk.
Fight fire remotely due to the risk of explosion.
If this is impossible, withdraw from area and allow fire to burn.
No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : In the event of fire, wear self-contained breathing apparatus.
Use personal protective equipment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : No action shall be taken involving any personal risk or without suitable training.
Put on appropriate personal protection equipment.
Do not touch or walk through spilled material.
Evacuate personnel to safe areas.
Keep unnecessary and unprotected personnel from entering.

Provide adequate ventilation.
Do not breathe vapors, aerosols.

Environmental precautions : Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities.

Methods and materials for containment and cleaning up : Stop leak if safe to do so.
Move containers from spill area.
Wash spillages into an effluent treatment plant or proceed as follows.
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).
Dispose of wastes in an approved waste disposal facility.
Do not allow into the sewerage system, surface waters or groundwater or into the soil.
Contaminated absorbent material may pose the same hazard as the spilled product.

SECTION 7. HANDLING AND STORAGE

Advice on safe handling : Avoid inhalation, ingestion and contact with skin and eyes.
Use only with adequate ventilation.
Remove contaminated clothing and protective equipment before entering eating areas.
Workers should wash hands and face before eating, drinking and smoking.
Put on appropriate personal protection equipment.
Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed.

Conditions for safe storage : Store in accordance with local regulations.
Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink.
Keep container closed when not in use.
Containers that have been opened must be carefully resealed and kept upright to prevent leakage.
Do not store in unlabeled containers.
Use appropriate container to avoid environmental contamination.
Empty containers retain residue and can be dangerous.
Do not reuse container.

Further information on storage stability : No decomposition if stored and applied as directed.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Distillates (petroleum), hydrotreated light naphthenic	64742-53-6	TWA (Inhalable particulate matter)	5 mg/m3	ACGIH
		TWA (Mist)	5 mg/m3	OSHA Z-1
White mineral oil (petroleum) [< 20,5 mm2/s]	8042-47-5	TWA (Inhalable particulate matter)	5 mg/m3	ACGIH
		TWA (Mist)	5 mg/m3	OSHA Z-1
2,6-di-tert-butyl-p-cresol	128-37-0	TWA (Inhalable fraction and vapor)	2 mg/m3	ACGIH

Occupational exposure limits of decomposition products

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
triphenyl phosphate	115-86-6	TWA	3 mg/m3	ACGIH
		TWA	3 mg/m3	OSHA Z-1

Engineering measures : If user operations generate dust, fumes or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal protective equipment

Respiratory protection : Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
NIOSH approved, air-purifying organic vapor respirator.

Hand protection
- Material : Polychloroprene - CR
- Wearing time : < 60 min
- Remarks : The suitability for a specific workplace should be discussed with the producers of the protective gloves. After contamination with product change the gloves immediately and dispose of them according to relevant national and local regulations

Eye protection	:	Safety glasses with side-shields
Skin and body protection	:	Impervious clothing
Hygiene measures	:	Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	oily
Physical state	:	liquid
Color	:	red
Odor	:	No data available
Odor Threshold	:	No data available
pH	:	substance/mixture is non-soluble (in water)
Melting point/ range	:	Not applicable
Boiling point/boiling range	:	No data available
Flash point	:	219 °F / 104 °C Method: ASTM D 92
Evaporation rate	:	No data available
Self-ignition	:	No data available
Burning number	:	No data available

Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapor pressure	:	No data available
Relative vapor density	:	No data available
Relative density	:	No data available
Density	:	0.869 g/cm3 (68 °F / 20 °C)
Solubility(ies)		
Water solubility	:	slightly soluble
Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Ignition temperature	:	No data available
Decomposition temperature	:	No data available
Self-Accelerating decomposition temperature (SADT)	:	No data available
Viscosity		
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	ca. 14.5 mm2/s (104 °F / 40 °C)
Explosive properties	:	No data available
Oxidizing properties	:	No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	No dangerous reaction known under conditions of normal use.
Chemical stability	:	No decomposition if stored and applied as directed.
Possibility of hazardous reactions	:	Hazardous polymerization does not occur.

