

MATERIAL SAFETY DATA SHEET

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**TALUNEX**

EC SAFETY DATA SHEET

ACCORDING TO DIRECTIVES 1907/2006 EEC

1. * IDENTIFICATION OF THE PREPARATION AND THE COMPANY

Product details – Trade name : **TALUNEX**
Active ingredient(s) : Aluminium Phosphide
Identification of the Product : Solid
GCPF code : TB (Tablet)
Company identification : Certis UK
1b Mill Way, Boscombe Down Business Park, Amesbury, Wiltshire SP4 7RX
Tel: 0044 (0) 1980 676500 Fax: 0044 (0) 1980 626555
Email: certis@certiseurope.co.uk. Web: www.certiseurope.co.uk

Use : biocide and plant protection products

Emergency Contacts : For advice on medical emergencies, fires, spillages or chemical hazards ONLY – phone 0870 190 6777.
: For further advice for medical professionals The National Poisons Information Service: Tel: 0870 600 6266 (UK only). Or Dublin Tel: 00353 1379 964/379966.
For further advice for veterinary surgeons: 020 7635 9195.

2. POSSIBLE HAZARDS

Symbol: F, T+, N



Dangerous for the environment



Highly flammable



Very toxic

R-Phrases:

| | |
|-------|---|
| 15/29 | Contact with water liberates toxic, extremely flammable gas |
| 21 | Harmful in contact with skin |
| 28 | Very toxic if swallowed |
| 32 | Contact with acids liberates very toxic gas |
| 50 | Very toxic to aquatic organisms |

3. COMPOSITION / INFORMATION ON HAZARDOUS INGREDIENTS

Preparation with ignition inhibiting additives.

| Chem. Characterisation | Concentration | Symbol | R-phrases | CAS-No. |
|---|--|-------------------|--------------------|------------|
| Aluminium phosphide | 57% | T+, F, N | R15/29-21-28-32-50 | 20859-73-8 |
| Chem. Characterisation | Concentration / TLV (Germany) | CAS-No. | | |
| Hydrogen phosphide | 0.1 ml/m ³ , 0.14 mg/m ³ / | 7803-51-2 | | |
| Odour threshold for hydrogen phosphide: from 0.02 up to 3 ppm depending on the sensitivity ^{1b)} | | | | |
| Ammonia | 50 ppm, 35 mg/m ³ | CAS-No. 7664-41-7 | | |
| Carbon dioxide | 5000 ppm, 9100 mg/m ³ | CAS-No. 124-38-9 | | |

4. FIRST-AID MEASURES

Inhalation: in case of headache, dizziness, feeling of constriction, difficult breathing and nausea immediately leave the danger zone and seek fresh air; consult a physician; inhale products for an acute treatment following exposition of smoke gas (eg a beclometosone (Ventolair®) spray).

Eye contact: remove rests of preparation with fluff-free cloth; rinse with plenty of water and apply eye drops only after no more powdery residues are visible.

Skin contact: remove any rests by brushing; only then use water for cleansing.

Special aids required for First Aid measures: have methyl prednisolon (application by physician) and products for acute treatment following exposition of smoke gas (eg a beclometosone (Ventolair®) spray) available.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media: the product itself does not burn; extinguish fires in the vicinity with dry sand or powder and then with CO₂

Extinguishing media that must not be used for safety reasons: water, extinguishers containing water

Special hazards from the substance itself, its combustion products or from its vapours: in case of fires hazardous combustion gases are formed: caustic phosphoric acid aerosols (phosphoric pentoxide)

Special protective equipment for fire fighting: respiratory equipment, see No. 8.1 below

6. ACCIDENTAL RELEASE MEASURES

See No's. 8 and 13 below

Person-related precaution measures: leave danger zone immediately; see No. 8 below

Environment protection measures: n.a.

Methods of cleaning up / taking up: n.a.

CERTIS EUROPE BV

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TALUNEX

7. * HANDLING AND STORAGE

Handling

Advice on safe handling: according to regulations for the handling of dangerous goods: Keep the German MAK Value of Hydrogen Phosphin (0.1 ml/m³) during the handling. The product must be kept under lock and key or stored in such a way that only experts have access to them. Skin and hair must be brushed free of residues in a well-ventilated place after contact and always after work and before washing, eating, drinking or going out in the rain.

