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

Product details
Trade name: Phosphorodithioic acid,O,O-di-C1-14-alkyl esters,zinc salts
CAS No.: 68649-42-3
EC No.: 272-028-3
Pre-Registration number 17-2119391155-38-0000

Relevant identified uses of the substance or mixture and uses advised against
No further relevant information available

Application of the substance / the preparation
- The main use is in anti-wear additives to lubricants such as greases, gear oils, and motor oils.
- The same compounds serve also as corrosion inhibitors and antioxidants.

Manufacturer/Supplier:
Prasol Chemicals Ltd.,
Prasol House, Plot No.A-17/2/3,
T.T.C. Indl. Area, Kharine M.I.D.C.,
Navi Mumbai - 400 710.
Maharashtra, India.
Tel: +91-22-27782555
Fax: +91-22-27782430

Further information obtainable from:
Mr. Dhaval Parikh
e-mail:sales@prasolchem.com; inquiry@prasolchem.com

Information in case of emergency:
Contact details of European importer:
Emergency telephone number:
Telephone number of EU importer:
Opening hours:
Other Comments (e.g. language(s) of the phone service): English

2 Hazards identification

Classification of the substance or mixture
Classification according to Regulation (EC) No 1272/2008

- corrosion
- Eye Dam. 1 H318 Causes serious eye damage
- Skin Irrit. 2 H315 Causes skin irritation
- Environment
- Aquatic Chronic 2 H411 Toxic to aquatic life with long lasting effects

Classification according to Directive 67/548/EEC or Directive 1999/45/EC

- Xi: Irritant
- R36/38: Irritating to eyes and skin
- N: Dangerous for the environment
PRASOL CHEMICALS LIMITED
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R51/53: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Information concerning particular hazards for human and environment: Not applicable

Label elements
Labeling according to Regulation (EC) No 1272/2008
The substance is classified and labelled according to the CLP regulation

Hazard pictograms

GHS05 GHS09

Signal word Danger

Hazard-determining components of labeling: Void

Hazard statements
H315 Causes skin irritation
H318 Causes serious eye damage.
H411 Toxic to aquatic life with long lasting effects

Precautionary statements
P280 Wear protective gloves/protective clothing/eye protection/face protection. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing P310 Immediately call a POISON CENTER or doctor/physician. P321 Specific treatment (see on this label). P362 Take off contaminated clothing and wash before reuse. P501 Dispose of contents/container in accordance with local/regional/national/international regulations

Other hazards

Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable

3 Composition/information on ingredients

Chemical characterization:
CAS No. Description
68649-42-3 Phosphorodithioic acid,O,O-di-C1-14-alkyl esters, zinc salts
Identification number(s)
EINECS Number: 272-028-3
Additional information:
Molecular Formula: C28H60O4P2S4Zn
Molecular Weight: 716.39

4 First aid measures

General information:
Immediately remove any clothing soiled by the product. Seek immediate medical advice.

After inhalation:
Remove from exposure area to fresh air immediately. Keep at rest in a position comfortable for breathing. If breathing has stopped, give artificial respiration. GET MEDICAL ATTENTION

After skin contact: With soap and water. Seek medical attention if tissue appears damaged or if irritation persists. Thoroughly clean contaminated clothing before reuse. Discard contaminated leather goods

After eye contact:
Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Seek medical attention if excessive tearing, redness, or pain persists

After swallowing: Rinse mouth with water. Unless directed to by a physician. Never give anything by mouth to a person who is not fully conscious. Seek medical attention immediately

Most important symptoms and effects, both acute and delayed Dilation of pupils
5 Firefighting measures

Extinguishing media
Suitable extinguishing agents:
On large fires use dry chemical, foam or water spray. On small fires use carbon dioxide (CO2), dry chemical or water spray.
For safety reasons unsuitable extinguishing agents: Water with full jet
Special hazards arising from the substance or mixture No further relevant information available.
Advice for firefighters
Protective equipment:
Fire fighters should wear positive self-contained breathing apparatus.
Breathing apparatus.
Gas tight chemical resistant suit

