

MATERIAL SAFETY DATA SHEET (MSDS)

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

1.1. Product identifier

Product form : Substance
:
EC-No. : 233-060-3
CAS-No. : 10026-13-8
Product code : 5258A
Formula : PCl_5
Chemical structure :



Synonyms : Phosphorus(V) chloride

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

1.2.1. Relevant identified uses

Industrial/Professional use spec : Industrial
For professional use only

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

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SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Acute toxicity (oral), Category 4 H302
Acute toxicity (inhal.), Category 1 H330
Skin corrosion/irritation, Category 1B H314
Specific target organ toxicity — Repeated H373

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exposure, Category 2

Full text of H statements : see section 16

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

T+; R26
Xn; R22
Xn; R48/20
C; R34
R14

Full text of R-phrases: see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



GHS05

GHS06

GHS08

Signal word (CLP) :

Danger

Hazard statements (CLP) :

H302 - Harmful if swallowed.
H314 - Causes severe skin burns and eye damage.
H330 - Fatal if inhaled.
H373 - May cause damage to organs through prolonged or repeated exposure.

Precautionary statements (CLP) :

P260 - Do not breathe dust/fume/gas/mist/vapours/spray.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P284 - Wear respiratory 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/doctor

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Name	Product identifier	%
PHOSPHORUS PENTACHLORIDE FOR SYNTHESIS	(CAS-No.) 10026-13-8 (EC-No.) 233-060-3	100

Full text of R- and H-statements: see section 16

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3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.
First-aid measures after skin contact	: Take off immediately all contaminated clothing. Rinse skin with water/shower. Immediately call a POISON CENTER/doctor.
First-aid measures after eye contact	: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
First-aid measures after ingestion	: Rinse mouth. Call a POISON CENTER/doctor if you feel unwell. Do NOT induce vomiting. Immediately call a POISON CENTER/doctor.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects	: Causes severe skin burns and eye damage. May cause damage to organs through prolonged or repeated exposure.
Symptoms/effects after inhalation	: Fatal if inhaled.
Symptoms/effects after ingestion	: Harmful if swallowed.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	: Dry powder.
Unsuitable extinguishing media	: Do not use extinguishing media containing water.

5.2. Special hazards arising from the substance or mixture

No additional information available

5.3. Advice for firefighters

Protection during firefighting	: Do not attempt to take action without suitable protective equipment.
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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures	: Evacuate unnecessary personnel.
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6.1.2. For emergency responders

Protective equipment	: Use personal protective equipment as required.
Emergency procedures	: Stop release. Ventilate area.

6.2. Environmental precautions

Do not allow water (or moist air) contact with this material. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up	: Large spills: scoop solid spill into closing containers.
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6.4. Reference to other sections

No additional information available

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SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	: Avoid contact with skin and eyes.
Hygiene measures	: Do not eat, drink or smoke when using this product. Wash hands, forearms and face thoroughly after handling. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions	: Store in dry protected location to prevent any moisture contact.
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7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Exposure controls

Hand protection	: protective gloves
Eye protection	: Chemical goggles or face shield
Skin and body protection	: Wear suitable protective clothing
Respiratory protection	: Wear respiratory protection.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Molecular mass	: 208.24 g/mol
Colour	: Yellowish.
Odour	: pungent odour.
Odour threshold	: No data available
pH	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: 179 - 181 °C
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapour pressure	: < 1 hPa at 20°C

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Relative vapour density at 20 °C	: No data available
Relative density	: No data available
Density	: 1.6 g/cm ³
Solubility	: Water: Reacts with water
Log Pow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Reacts violently with water.

10.2. Chemical stability

No additional information available

10.3. Possibility of hazardous reactions

Highly reactive material. Reacts violently with water.

10.4. Conditions to avoid

Moisture.

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Thermal decomposition generates : Corrosive vapours.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Oral: Harmful if swallowed. Inhalation: Fatal if inhaled.

Skin corrosion/irritation : Causes severe skin burns and eye damage.

Serious eye damage/irritation : Serious eye damage, category 1, implicit

Respiratory or skin sensitisation : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

STOT-single exposure : Not classified

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

Aspiration hazard : Not classified

Potential adverse human health effects and symptoms : Harmful if swallowed.

SECTION 12: Ecological information

12.1. Toxicity

No additional information available

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product/Packaging disposal recommendations : Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

Additional information : Do not allow water (or moist air) contact with this material.

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number

UN-No. (ADR) : 1806

UN-No. (IMDG) : 1806

UN-No. (IATA) : 1806

UN-No. (ADN) : 1806

UN-No. (RID) : 1806

14.2. UN proper shipping name

Proper Shipping Name (ADR) : PHOSPHORUS PENTACHLORIDE

Proper Shipping Name (IMDG) : PHOSPHORUS PENTACHLORIDE

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Proper Shipping Name (IATA)	: Phosphorus pentachloride
Proper Shipping Name (ADN)	: PHOSPHORUS PENTACHLORIDE
Proper Shipping Name (RID)	: PHOSPHORUS PENTACHLORIDE
Transport document description (ADR)	: UN 1806 PHOSPHORUS PENTACHLORIDE, 8, II, (E)
Transport document description (IMDG)	: UN 1806 PHOSPHORUS PENTACHLORIDE, 8, II
Transport document description (IATA)	: UN 1806 Phosphorus pentachloride, 8, II
Transport document description (ADN)	: UN 1806 PHOSPHORUS PENTACHLORIDE, 8, II
Transport document description (RID)	: UN 1806 PHOSPHORUS PENTACHLORIDE, 8, II

