



BEQUISA

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MATERIAL SAFETY DATA SHEET

1 - IDENTIFICATION OF THE PREPARATION AND COMPANY

ACCORDING TO DIRECTIVES 91/155 and 93/112/EEC

- 1.1 Product details - Trade name: GASTOXIN, GASTION, PHOSTEK, PHOSPHINON, TEKPHOS, FUMIGAS, ACOPIO, PHOSAMINE, FOSFORO DE ALUMINIO
- 1.2 Producer/Supplier: BEQUISA
Av. Antônio Bernardo, nº 3950 - Pq Industrial Imigrantes - São Vicente, SP – São Paulo – Brazil
- 1.3 Emergency telephone number: + 55-13-3565-1212 (home office)

2 - COMPOSITION / INFORMATION ON HAZARDOUS INGREDIENTS

Preparation with ignition inhibiting additives

- 2.1 Chem. Characterization / Concentration / Symbol / R-phrases / CAS-No. Aluminium phosphide 57% T+, F R 15/29-28-32 CAS-No. 20859-73-8
- * Ammonium carbamate Xn R 22 CAS-No. 111-78-0

- 2.2 Chem. Characterization / Concentration / TLV
Hydrogen phosphide 0.1 ml/m³ (ppm), 0.15 mg/m³ CAS-No. 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/m³ CAS-No. 7664-41-7
- * Carbon dioxide 5000 ppm, 9000 mg/m³ CAS-No. 124-38-9

3 - POSSIBLE HAZARDS

On contact with water or acids the product develops the highly inflammable and extremely poisonous hydrogen phosphide (phosphine); ammonia and carbon dioxide

- 3.1 For humans: see Nos. 11 and 15 below
- 3.2 For the environment: see No. 12 below

4 - FIRST AID MEASURES

- 4.1 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 a dexamethason (Auxiloson®) spray;
- 4.2 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.

- 4.3 Skin contact: remove any rests by brushing; only then use water for cleansing
- 4.4 Ingestion:
- 4.5 Special aids required for First Aid measures: have methyl prednisolon (application by physician) and dexamethason spray available

5 - FIRE-FIGHTING MEASURES

- 5.1 Suitable extinguishing media: the product itself does not burn; extinguish fires in the vicinity with dry sand or powder and than with CO²
- 5.2 Extinguishing media that must not be used for safety reasons: water, extinguishers containing water, halons

- 5.3 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)
- 5.4 Special protective equipment for firefighting: respiratory equipment, see No. 8.1 below

6 - ACCIDENTAL RELEASE MEASURES

See Nos. 8 and 13 below

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

- 6.2 Environment protection measures: n.a.
- 6.3 Methods for cleaning up / taking up: n.a.

7 - HANDLING AND STORAGE

- 7.1 Handling
- 7.1.1 Advice on safe handling: follow regulations for the handling of dangerous goods

- 7.2 Storage
- 7.2.1 Demands upon storerooms and containers: see No. 7.1.1
- 7.2.2 Further information on storage conditions:
Obviate contact with water, acids and ambient humidity

8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

See also No. 2.2: TLV

- 8.1 Respiratory protection: respiratory equipment suitable for hydrogen phosphide, filter B, color grey

- 8.2 Hand protection: suitable gloves
- 8.3 Eye protection:-
- 8.4 Body protection: suitable protective clothing

9 - PHYSICAL AND CHEMICAL PROPERTIES

- 9.1 Appearance:
9.1.1 Form: under the influence of ambient air the solid products develop gaseous phosphine
9.1.2 Color: greyish-green
9.1.3 Odour: garlic or carbide-like
- 9.2 pH-value (20 °C): n.a.
- 9.3 Boiling point / range (in °C): n.a.
- 9.4 Melting point / range (in °C): aluminium phosphide > 1350 °C
- 9.5 Data relevant to safety:
9.5.1 Flash point in °C: n.a.
9.5.2 Inflammability: highly inflammable, in contact with water a highly inflammable gas is developed
9.5.3 Self ignition: contains ignition-inhibiting additives
- 9.5.4 Fire enhancing properties: the product itself does not burn
- 9.6 Explosion danger in vol%:
9.6.1 Lower explosion limit: hydrogen phosphide 1,8
9.6.2 Upper explosion limit: not available
- 9.7 Further information
9.7.1 Vapour pressure: hydrogen phosphide 245 mbar (30°C)
9.7.2 Relative density (g/ml): tablets 1,8 g/cm³
9.7.3 Settled appearance density: n. a.
- 9.8 General solubility:
9.8.1 Solubility in water: not applicable due to decomposition
9.8.2 Liposolubility/solvent: not tested
9.8.3 Distribution coefficient (n-octanol/water): n.a.

