

Safety data sheet as per Commission Regulation (EU) 2020/878

Product: Diphosphorus pentasulphide



PRASOL

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Trade name Diphosphorus pentasulphide/ PPS
Chemical Name Phosphorus pentasulphide
Nanoform No nanoforms

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

Relevant identified uses Used as a Transported Isolated Intermediate in industrial chemical synthesis
Uses identified against No information

1.3 Details of the supplier of the safety data sheet:

Manufacturer Prasol Chemicals Limited
 Prasol House, Plot No.A-17/2/3,
 T.T.C. Indl. Area, Khairne M.I.D.C.,
 Navi Mumbai - 400 710.
 Maharashtra, India.
Telephone +91-22-27782555/ 61952500
Telefax +91-22-61952577
e-mail address sales@prasolchem.com; inquiry@prasolchem.com

1.4 Emergency telephone number

Telephone +91-22-7045783555/ 7045790555
Language English

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 (CLP)

Flammable Solid	Category 1	H228	Flammable solid
Water reactivity	Category 1	H260	In contact with water releases flammable gases which may ignite spontaneously
Acute Toxicity	Category 4	H302	Harmful if swallowed.
Skin Corrosion	Category 1B	H314	Causes severe skin burns and eye damage
Eye Damage	Category 1	H318	Causes serious eye damage
Acute Toxicity	Category 4	H332	Harmful if inhaled
Aquatic Acute	Category 1	H400	Very toxic to aquatic life
		EUH029	Contact with water liberates toxic gas

Information concerning particular hazards for human and environment: No further information

2.2 Label elements

Labeling according to Regulation (EC) No 1272/2008 (CLP)

Hazard

pictograms



GHS02



GHS05



GHS07



GHS09

Signal word

Danger

Hazard statements

H228	Flammable solid
H260	In contact with water releases flammable gases which may ignite spontaneously
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage
H332	Harmful if inhaled
H400	Very toxic to aquatic life
EUH029	Contact with water liberates toxic gas

Precautionary statements

General

P103

Read label before use.

Prevention

P210

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources.
 No smoking.

P223

Do not allow contact with water.

P231 + P232

Handle and store contents under inert gas. Protect from moisture.

P240

Ground and bond container and receiving equipment.

P241

Use explosion-proof electrical, ventilating and lighting equipment

P260

Do not breathe dusts or mists.

P264

Wash hands thoroughly after handling.

P270

Do not eat, drink or smoke when using this product.

Safety data sheet as per Commission Regulation (EU) 2020/878

Product: Diphosphorus pentasulphide



Response	P271	Use only outdoors or in a well-ventilated area.
	P273	Avoid release to the environment.
	P280	Use protective gloves and eye protection.
	P301+P317	IF SWALLOWED: Get medical help..
	P302+P335+P334	IF ON SKIN: Brush off loose particles from skin and immerse in cool water.
	P302+P361+ P354	IF ON SKIN: Take off immediately all contaminated clothing. Immediately rinse with water for several minutes.
	P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
	P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
	P316	Get emergency medical help immediately.
	P330	Rinse mouth.
Storage	P363	Wash contaminated clothing before reuse.
	P370 + P378	In case of fire: Use dry chemical, carbon dioxide, sand to extinguish.
	P391	Collect spillage
	P402 + P404	Store in a dry place. Store in a closed container.
Disposal	P405	Store locked up.
	P501	Dispose of contents and container in accordance with national regulations

2.3 Other hazards

Not a PBT, vPVB substance according to the criteria of Annex XIII to REACH regulation

Not having endocrine disruptive properties as per criteria of Delegated Regulations (EC) 2017/2100 or (EC) 2018/605

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Name	Diphosphorus pentasulphide
CAS Number	1314-80-3
EC Number	215-242-4
Molecular Formula	P ₂ S ₅
Molecular Weight	222.27

Ingredient	Classification	Concentration (%)
Diphosphorus pentasulphide	Flam. Sol. 1; Water-react. 1; Acute Tox. (Oral) 4; Skin Corr. 1B, Eye Dam. 1, Acute Tox. (Inhl.) 4; Aquatic Acute Tox. 1 H228, H260, H302, H314, H318, H332, H400	99.5-100

3.2 Mixtures not applicable

None of the ingredients present are classified as skin sensitisers 1A, respiratory sensitisers 1A, aspiration hazards and endocrine disruptors.