Conditions to avoid	:	Contamination Heat, flames and sparks.
Incompatible materials	:	Strong acids and strong bases
Hazardous decomposition products	:	triphenyl phosphate Carbon oxides

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Inhalation
Eye contact
Skin contact

Acute toxicity

Not classified due to lack of data.

Product:

Acute oral toxicity	:	Acute toxicity estimate: > 5,000 mg/kg Method: Calculation method

Components:

Distillates (petroleum), hydrotreated light naphthenic:

Acute oral toxicity	:	LD50 (Rat, male and female): > 5,000 mg/kg Method: OECD Test Guideline 401 GLP: Yes Assessment: The substance or mixture has no acute oral toxicity Remarks: Dosage caused no mortality Test results on an analogous substance/product.
Acute inhalation toxicity	:	LC50 (Rat, male and female): > 5.53 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: OECD Test Guideline 403 GLP: No information available. Assessment: The substance or mixture has no acute inhalation toxicity Remarks: Dosage caused no mortality Test results on an analogous substance/product.
Acute dermal toxicity	:	LD50 (Rabbit, male and female): > 5,000 mg/kg Method: OECD Test Guideline 402 GLP: Yes Assessment: The substance or mixture has no acute dermal toxicity

Remarks: Dosage caused no mortality
Test results on an analogous substance/product.

White mineral oil (petroleum) [< 20,5 mm2/s]:

Acute oral toxicity : LD50 (Rat, male and female): > 5,000 mg/kg
Method: OECD Test Guideline 401
GLP: Yes
Remarks: Test results on an analogous substance/product.

Acute inhalation toxicity : LC50 (Rat, male and female): > 5 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
GLP: Yes
Assessment: The substance or mixture has no acute inhalation toxicity
Remarks: Test results on an analogous substance/product.

Acute dermal toxicity : LD50 (Rabbit, male and female): > 2,000 mg/kg
Method: OECD Test Guideline 402
GLP: Yes
Assessment: The substance or mixture has no acute dermal toxicity
Remarks: Test results on an analogous substance/product.

2,6-di-tert-butyl-p-cresol:

Acute oral toxicity : LD50 (Rat, male and female): > 2,930 mg/kg
Method: OECD Test Guideline 401
GLP: Yes
Assessment: The substance or mixture has no acute oral toxicity
Remarks: Dosage caused no mortality

Acute dermal toxicity : LD50 (Rat, male and female): > 2,000 mg/kg
Method: OECD Test Guideline 402
GLP: Yes
Assessment: The substance or mixture has no acute dermal toxicity
Remarks: Dosage caused no mortality

Phosphorodithioic acid, mixed O,O-bis(iso-Bu and pentyl) esters, zinc salts:

Acute oral toxicity : LD50 (Rat): 3,600 mg/kg

Acute dermal toxicity : LD50 (Rabbit, male and female): > 20,000 mg/kg

Skin corrosion/irritation

Not classified due to lack of data.

Components:

Distillates (petroleum), hydrotreated light naphthenic:

Species	:	Rabbit
Method	:	OECD Test Guideline 404
Result	:	No skin irritation
GLP	:	Yes
Remarks	:	Test results on an analogous substance/product.

2,6-di-tert-butyl-p-cresol:

Species	:	Rabbit
Method	:	Draize Test
Result	:	No skin irritation
GLP	:	No

Phosphorodithioic acid, mixed O,O-bis(iso-Bu and pentyl) esters, zinc salts:

Species	:	Rabbit
Assessment	:	Irritating to skin.
Method	:	OECD Test Guideline 404
Result	:	Irritating to skin.
GLP	:	No

Serious eye damage/eye irritation

Causes serious eye irritation.

Components:

Distillates (petroleum), hydrotreated light naphthenic:

Species	:	Rabbit
Result	:	No eye irritation
Method	:	OECD Test Guideline 405
GLP	:	Yes
Remarks	:	Test results on an analogous substance/product.