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures
Ensure adequate ventilation
Stop or control the leak, if this can be done without undue risk.
Avoid contact with skin and eyes. Use full protective clothing and equipment.
Transfer bulk of material into another container. Absorb with inert material such as earth, sand, or vermiculite.
Environmental precautions: Do not allow product to reach sewage system or any water course.
Methods and material for containment and cleaning up:
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Keep in suitable, closed containers for disposal. Clean up all spills immediately.
Reference to other sections See Section 8 for information on personal protection equipment

7 Handling and storage

Precautions for safe handling
Avoid contact with eyes and skin. Use in a well-ventilated area.
Prevent concentration in hollows and sumps.
DO NOT enter confined spaces until atmosphere has been checked.
Information about fire - and explosion protection: Avoid smoking, naked lights or ignition sources.
Conditions for safe storage, including any incompatibilities
Storage:
Requirements to be met by storerooms and receptacles:
Store in a cool, dry, well-ventilated area away from incompatible substances.
Information about storage in one common storage facility: Store away from oxidizing agents.
Further information about storage conditions:
Do not handle or store at temperatures over 38 °C or 100°F.
Maximum Storage Temperature: 38 °C (100°F)
Specific end use(s)
- The main use is in anti-wear additives to lubricants such as greases, gear oils, and motor oils.
- The same compounds serve also as corrosion inhibitors and antioxidants

8 Exposure controls/personal protection

Additional information about design of technical facilities:
Provide adequate ventilation in warehouse or closed storage areas.
Control parameters
Ingredients with limit values that require monitoring at the workplace: Not required.
Exposure controls
Personal protective equipment:
General protective and hygienic measures:
Wash hands before breaks and at the end of work. Immediately remove all soiled and contaminated clothing. Avoid contact with the eyes and skin.

**Protection of hands:**

- **Protective gloves**

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation.

**Material of gloves:** Plastic/Rubber gloves

**Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

**Eye protection:**

- Safety glasses with side shields.
- Chemical goggles.

Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants.

**Body protection:** Protective work clothing.

## 9 Physical and chemical properties

### General Information

**Appearance:** Liquid

**Color:** Colorless to pale brown

**Odor:** Mild petroleum odor

**Odor threshold:** Not applicable

**pH-value:** 5.5-7.5

**Change in condition:**

- **Melting point/Melting range:** <10 °C
- **Boiling point/Boiling range:** >120 °C
- **Flash point:** 93°C

**Decomposition temperature:** Not determined

**Self-igniting:** Not determined

**Danger of explosion:** Product does not present an explosion hazard.

**Oxidizing properties:** No oxidizing properties

**Vapor pressure:** Not applicable

**Density at 20°C:** 1.113– 1.135 g/ml

**Evaporation rate:** Not established

**Solubility in / Miscibility with water:** Insoluble

**Partition coefficient (n-octanol/ water):** Not applicable

**Viscosity:**

- **Kinematic at 100 °C:** 9.44 – 11.00 mm²/s

**Other information** No further relevant information available

## 10 Stability and reactivity

**Reactivity**

**Chemical stability** Stable under normal conditions.

**Possibility of hazardous reactions**

When handled and stored appropriately, no dangerous reactions are known.

**Conditions to avoid** Keep away from excess heat

**Incompatible materials:**

- Strong oxidizing agents
- Strong oxidizers such as hydrogen peroxide, bromine, and chromic acid.

**Hazardous decomposition products:** smoke, carbon dioxide and carbon monoxide.
11 Toxicological information

Information on toxicological effects

Acute toxicity:
LD/LC50 values relevant for classification: Low acute toxicity

Primary irritant effect:
on the skin: Irritating effect
on the eye: Strong irritant with the danger of severe eye injury.

Sensitization: No sensitizing effects known.

Additional toxicological information:
When used and handled according to specifications, the product does not have any harmful effects to our experience and the information provided to us.
The substance is not subject to classification according to the latest version of the EU lists.

CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)
IARC, ACGIH, NTP, and OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

12 Ecological information

Toxicity

Aquatic toxicity classification:

<table>
<thead>
<tr>
<th>LC50 (96hr) (static)</th>
<th>1-5 mg/L (Fish Pimephales promelas)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10-35 mg/L (Fish Pimephales promelas)</td>
</tr>
</tbody>
</table>

Persistence and degradability Only slightly biodegradable.

Bio-accumulative potential: Product is not expected to bio-accumulate.

Mobility in soil: The product is poorly absorbed onto soils or sediments.