Storage

Demands upon storerooms and containers: see No. 7.1.1

Further information on storage conditions:

Keep in a cool, well-ventilated place away from water, ambient humidity and acids. Never add water to this product.

Keep locked up and out of reach of children.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

see also No. 2.2: TLV

Respiratory protection: respiratory equipment suitable for hydrogen phosphide, filter B, colour grey

Hand protection: suitable gloves

for example Nitril and Latex gloves (AQL: 1,5) tested according to EN-3734-2 and EN374-3

Eye protection: n.a.

Body protection: suitable protective clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form: under the influence of ambient air the solid products develop gaseous phosphine

Colour: powder greyish-green; tyvek white

Odour: garlic or carbide-like

pH-value (20 °C): n.a.

Boiling point / range (in °C): n.a.

Melting point / range (in °C): aluminium phosphide > 500 °C¹¹⁾

Data relevant to safety:

Flash point in °C: n.a.

Inflammability: in contact with water / humidity, acids an extremely flammable gas is developed

Self-ignition: contains additives to prevent self-ignition

Fire enhancing properties: n.a.

Explosion danger in vol%:

Lower explosion limit: hydrogen phosphide 1.8^{1a)} (1.79-1.89)

Upper explosion limit: n.v.

Further information:

Vapour pressure: hydrogen phosphide 34.6 bar (20 °C)⁹⁾

Relative density (g/ml): n.a.

Settled appearance density: powder 0.95 vg/cm³

General solubility:

Solubility in water: not applicable due to composition

Liposolubility / solvent: n.t.

Distribution coefficient (n-octanol/water): n.a.

10. STABILITY AND REACTIVITY

Conditions to be avoided: see No. 7 above

Substances to be avoided: water and acids cause aluminium phosphide to decompose in a violent reaction into extremely flammable and toxic hydrogen phosphide.

Hazardous decomposition products: hydrogen phosphide, phosphoric pentoxide, phosphoric acid (No. 5.3)

Further information:

Stabilisers available: yes

Change of aggregation condition: Influence on safety: uncontrolled development of hydrogen phosphide can cause fires

11. TOXICOLOGICAL DATA

Acute toxicity:

Swallowing, LD₅₀ rat oral (mg/kg): aluminium phosphide: 8.7²⁾ Phostoxin: 11.5³⁾

Inhalation, LC₅₀ rat inhalative (4 hrs): hydrogen phosphide 11 ppm = 0.015 mg/l⁴⁾

Skin contact, LD₅₀ rat dermal (mg/kg): n.v.

Eye contact: n.v.

Chronical effect: none known

Sensitising effect: Gas-Ex-B: no skin sensitisation¹⁰⁾

Carcinogenic effect: -

Genotype varying effect: -

Reproduction endangering effect: -

Anaesthetising effect: -

Other information: inhalation and ingestion of large quantities may lead to very serious poisoning.

Highly dangerous after ½ to 1 hour are already 400-600 mg/m³ = 290-430 ppm Phosphine^{1c)}

IDLH (Immediately Dangerous to Life and Health) = 282 mg/m³ = 200 ppm Phosphine (US EPA, 1985)⁵⁾

12. ECOLOGICAL INFORMATION

TALUNEX

Ability to decompose: n.a.
 Reaction in sewerage plants: n.a.
 Aqueous toxicity: LC50 (rainbow trout, 96 hrs) = 9.7×10^{-3} ppm⁶⁾
 EC50 (daphnia magna, 24hrs) = 0.2 mg/l⁷⁾
 Ecotoxicity: phosphine decomposes in the atmosphere within 5 – 28 hours⁸⁾

13. DISPOSAL CONSIDERATIONS

For substance / preparation / residues: product: waste code #: 061301
 Recommendation: degassed material should be disposed of under observation of the prevailing regulations (waste code #: 061301)

14. TRANSPORT INFORMATION

Road-/rail transport acc. to ADR/RID:
 Class: 4.3, UN 1397, PG: 1
 Description of goods: Aluminium phosphide
 Labels: Dangerous when wet 4 = main risk
 Toxic = subsidiary risk
 Red (warning) board: starting 20 kgs net weight
 Remarks: limited quantities acc. to chapter 3.4 not possible