2,6-di-tert-butyl-p-cresol:

Species	:	Rabbit
Result	:	No eye irritation
Method	:	Draize Test
GLP	:	No

Phosphorodithioic acid, mixed O,O-bis(iso-Bu and pentyl) esters, zinc salts:

Result	:	Risk of serious damage to eyes.
Method	:	OECD Test Guideline 405

Respiratory or skin sensitization

Skin sensitization

Not classified due to lack of data.

Respiratory sensitization

Not classified due to lack of data.

Components:

Distillates (petroleum), hydrotreated light naphthenic:

Test Type	:	Buehler Test
Routes of exposure	:	Skin contact
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	Did not cause sensitization on laboratory animals.
GLP	:	Yes

White mineral oil (petroleum) [< 20,5 mm2/s]:

Routes of exposure	:	Skin contact
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	Did not cause sensitization on laboratory animals.
GLP	:	Yes
Remarks	:	Test results on an analogous substance/product.

2,6-di-tert-butyl-p-cresol:

Test Type	:	Patch Test
Routes of exposure	:	Skin contact
Species	:	Human
Result	:	Does not cause skin sensitization.

Phosphorodithioic acid, mixed O,O-bis(iso-Bu and pentyl) esters, zinc salts:

Result	:	negative
Remarks	:	Read-across from analogue

Germ cell mutagenicity

Not classified due to lack of data.

Components:

Distillates (petroleum), hydrotreated light naphthenic:

Genotoxicity in vitro	:	Test Type: Ames test Test system: TA98 Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471

Result: equivocal
GLP: No information available.
Remarks: Information given is based on data obtained from similar substances.

Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative
GLP: No
Remarks: Information given is based on data obtained from similar substances.

Test Type: In vitro mammalian cell gene mutation test
Test system: mouse lymphoma cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: equivocal
GLP: Yes
Remarks: Information given is based on data obtained from similar substances.

Genotoxicity in vivo : Test Type: Micronucleus test
Species: Mouse (male and female)
Application Route: Intraperitoneal
Method: OECD Test Guideline 474
Result: negative
GLP: No information available.
Remarks: Test results on an analogous substance/product.

2,6-di-tert-butyl-p-cresol:

Genotoxicity in vitro : Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: equivalent or similar to OECD Guideline 471
Result: negative
GLP: No information available.

Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: No information available.
Result: negative
GLP: No information available.

Test Type: HPRT test
Test system: rat hepatocytes
Metabolic activation: with metabolic activation

Method: No information available.
Result: negative
GLP: No information available.

Genotoxicity in vivo : Test Type: Micronucleus test
Species: Mouse (male and female)
Cell type: Bone marrow
Application Route: Intraperitoneal injection
Method: No information available.
Result: negative
GLP: No information available.

Test Type: Cytogenetic assay
Species: Rat (male)
Cell type: Bone marrow
Application Route: Oral
Method: No information available.
Result: negative
GLP: No information available.

Phosphorodithioic acid, mixed O,O-bis(iso-Bu and pentyl) esters, zinc salts:

Genotoxicity in vitro : Result: negative

Genotoxicity in vivo : Species: Rat (male and female)
Application Route: Intraperitoneal
Dose: 10 ml/kg
Result: negative

Carcinogenicity

Not classified due to lack of data.

Components:

Distillates (petroleum), hydrotreated light naphthenic:

Carcinogenicity - Assessment : Classified based on DMSO extract content < 3% (Regulation (EC) 1272/2008, Annex VI, Part 3, Note L)

White mineral oil (petroleum) [< 20,5 mm2/s]:

Remarks : Animal testing did not show any carcinogenic effects.

2,6-di-tert-butyl-p-cresol:

Carcinogenicity - Assessment : Based on available data, the classification criteria are not met., Weight of evidence does not support classification as a carcinogen

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

OSHA	No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.
NTP	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

Not classified due to lack of data.