Additional ecological information:
General notes:
Harmful to aquatic organisms
The material is harmful to the environment.
Do not allow product to reach ground water, water course or sewage system.

Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.

Other adverse effects: No further relevant information available.

13 Disposal considerations

Waste treatment methods
Recommendation: Dispose in a regulated landfill site or other method for hazardous or toxic waste.

European waste catalogue: Not available

Un-cleaned packaging:
Recommendation: Dispose off according to local, state, and federal governmental restrictions and requirements.

14 Transport information

UN-Number
ADR, IMDG, IATA: UN3082

UN proper shipping name
ADR: 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Phosphorodithioic acid, O,O-di-C1-14-alkyl esters, zinc salts)
IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Phosphorodithioic acid, O,O-di-C1-14-alkyl esters, zinc salts), MARINE POLLUTANT
IATA: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Phosphorodithioic acid, O,O-di-C1-14-alkylesters, zinc salts)
Transport hazard class(es)
ADR, IMDG, IATA

Class 9 Miscellaneous dangerous substances and articles.
Label 9

Packing group
ADR, IMDG, IATA III

Environmental hazards:
Marine pollutant: Yes
Symbol (fish and tree)
Special marking (ADR): Symbol (fish and tree)
Special marking (IATA): Symbol (fish and tree)
Special precautions for user Warning: Miscellaneous dangerous substances and articles.
Danger code (Kemler): 90
EMS Number: F-A,S-F

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable
Transport/Additional information
ADR
Limited quantities (LQ) 5L
Transport category 3
Tunnel restriction code E
UN "Model Regulation": UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Phosphorodithioic acid, O,O-di-C1-14-alkyl esters, zinc salts), 9, III

15 Regulatory information

Labeling according to Regulation (EC) No 1272/2008
Hazard pictograms Please refer section 2
Signal word Danger
Hazard statements Please refer section 2
Precautionary statements Please refer section 2

Labeling according to EU guidelines: The product has been classified and marked in accordance with EU Directives / Ordinance on Hazardous Materials
Code letter and hazard designation of product: please refer Section 2
Risk phrases: please refer Section 2.

Chemical safety assessment A Chemical Safety Assessment has not been carried out and shall be available at the time of REACH registration

National regulations:
Substances of very high concern (SVHC) according to REACH, Article 57 The substance is not listed as SVHC.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Department issuing MSDS:
Product safety department.
Contact:
Tel: +91-022-27782555
Fax: +91-022-27782430

Abbreviations and acronyms:
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
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of Dangerous Goods by Road)
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the
International Transport of Dangerous Goods by Rail)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association": IATA)
ICAO: International Civil Aviation Organization
ICAO-TI: Technical Instructions by the "International Civil Aviation Organization": ICAO
GHS: Globally Harmonized System of Classification and Labeling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent

Sources
CHEMIDPLUS http://chem.six.nlm.nih.gov/chemidplus/ProxyServlet ?objectHandle=Search&actionHandle=GetAll3DMViewFiles&nextPage=jsp/common/ChemFull.jsp%3FcalledFrom%3Dlite%26chemid=0068649423&formatType=3D
GOOGLE SEARCH: http://en.wikipedia.org/wiki/Zinc_dithiophosphate
CHEMCAS: http://www.chemcas.com/msds_archive/part2/cas/gm_msds/starbr1te_com---15600-msds-6-18-05.asp
GOOGLE SEARCH: http://www.polysi.com/dow%20corning%20msds%20sheets/DC%20Tech%20&%20MSDS%20Sheets/
DC%20GREASES%20MSDS/DC%20G-4700.pdf

Data compared to the previous version altered.
•Section 1: Identification of the substance/mixture and of the company/undertaking
•Section 2: Hazard Identification
•Section 3: Composition/Information on ingredients
•Section 4: First-aid measures.
•Section 5: Fire-fighting measures
•Section 6: Accidental Release measures
•Section 7: Handling and storage.
•Section 8: Exposure Controls/Personal protection.
•Section 9: Physical and Chemical properties.
•Section 10: Stability and Reactivity.
•Section 11: Toxicological Information.
•Section 12: Ecological Information.
•Section 13: Disposal consideration
•Section 14: Transport information
•Section 15: Regulatory information