14.3. Transport hazard class(es)

ADR

Transport hazard class(es) (ADR)	: 8
Danger labels (ADR)	: 8



IMDG

Transport hazard class(es) (IMDG)	: 8
Danger labels (IMDG)	: 8



IATA

Transport hazard class(es) (IATA)	: 8
Hazard labels (IATA)	: 8



ADN

Transport hazard class(es) (ADN)	: 8
Danger labels (ADN)	: 8



RID

Transport hazard class(es) (RID)	: 8
Danger labels (RID)	: 8

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14.4. Packing group

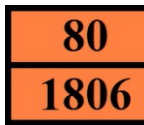
Packing group (ADR)	: II
Packing group (IMDG)	: II
Packing group (IATA)	: II
Packing group (ADN)	: II
Packing group (RID)	: II

14.5. Environmental hazards

Dangerous for the environment	: No
Marine pollutant	: No
Other information	: No supplementary information available

14.6. Special precautions for user

- Overland transport

Classification code (ADR)	: C2
Limited quantities (ADR)	: 1kg
Excepted quantities (ADR)	: E0
Packing instructions (ADR)	: P002, IBC08
Special packing provisions (ADR)	: B4
Mixed packing provisions (ADR)	: MP10
Portable tank and bulk container instructions (ADR)	: T3
Portable tank and bulk container special provisions (ADR)	: TP33
Tank code (ADR)	: SGAN
Vehicle for tank carriage	: AT
Transport category (ADR)	: 2
Special provisions for carriage - Packages (ADR)	: V11
Hazard identification number (Kemler No.)	: 80
Orange plates	: 
Tunnel restriction code (ADR)	: E
EAC code	: 4W

- Transport by sea

Limited quantities (IMDG)	: 1 kg
Excepted quantities (IMDG)	: E0
Packing instructions (IMDG)	: P002
IBC packing instructions (IMDG)	: IBC08
IBC special provisions (IMDG)	: B2, B4
Tank instructions (IMDG)	: T3
Tank special provisions (IMDG)	: TP33
EmS-No. (Fire)	: F-A
EmS-No. (Spillage)	: S-B
Stowage category (IMDG)	: C
Stowage and handling (IMDG)	: SW2

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Segregation (IMDG) : SG6, SG8, SG10, SG12
MFAG-No : 137

- Air transport

PCA Excepted quantities (IATA) : E0
PCA Limited quantities (IATA) : Forbidden
PCA limited quantity max net quantity (IATA) : Forbidden
PCA packing instructions (IATA) : Forbidden
PCA max net quantity (IATA) : Forbidden
CAO packing instructions (IATA) : 863
CAO max net quantity (IATA) : 50kg
Special provisions (IATA) : A1
ERG code (IATA) : 8W

- Inland waterway transport

Classification code (ADN) : C2
Limited quantities (ADN) : 1 kg
Excepted quantities (ADN) : E0
Equipment required (ADN) : PP, EP
Number of blue cones/lights (ADN) : 0

- Rail transport

Classification code (RID) : C2
Limited quantities (RID) : 1kg
Excepted quantities (RID) : E0
Packing instructions (RID) : P002, IBC08
Special packing provisions (RID) : B4
Mixed packing provisions (RID) : MP10
Portable tank and bulk container instructions (RID) : T3
Portable tank and bulk container special provisions (RID) : TP33
Tank codes for RID tanks (RID) : SGAN
Transport category (RID) : 2
Special provisions for carriage – Packages (RID) : W11
Colis express (express parcels) (RID) : CE10
Hazard identification number (RID) : 80

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

No REACH Annex XVII restrictions

PHOSPHORUS PENTACHLORIDE FOR SYNTHESIS is not on the REACH Candidate List

PHOSPHORUS PENTACHLORIDE FOR SYNTHESIS is not on the REACH Annex XIV List

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15.1.2. National regulations

Germany

12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

Netherlands

SZW-lijst van kankerverwekkende stoffen : The substance is not listed

SZW-lijst van mutagene stoffen : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling : The substance is not listed

Denmark

Recommendations Danish Regulation : Young people below the age of 18 years are not allowed to use the product
Pregnant/breastfeeding women working with the product must not be in direct contact with the product

15.2. Chemical safety assessment

No additional information available

SECTION 16: Other information

Full text of R-, H- and EUH-statements:

Acute Tox. 1 (Inhalation)	Acute toxicity (inhal.), Category 1
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Skin Corr. 1B	Skin corrosion/irritation, Category 1B
STOT RE 2	Specific target organ toxicity — Repeated exposure, Category 2
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H330	Fatal if inhaled.
H373	May cause damage to organs through prolonged or repeated exposure.
R14	Reacts violently with water
R22	Harmful if swallowed
R26	Very toxic by inhalation
R34	Causes burns
R48/20	Harmful: danger of serious damage to health by prolonged exposure through inhalation
C	Corrosive
T+	Very toxic
Xn	Harmful

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This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.