Components:

Distillates (petroleum), hydrotreated light naphthenic:

Effects on fertility : Test Type: Fertility/early embryonic development
Species: Rat, male and female
Application Route: Oral
Dose: 1000 milligram per kilogram
General Toxicity Parent: NOAEL: >= 1,000 mg/kg bw/day
Fertility: NOAEL: >= 1,000 mg/kg bw/day
Early Embryonic Development: NOAEL: >= 1,000 mg/kg bw/day
Method: OECD Test Guideline 421
Result: No effects on fertility and early embryonic development were detected.
GLP: Yes
Remarks: Test results on an analogous substance/product.

White mineral oil (petroleum) [< 20,5 mm2/s]:

Effects on fertility : Species: Rat, female
Application Route: Dermal
Dose: 125 - 500 - 2000 milligram per kilogram
General Toxicity Parent: NOAEL: >= 2,000 mg/kg body weight
Method: OECD Test Guideline 415
Remarks: Test results on an analogous substance/product.

Species: Rat, male and female
Application Route: Dermal
Dose: 125 - 500 - 2000 milligram per kilogram
Early Embryonic Development: NOAEL: >= 2,000 mg/kg body weight
Method: OECD Test Guideline 415
Remarks: Test results on an analogous substance/product.

Effects on fetal development : Species: Rat, female
Application Route: Oral
Dose: 5000 milligram per kilogram
Duration of Single Treatment: 14 d
General Toxicity Maternal: NOAEL: > 5,000 mg/kg body

weight
Developmental Toxicity: NOAEL: > 5,000 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic potential.
Remarks: Test results on an analogous substance/product.

2,6-di-tert-butyl-p-cresol:

Effects on fertility : Test Type: Two-generation study
Species: Rat, male and female
Application Route: Oral
Dose: 0 - 25 - 100 - 250/500 mg/kg bw/day
Fertility: NOAEL: 500 mg/kg bw/day
Early Embryonic Development: NOAEL: 100 mg/kg bw/day
Result: Animal testing did not show any effects on fertility.
GLP: Yes

Effects on fetal development : Test Type: Pre-natal
Species: Mouse, female
Application Route: oral (gavage)
Dose: 70 - 240 - 800 mg/kg bw/day
General Toxicity Maternal: NOAEL: 240 mg/kg bw/day
Developmental Toxicity: NOAEL: 800 mg/kg bw/day
Method: No information available.
Result: Did not show teratogenic effects in animal experiments.
GLP: No information available.

Phosphorodithioic acid, mixed O,O-bis(iso-Bu and pentyl) esters, zinc salts:

Effects on fetal development : Test Type: reproductive and developmental toxicity study
Species: Rat, male and female
Strain: Sprague-Dawley
Application Route: Oral
Developmental Toxicity: NOAEL F1: 160 mg/kg body weight
Method: OECD Test Guideline 422
Result: No adverse effects.
GLP: Yes

Test Type: reproductive and developmental toxicity study
Species: Rat, male and female
Strain: Sprague-Dawley
Application Route: Oral
Developmental Toxicity: NOAEL: 160 mg/kg body weight
Method: OECD Test Guideline 422
Result: No adverse effects.
GLP: Yes

STOT-single exposure

Not classified due to lack of data.

STOT-repeated exposure

Not classified due to lack of data.

Repeated dose toxicity

Components:

Distillates (petroleum), hydrotreated light naphthenic:

Species	:	Rat, male
LOAEL	:	125 mg/kg
Application Route	:	Oral
Exposure time	:	90 d
Number of exposures	:	daily
Dose	:	125 - 500 mg/kg bw/d
Method	:	OECD Test Guideline 408
GLP	:	No information available.
Remarks	:	Test results on an analogous substance/product.

White mineral oil (petroleum) [< 20,5 mm2/s]:

Species	:	Rat, male and female
NOAEL	:	>= 1,200 mg/kg
Application Route	:	Oral
Exposure time	:	2 yr
Number of exposures	:	daily
Dose	:	60 - 120 - 240 - 1200 mg/kg
Method	:	OECD Test Guideline 453
GLP	:	Yes
Remarks	:	Chronic toxicity Test results on an analogous substance/product.