10 - STABILITY AND REACTIVITY

- 10.1 Conditions to be avoided: see No. 7 above
- 10.2 Substances to be avoided: water and acids cause aluminium phosphide to decompose in a violent reaction into highly inflammable hydrogen phosphide
- 10.3 Hazardous decomposition products: hydrogen phosphide, phosphoric pentoxide, phosphoric acid (No. 5.3)
- 10.4 Further information
10.4.1 Stabilizers required:
10.4.2 Stabilizers available: yes
10.4.3 Change of aggregation condition:
Influence on safety: uncontrolled development of hydrogen phosphide can cause fires

11 - TOXICOLOGICAL DATA

- 11.1 Acute toxicity:
11.1.1 Swallowing, LD₅₀ rat oral (mg/kg): aluminium phosphide: 8.7
11.1.2 Inhalation, LC₅₀ rat inhalative (4hrs.): hydrogen phosphide 11 ppm = 0.015 mg/l⁴
11.1.3 Skin contact, LD₅₀ rat dermal (mg/kg): not available
11.1.4 Eye contact: not available
- 11.2 Chronical effect: none known
11.2.1 Sensitizing effect:
11.2.2 Carcinogenic effect:
- 11.2.3 Genotype varying effect:
11.2.4 Reproduction endangering effect:
11.2.5 Anaesthetizing effect:
- 11.3 Other information: inhalation and ingestion of large quantities may lead to very serious poisoning.
Highly dangerous after 1/2 to 1 hour are already 400-600 mg/m³ = 290-430 ppm
IDLH (Immediately Dangerous to Life and Health) = 282 mg/m³ = 200 ppm (US EPA, 1985)

12 - ECOLOGICAL INFORMATION

- 12.1 Ability to decompose: n.a.
- 12.2 Reaction in sewerage plants: n.a.
- 12.3 Aqueous toxicity: LC₅₀ (rainbow trout, 96 hrs.) = 9.7 x 10⁹ ppm
- EC₅₀ (daphnia magna, 24 hrs.) = 0.2 mg/l⁷
- 12.4 Ecotoxicity: phosphine decomposes in the atmosphere within 5 - 28 hours EC₅₀ (daphnia magna, 24 hrs.) = 0.2 mg/l⁷

13- DISPOSAL CONSIDERATIONS

- 13.1 For substance / preparation / residues
- 13.2 Recommendation: degassed material should be disposed of under observation of the prevailing regulations

14- TRANSPORT INFORMATION

- 14.1 Road-/rail transport acc. to ADR/RID:
14.1.1 class: 4.3 item 18a
14.1.2 Description of goods: 1397 Aluminium phosphide
14.1.3 Labels: Dangerous when wet 4 = main risk
Toxic = subsidiary risk
14.1.4 Red (warning) board: starting 5 kgs gross weight
14.1.5 Remarks: limited quantities acc. to Rn 2471a not possible
- 14.2 Sea transport acc. to IMDG-Code
14.2.1 class: 4.3 UN-No.: 1397 Packing Group I (DOT USA 12 B 65)
14.2.2 Proper shipping name: ALUMINIUM PHOSPHIDE
- 14.2.3 Labels: Dangerous when wet 4 = main risk
Toxic = subsidiary risk
Marine pollutant: no
- 14.2.4 EmS-No: 4.3-02 MFAG-Table-No.: 205
14.2.5 Remarks: Limited quantities acc. to section 18 not possible
- 14.3 Air transport acc. to IATA-DGR/ICAO-TI
14.3.1 See sea transport and packaging instructions: 412
14.3.2 Proper shipping name: Aluminium phosphide
14.3.3 See sea transport
14.3.4 Remarks:
- 14.4 Transport by barge acc. to ADN/ADNR see road transport

15- REGULATIONS

- Labelling according to dangerous Goods including EC regulations
- 15.1 Symbol: T+, F
- 15.2 Hazard description: extremely poisonous, highly inflammable
- 15.3 R-phrases: 15/29 - reacts with water by evolving poisonous and highly inflammable gases
26/28 - extremely poisonous when inhaled or ingested
- 15.4 S-phrases: 1/2-7/8-13-20/21-22-30-43-45
- 15.5 Additional: empty packaging must not be reused

16- ADDITIONAL INFORMATION

The above information is based on our present state of knowledge. It describes the product with respect to the safety measures required and should not therefore be construed as guaranteeing specific properties nor must it be altered or transferred to other products.

LEGEND: n.a.: = not applicable, n.t.: = not tested, TLV: = Threshold Limit Value