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General information	Remove from exposure, lie down. Never give anything by mouth to an unconscious person.
After inhalation	Remove the patient to fresh air at once.
After skin contact	Take off all contaminated clothing immediately. If skin irritation persists, call a doctor. Wash off immediately with soap and plenty of water.
After eye contact	Irrigate each eye continuously with water or 0.9% saline (NS) and seek medical advice.
After swallowing	Rinse mouth and administer 5 ml/kg up to 200 ml of water for dilution if the patient can swallow. Do not induce vomiting and seek medical advice immediately.

4.2 Most important symptoms and effects, both acute and delayed Apnea, coma, and convulsions; conjunctival pain, lacrimation, photophobia, kerato-conjunctivitis, and corneal vasculation; dizziness; headache; fatigue; irritability, insomnia; gastro intestinal disturbance

4.3 Indication of any immediate medical attention and special treatment needed Treat symptomatically and supportively

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media	CO ₂ , dry powder, sand
Unsuitable extinguishing media	water and foam

5.2 Special hazards arising from the substance or mixture May form toxic sulfur dioxide and carbon oxides if burning.
Flammable solid

Safety data sheet as per Commission Regulation (EU) 2020/878

Product: Diphosphorus pentasulphide



5.3 Advice for firefighters

Fumes from fires are irritating to respiratory passages, eyes and skin.
Fumes may contain hydrogen sulfide, phosphine, sulfur dioxide, phosphorus pentoxide, phosphoric acid.
Wear self-contained breathing apparatus.

SECTION 6: ACCIDENTAL RELEASE MEASURES

- 6.1 Personal precautions, protective equipment and emergency procedures** Use personal protective equipment.
Avoid breathing dust or gas during processing.
Ensure adequate ventilation
- 6.2 Environmental precautions** Do not allow to enter sewers, surface or ground water.
- 6.3 Methods and material for containment and cleaning up** Soak up with inert absorbent material and dispose of as hazardous waste.
Keep in suitable, closed containers for disposal.
Do not flush with water.
Suitable binder: sand
- 6.4 Reference to other sections** Section 8 for information on personal protection equipment.
Section 13 for disposal information

SECTION 7: HANDLING AND STORAGE

- 7.1 Precautions for safe handling** If possible, use material transfer and blending plants that are closed. Avoid contact with skin and eyes. Avoid formation of dust. Avoid inhalation of dust.
- 7.2 Conditions for safe storage, including any incompatibilities**
Advice on protection against fire and explosion Ensure good ventilation when handling large amounts. Take precautionary measures against build-up of electrostatic charge. Avoid impact, friction and build-up of electrostatic charge; risk of ignition! Earth tanks and plant properly. Use anti-statically treated equipment.
- Storage** Store in ambient conditions. Protect against heat. Keep only in the original container in a well-ventilated place. Keep container tightly closed in a dry and well-ventilated place. Protect against atmospheric moisture. Store and handle under nitrogen.
- Packaging material** Iron drums with LDPE liner
- Incompatibility** Acids, water, alcohols, strong oxidizers, acid, alkali.
- Advice on common storage** Observe prohibition against storing together!
- Storage stability** Maximum Storage Temperature: 45°C
- 7.3 Specific end use(s)** No further relevant information available

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

- 8.1 Control parameters**
- | | |
|---------------------------------------|--|
| Occupational Exposure Limit | 1 mg/m ³ TWA (10hrs); 3 mg/m ³ STEL (15 min) |
| IDLH | 250mg/m ³ |
| DNEL/DMEL (Workers) | |
| Acute - local effects, inhalation | 2mg/m ³ |
| Long-term - systemic effects, dermal | irritation |
| DNEL/DMEL (General population) | Not derived |
| PNEC (Water) | |
| PNEC aqua (freshwater) | 0 µg/l |
- 8.2 Exposure controls**
- Appropriate engineering controls** If possible, use material transfer, metering and blending plants that are closed
- Personal protective equipment**
- Eye/ face protection** closed goggles, face shield
- Skin protection**
- | | | | |
|------------------------|-----------------------|-----------|-------------------|
| Hand protection | Type of material | Thickness | Breakthrough time |
| | Butyl-rubber | 0.5 mm | > 480 min |
| | Polychloroprene (PCP) | 0.5 mm | 110 min |
| Body protection | Boots, body suit | | |
- Respiratory protection** Full-face respirator. Avoid inhaling vapours.
- Thermal hazards** Flammable solid, possibility of decomposition on excess heating
- Industrial hygiene** Avoid contact with skin and eyes.
Remove immediately all contaminated clothing.
Keep working clothes separately.
Smoking, eating and drinking should be prohibited in the application area.