Species	:	Rat, male and female
NOAEL	:	>= 2,000 mg/kg
Application Route	:	Skin contact
Exposure time	:	91 d
Number of exposures	:	daily
Dose	:	125 - 500 - 2000 mg/kg
Method	:	OECD Test Guideline 411
GLP	:	Yes
Remarks	:	Subchronic toxicity Test results on an analogous substance/product.

Species	:	Rabbit, male and female
NOAEL	:	1,000 mg/kg
Application Route	:	Skin contact
Dose	:	200 - 1000 - 2000 mg/kg
Method	:	OECD Test Guideline 410

GLP	:	Yes
Remarks	:	Subacute toxicity Test results on an analogous substance/product.

2,6-di-tert-butyl-p-cresol:

Species	:	Rat, male and female
NOAEL	:	25 mg/kg
LOAEL	:	100 mg/kg
Application Route	:	oral (feed)
Exposure time	:	22 Months
Number of exposures	:	daily
Dose	:	0 - 25 - 100 - 250/500 mg/kg bw/day
Method	:	No information available.
GLP	:	Yes
Remarks	:	Chronic toxicity

Phosphorodithioic acid, mixed O,O-bis(iso-Bu and pentyl) esters, zinc salts:

Species	:	Rat
NOAEL	:	160 mg/kg
Application Route	:	Oral
Exposure time	:	52 d
Method	:	OECD Test Guideline 422

Aspiration toxicity

May be fatal if swallowed and enters airways.

Components:

Distillates (petroleum), hydrotreated light naphthenic:

May be fatal if swallowed and enters airways.

White mineral oil (petroleum) [< 20,5 mm2/s]:

May be fatal if swallowed and enters airways.

Further information

Product:

Remarks	:	The product itself has not been tested.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

Distillates (petroleum), hydrotreated light naphthenic:

Toxicity to fish	:	LL50 (Pimephales promelas (fathead minnow)): > 100 mg/l Exposure time: 96 h Analytical monitoring: Yes Method: OECD Test Guideline 203 GLP: Yes Remarks: water extractable fraction
Toxicity to daphnia and other aquatic invertebrates	:	EL50 (Daphnia magna (Water flea)): > 10,000 mg/l Exposure time: 48 h Analytical monitoring: Yes Method: OECD Test Guideline 202 GLP: Yes Remarks: water extractable fraction
Toxicity to algae/aquatic plants	:	EL50 (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l End point: Growth rate Exposure time: 72 h Analytical monitoring: No information available. Method: OECD Test Guideline 201 GLP: No information available. Remarks: water extractable fraction Test results on an analogous substance/product. NOELR (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l End point: Growth rate Exposure time: 72 h Analytical monitoring: No information available. Method: OECD Test Guideline 201 GLP: No information available. Remarks: water extractable fraction Test results on an analogous substance/product.
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOELR (Daphnia magna (Water flea)): 10 mg/l End point: Reproduction Exposure time: 21 d Analytical monitoring: No information available. Method: OECD Test Guideline 211 GLP: Yes Remarks: water extractable fraction

White mineral oil (petroleum) [< 20,5 mm2/s]:

Toxicity to fish	:	LL50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l Exposure time: 96 h Test Type: static test Analytical monitoring: No Method: OECD Test Guideline 203 Remarks: Fresh water water extractable fraction
Toxicity to daphnia and other aquatic invertebrates	:	LL50 (Daphnia magna (Water flea)): > 100 mg/l Exposure time: 48 h Test Type: static test Analytical monitoring: No Method: OECD Test Guideline 202 Remarks: Fresh water water extractable fraction
Toxicity to algae/aquatic plants	:	NOEL (Pseudokirchneriella subcapitata (microalgae)): >= 100 mg/l End point: Growth rate Exposure time: 72 h Method: OECD Test Guideline 201 Remarks: Fresh water water extractable fraction
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEL (Daphnia magna (Water flea)): 10 mg/l Exposure time: 21 d Method: OECD Test Guideline 211 GLP: Yes Remarks: Fresh water water extractable fraction Test results on an analogous substance/product.