Sea transport acc. to IMDG-Code
 Class: 4.3 UN-No.: 1397 Packing Group I
 Proper shipping name: ALUMINIUM PHOSPHIDE
 Labels: Dangerous when wet 4 = main risk
 Toxic = subsidiary risk
 Marine pollutant: no
 EmS-Code: F-G, S-N

Air Transport acc. to IATA-DGR/ICAO-TI
 See sea transport and packaging instructions: 412
 Proper shipping name: Aluminium phosphide
 See sea transport
 Remarks: max. weight 1 kg/inner packaging, 15 kg/outer packaging cargo aircraft only

Transport by barge acc. to ADN/ADNR see road transport

15. REGULATIONS

Labeling according to German Regulations concerning dangerous goods including EC regulations (including Directive 1999/45/EC**).

Symbol: F, T+, N

Hazard description: highly flammable, very toxic, dangerous for the environment **

- R-phrases:
- R15/29 Contact with water liberates toxic, extremely flammable gases
 - R28 Very toxic if swallowed
 - R21 Harmful in contact with skin
 - R32 Contact with acids liberates very toxic gas
 - R50 Very toxic to aquatic organisms
- S-phases:
- 1/2 Keep locked up and out of reach of children
 - 3/9/14/49 Keep only in the original container in a well ventilated place. Away from humidity, water and acids
 - 30 Never add water to this product
 - 36/37 Wear suitable protective clothing and gloves
 - 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible)
 - 60 This material and/or its container must be disposed of as hazardous waste
 - 61 Avoid release to the environment. Refer to special instructions/safety data sheets.

Additional: Skin and hair must be brushed free of residues in a well-ventilated place after contact and always after work and before washing, eating, drinking or going out in the rain.

Symbol(s)



Additional information : Packaging must not be reused.

16. OTHER INFORMATION

LEGEND:

- * = changes from previous version
- ** = Classification/labelling according to Directive 1999/45/EC have to be applied for preparations within the scope of Directive 91/414/EEC (plant protection products) or Directive 98/8/EC (biocides) as from 30 July 2004.
- n.a. = not applicable
- n.t. = not tested
- n.v. = not available
- TLV = Threshold Limit Value

REFERENCES:

- 1) WHO Environmental Health Criteria 73: Phosphine and Selected Metal Phosphides: a) page 18, b) page 72, c) page 75
- 2) International Bio Research Inc., D-Hannover: Acute oral toxicity of Aluminium phosphide in rats (1.1.1977)
- 3) Hazleton Laboratories America, Inc.: Acute oral toxicity study in rats of Degesch Phostoxin formulation (1.12.1983)
- 4) Waritz, R.S. & Brown, R.M. (1975): Acute and subacute inhalation toxicities of phosphine, phenylphosphine and triphenylphosphine; Am. Ind. Assoc. J., **36**: 452-458
- 5) US Environmental Protection Agency: EPA chemical profile; Phosphine, Washington DC, 1985
- 6) Laboratory for Pharmacology and Toxicology, D-Hamburg: Prüfung der akuten Toxizität von Aluminiumphosphid an Regenbogenforellen (24.11.1984)
- 7) Ökolimna, D-Burgwedel: Daphnientoxizitätstest mit Aluminiumphosphid, 1986
- 8) Frank, R.; Rippen, G.: Verhalten von Phosphin in der Atmosphäre, Lebensmitteltechnik Juli/August 1987
- 9) Drägerwerk AG: Dräger-Röhrchen-Handbuch: Boden-, Wasser- und Luftuntersuchungen sowie technische Gasanalyse, Lübeck, 1993
- 10) Bioagri Laboratórios Ltda.: Evaluation of skin sensitisation of test substance DETIA GAS-EX-BSACHET DE 34g (27.07.2004)
- 11) Siemens Axiva GmbH & Co. KG, D-Frankfurt am Main: Aluminium phosphide technical: Melting point, boiling point, vapour pressure (09.07.2002)

The contents and format of this MSDS are in accordance with EC Commission Directive 93/112/EEC, 99/45/EC and 2001/58/EC.

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