Safety data sheet as per Commission Regulation (EU) 2020/878

Product: Diphosphorus pentasulphide



SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical state	Solid
Color	Green/ yellow crystalline solid
Odour	Odor of rotten eggs
Odour threshold	0.13 ppm (H ₂ S)
pH	no data available
Melting point	285°C
Boiling point	515°C
Flash point	no data available
Evaporation rate	not applicable
Flammability (solid, gas)	Flammable Category 1, H228
Flammability limits	no data available
Vapour pressure	1mmHg at 300°C
Vapour density	not determined
Relative density	2.03 g/cm ³
Solubility in water	not applicable
Partition coefficient	not applicable
Ignition temperature	142°C
Decomposition temperature	no data available
Viscosity at 100 °C	not applicable
Particle characteristics	Not a nanomaterial/ nanoform

9.2 Other information

Explosive properties	There is a danger of dust explosions, particularly when grinding or on filling or discharging the material. Dust-air mixtures containing >3% oxygen and >50 g/m ³ P4S10 (particle size <0.07 mm) are explosive.
Oxidizing properties	no oxidizing properties
Heat of Combustion	-10,890 Btu/lb = -6,050 cal/g = -253.3 X 10 ⁵ J/kg
Heat of Vaporization	178 kJ/mol

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity	Contact with water or acid liberates poisonous and flammable hydrogen sulfide. Water reactivity Category 1, H260, EUH029
10.2 Chemical stability	Under storage at normal ambient temperatures (-40°C to +45°C), the product is stable.
10.3 Possibility of hazardous reactions	Shock sensitive. Take precautionary measures against build-up of electrostatic charge.
10.4 Conditions to avoid	Extremes of temperature and direct sunlight. Keep away from ignition sources, heat and naked flame. Keep material out of water sources and sewers. Keep material dry.
10.5 Incompatible materials	Acids, water, alcohols, strong oxidizers, acid, alkali.
10.6 Hazardous decomposition products	When heated to decomposition, it emits highly toxic fumes of sulphur and phosphorus oxides. Decomposes on contact with water to phosphoric acid, sulfur dioxide, and hydrogen sulfide.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity				
LD50	oral	rat	791 mg/kg bw	Harmful Acute Tox Cat 4, H302
LC50	inhalation	Irritation in respiratory tract		Acute Tox Cat 4, H332
LD50	Dermal	rabbit	3160 g/kg bw	not classified
Skin irritation				
Causes severe burns Category 1B, H314				
Serious eye irritation				
Causes severe eye damage Category 1, H318				
Respiratory or skin sensitization				
Not tested as the substance is classified as highly flammable and reacts with moisture to liberate a toxic gas.				
Germ cell mutagenicity				
non mutagenic (Ames test)				
Carcinogenicity				
no data available				
Reproductive toxicity				
no data available				
STOT-single exposure				
No further information				
STOT-repeated exposure				
not classified as specific target organ toxicant				

11.2 Information on other hazards

Endocrine disrupting properties	No endocrine disrupting properties
--	------------------------------------

Safety data sheet as per Commission Regulation (EU) 2020/878

Product: Diphosphorus pentasulphide



Other information

No further information

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Aquatic toxicity

Based on H₂S generated

Toxicity to fish

no data available

Toxicity to aquatic invertebrates

LC50 48h 0.1224mg/L *Daphnia magna* (Aq. Acute 1, H400)

Toxicity to aquatic algae and cyanobacteria

EC50 24h 1.87 mg/l *Scenedesmus vacuolatus*

Toxicity to microorganisms

EC50 30min 12.4mg *Vibrio fischeri*

12.2 Persistence and degradability

Biodegradation

no data available as substance decomposes to phosphoric acid and hydrogen sulphide in soil or water

12.3 Bioaccumulative potential

Decomposes in presence of moisture with the development of phosphoric acid and hydrogen sulphide; very low potential for bioaccumulation

12.4 Mobility in soil

Not applicable

12.5 Results of PBT and vPvB assessment

Not a PBT, vPvB substance according to the REACH regulation

12.6 Endocrine disrupting properties

No endocrine disrupting properties

12.7 Other adverse effects

Harmful to aquatic organisms

The material is harmful to the environment

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Observe all national, state and local environmental regulations.