2,6-di-tert-butyl-p-cresol:

Toxicity to fish	:	LC50 (Danio rerio (zebra fish)): > 0.57 mg/l Exposure time: 96 h Test Type: semi-static test Method: Regulation (EC) No. 440/2008, Annex, C.1 GLP: Yes Remarks: Fresh water
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 0.48 mg/l End point: Immobilization Exposure time: 48 h Test Type: static test Analytical monitoring: Yes Method: OECD Test Guideline 202 GLP: Yes

Remarks: Fresh water

Toxicity to algae/aquatic plants	:	ErC50 (Desmodesmus subspicatus (green algae)): > 0.4 mg/l End point: Growth rate Exposure time: 72 h Test Type: static test Analytical monitoring: Yes Method: Regulation (EC) No. 440/2008, Annex, C.3 GLP: Yes Remarks: Fresh water EC10 (Desmodesmus subspicatus (green algae)): 0.4 mg/l End point: Growth rate Exposure time: 72 h Test Type: static test Analytical monitoring: Yes Method: Regulation (EC) No. 440/2008, Annex, C.3 GLP: Yes Remarks: Fresh water
Toxicity to fish (Chronic toxicity)	:	NOEC (Oryzias latipes (Japanese medaka)): 0.053 mg/l Exposure time: 42 d Test Type: flow-through test Analytical monitoring: Yes Method: OECD Test Guideline 210 GLP: Yes Remarks: Fresh water
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 0.023 mg/l End point: Reproduction Exposure time: 21 d Test Type: semi-static test Analytical monitoring: Yes Method: OECD Test Guideline 202 GLP: Yes Remarks: Fresh water
Toxicity to microorganisms	:	EC50 (activated sludge): > 10,000 mg/l End point: Respiration inhibition Exposure time: 3 h Test Type: static test Analytical monitoring: No Method: equivalent or similar to OECD Guideline 209 GLP: Yes Remarks: Fresh water nominal concentration
Toxicity to soil dwelling organisms	:	Test Type: Reproduction Test NOEC (Eisenia fetida (earthworms)): 25 mg/kg

Exposure time: 56 d
End point: Reproduction
Method: OECD Test Guideline 222
GLP: Yes

Plant toxicity : NOEC: 4.74 mg/kg
Exposure time: 17 d
End point: Shoot fresh weight
Species: Allium cepa
Analytical monitoring: Yes
Method: OECD Test Guideline 208
GLP: Yes

EC50: 20.9 mg/kg
Exposure time: 17 d
End point: Shoot fresh weight
Species: Allium cepa
Analytical monitoring: Yes
Method: OECD Test Guideline 208
GLP: Yes

Phosphorodithioic acid, mixed O,O-bis(iso-Bu and pentyl) esters, zinc salts:

Toxicity to fish : LL50 (Cyprinodon variegatus (sheepshead minnow)): 4.5 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 23 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

NOEC (Daphnia magna (Water flea)): 10 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202
Remarks: water extractable fraction

Toxicity to algae/aquatic plants : EC50 (Desmodesmus subspicatus (green algae)): 21 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: water extractable fraction

NOEC (Desmodesmus subspicatus (green algae)): 10 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: water extractable fraction

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.4 mg/l
Exposure time: 21 d
Method: OECD Test Guideline 211

Lowest Observed Effect Concentration (Daphnia magna (Water flea)): 0.8 mg/l
Exposure time: 21 d
Method: OECD Test Guideline 211

Ecotoxicology Assessment

Acute aquatic toxicity : Toxic to aquatic life.

Persistence and degradability

Components:

Distillates (petroleum), hydrotreated light naphthenic:

Biodegradability : Result: Not readily biodegradable.