Product disposal

Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Packaging disposal

Clean container with water. Recover waste water for processing later. Destroy packaging by incineration at an approved waste disposal site.

Sewage disposal

Do not dispose in sewage.

SECTION 14: TRANSPORT INFORMATION

14.1 UN Number

ADR/RID

1340

IMDG

1340

ICAO/IATA

1340

14.2 UN proper shipping name

PHOSPHORUS PENTASULPHIDE

14.3 Transport hazard class

4.3+4.1

4.3+4.1

4.3+4.1

14.4 Packaging group

II

II

II

14.5 Environmental hazards

environmentally hazardous, marine pollutant

14.6 Special precautions for the user

Danger code (Kemler)

423

Tunnel restriction code

D/E

EmS Number

F-G,S-N

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

See regulatory information for transport approval

SECTION 15: REGULATORY INFORMATION

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

Major accident hazard

Seveso III

E1(Hazardous to the Aquatic Environment in Category Acute 1 or Chronic 1)

O2 (Substance in contact with water emits Flammable gases, Category 1)

O3 (Substance with Hazard Statement EUH029)

International Chemical Inventory Status

USA (TSCA)

Listed (Tracking No 83147)

Canada (DSL)

listed

Australia (AICS)

listed

Japan (MITI)

Listed (MITI Mo. 1-564)

Korea (KECL)

Listed (KE No. 12128)

Philippines (PICCS)

listed

China

listed

New Zealand

listed

Taiwan

listed

Safety data sheet as per Commission Regulation (EU) 2020/878

Product: Diphosphorus pentasulphide



15.2 Chemical safety assessment A Chemical Safety Assessment will be carried out at the time of REACH registration

SECTION 16: OTHER INFORMATION

Indication of changes: Sections in which changes have been made since the last version are marked with a diamond ♦ in the left hand margin.

Abbreviations and acronyms:

ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
AICS	Australian Inventory of Chemical Substances
CAS	Chemical Abstracts Service (division of the American Chemical Society)
CLP	Classification for Labeling and Packaging
DSL	Domestic Substances List
EC	European Commission
EC50	Half maximal effective concentration
EINECS	European Inventory of Existing Commercial Chemical Substances
GHS	Globally Harmonized System of Classification and Labeling of Chemicals
IATA	International Air Transport Association
IBC	International Bulk Chemical
ICAO	International Civil Aviation Organization
IDLH	Immediately Dangerous to Life or Health
IMDG	International Maritime Code for Dangerous Goods
KECL	Korea Existing Chemicals List
KOC	Soil adsorption coefficient
KOW	Partition Coefficient octanol-water
LC50	Lethal concentration, 50 percent
LD50	Lethal dose, 50 percent
MARPOL	International Convention for the Prevention of Pollution from Ships
MITI	Ministry of International Trade and Industry
NOAEC	No Observed Adverse Effect Concentration
NOAEL	No Observed Adverse Effect Level
NOEC	No Observed Effect Concentration
PBT	Persistent, bioaccumulative and toxic substances
PICCS	Philippine Inventory of Chemicals and Chemical Substances
RID	Regulations Concerning the International Transport of Dangerous Goods by Rail
STOT	Specific target organ toxicity
TSCA	Toxic Substances Control Act
UN	United Nations
vPVB	(very) Persistent, (very) Bioaccumulative

Key literature references and sources for data

Commission Regulation (EU) 2020/878 of 18 June 2020 amending Annex II to Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

ECHA <https://echa.europa.eu/registration-dossier/-/registered-dossier/13413/1>

Disclaimer: Information herein is given in good faith. Prasol Chemicals Limited makes no representations or warranties as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving the same will make their own determination as to its suitability for their purpose prior to use. Prasol Chemicals Limited shall not be responsible for damages of any nature whatsoever resulting from the use or reliance upon this information. The data provided are based on samples tested and are not guaranteed for all samples or applications. Such data are intended as guides only. No representations or warranties for a particular purpose or any other nature are made with respect to this information or the product.

End of safety data sheet