White mineral oil (petroleum) [< 20,5 mm2/s]:

Biodegradability : aerobic
Concentration: 44 mg/l
Result: Inherently biodegradable.
Biodegradation: 31 %
Exposure time: 28 d
Method: OECD Test Guideline 301F
GLP: Yes

2,6-di-tert-butyl-p-cresol:

Biodegradability : aerobic
Inoculum: activated sludge
Biochemical oxygen demand
Result: Not readily biodegradable.
Biodegradation: 4.5 %
Exposure time: 28 d
Method: OECD Test Guideline 301C
GLP: No information available.

aerobic
Inoculum: activated sludge
Result: Not inherently biodegradable.
Biodegradation: 5.5 %
Exposure time: 35 d
Method: OECD Test Guideline 302C
GLP: No

Stability in water : Degradation half life (DT50): 4 - 8 d
Hydrolysis: at 20 °C

Photodegradation : Sensitizer: OH

Phosphorodithioic acid, mixed O,O-bis(iso-Bu and pentyl) esters, zinc salts:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 1.5 %
Exposure time: 28 d
Method: OECD Test Guideline 301B

Bioaccumulative potential

Product:

Bioaccumulation : Remarks: No data available

Components:

2,6-di-tert-butyl-p-cresol:

Bioaccumulation : Bioconcentration factor (BCF): 1,277

Partition coefficient: n-octanol/water : log Pow: 5.1
Method: measured

Phosphorodithioic acid, mixed O,O-bis(iso-Bu and pentyl) esters, zinc salts:

Partition coefficient: n-octanol/water : Pow: 5.07 (72 °F / 22 °C)
log Pow: 0.69 (72 °F / 22 °C)
Method: OECD Test Guideline 107
GLP: Yes

Mobility in soil

Components:

2,6-di-tert-butyl-p-cresol:

Mobility : Medium: Soil
Content: 82.9 %
Method: Calculation, Mackay Level III Fugacity Model

Medium: Water
Content: 8.53 %
Method: Calculation, Mackay Level III Fugacity Model

Medium: Sediment
Content: 7.23 %
Method: Calculation, Mackay Level III Fugacity Model

Medium: Air
Content: 1.33 %
Method: Calculation, Mackay Level III Fugacity Model

Distribution among environ- : log Koc: 4.17

mental compartments — Method: estimated

Stability in soil : Test Type: aerobic degradation
Soil temperature: 54 °F / 12 °C
Radio label: Yes
pH: 5.7
Cation exchange capacity: 16 m_/kg
Biomass: 214 mg/kg
Method: OECD Test Guideline 307
GLP: Yes

Test Type: aerobic degradation
Soil temperature: 54 °F / 12 °C
Radio label: Yes
pH: 6.6
Cation exchange capacity: 47 m_/kg
Biomass: 265.7 mg/kg
Method: OECD Test Guideline 307
GLP: Yes

Test Type: aerobic degradation
Soil temperature: 54 °F / 12 °C
Radio label: Yes
pH: 7.4
Cation exchange capacity: 265 m_/kg
Biomass: 531.8 mg/kg
Method: OECD Test Guideline 307
GLP: Yes

Test Type: aerobic degradation
Soil temperature: 54 °F / 12 °C
Radio label: Yes
pH: 7.2
Cation exchange capacity: 257 m_/kg
Biomass: 938.7 mg/kg
Method: OECD Test Guideline 307
GLP: Yes

Other adverse effects

Product:

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life.
Harmful to aquatic life with long lasting effects.
The product itself has not been tested.
Avoid release to the environment.

Components:

2,6-di-tert-butyl-p-cresol:

Results of PBT and vPvB assessment : Substance is not persistent, bioaccumulative, and toxic (PBT). Substance is not very persistent and very bioaccumulative (vPvB).

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

RCRA - Resource Conservation and Recovery Authorization Act : If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24)

Waste from residues : The generation of waste should be avoided or minimized wherever possible.
This material and its container must be disposed of in a safe way.
Empty containers retain product residue; observe all precautions for product.
Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.
Waste disposal should be in accordance with existing federal, state, provincial and/or local environmental controls.

SECTION 14. TRANSPORT INFORMATION

International Regulations

IATA-DGR
Not regulated as a dangerous good

IMDG-Code
Not regulated as a dangerous good

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable for product as supplied.

Domestic regulation

49 CFR
Not regulated as a dangerous good

Hazard and Handling Notes
Not dangerous cargo

Irritating to the eyes.
Keep away from foodstuffs, acids and alkalis

SECTION 15. REGULATORY INFORMATION

CERCLA Reportable Quantity

Listed substances in the product are at low enough levels to not be expected to exceed the RQ

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

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

SARA 311/312 Hazards : Aspiration hazard
Serious eye damage or eye irritation

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

Phosphorodithioic acid, mixed O,O-bis(iso-Bu and pentyl) esters, zinc salts	68457-79-4	>= 1 - < 5 %

US State Regulations

Massachusetts Right To Know

Distillates (petroleum), hydrotreated light naphthenic	64742-53-6
2,6-di-tert-butyl-p-cresol	128-37-0
phenol	108-95-2

Pennsylvania Right To Know

Distillates (petroleum), hydrotreated light naphthenic	64742-53-6
White mineral oil (petroleum) [< 20,5 mm2/s]	8042-47-5
Proprietary polymer	TS-202000007540
2,6-di-tert-butyl-p-cresol	128-37-0
Phosphorodithioic acid, mixed O,O-bis(iso-Bu and pentyl) esters, zinc salts	68457-79-4

California Prop. 65

WARNING: This product can expose you to chemicals including White mineral oil (petroleum) [< 20,5 mm2/s], ethylbenzene, which is/are known to the State of California to cause cancer, and methanol, which is/are known to the State of California to cause birth defects or other reproductive harm.
For more information go to www.P65Warnings.ca.gov.

TSCA inventory

US TSCA : All substances listed as active on the TSCA inventory

TSCA list

The following substance(s) is/are subject to a Significant New Use Rule:

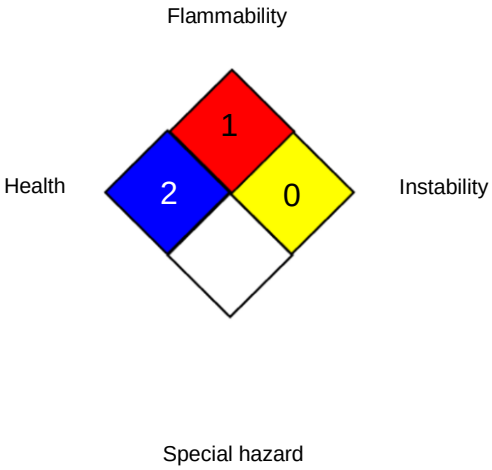
triphenyl phosphate	115-86-6	See 40 CFR 721.11780; Proposed Rule

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

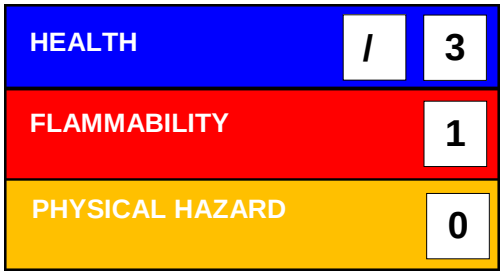
SECTION 16. OTHER INFORMATION

Further information

NFPA 704:



HMIS® IV / CED:



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

Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
OSHA Z-1	:	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
ACGIH / TWA	:	8-hour, time-weighted average
OSHA Z-1 / TWA	:	8-hour time weighted average

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German In-

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

Revision Date : 08/24/2026

The data contained in this Safety Data Sheet are based on our current knowledge and experience and describe the product only with regard to safety requirements. 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 to be a guidance for processing and does not contain any 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. It is the responsibility of the recipient of the product to ensure that any proprietary rights and existing laws and legislation are observed.

Relevant changes from the previous version are marked on the left side of the Safety Data Sheet with a black double bar in appropriate places.

US / EN