

Safety data sheet Phosphine

Creation date : 01.11.2005
Revision date : 04.11.2005

Version : 3.0

DE / E

SDS No. : 100
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1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY

Product name

Phosphine

Chemical formula PH₃

Known uses

Not known.

Company identification

Linde AG, Gas and Engineering, Linde Gas Division Seitnerstraße
70, D-82049 Höllriegelskreuth

Emergency phone numbers: 089-7446-0

2 COMPOSITION/INFORMATION ON INGREDIENTS

Substance/Preparation: Substance

Components/Impurities

CAS Nr: 7803-51-2

EEC Nr (from EINECS) : 232-260-8

Contains no other components or impurities which will influence the classification of the product.

3 HAZARDS IDENTIFICATION

Classification

Extremely flammable.

Spontaneously flammable in air.

Very toxic by inhalation.

Risk advice to man and the environment

Liquefied gas

4 FIRST AID MEASURES

Inhalation

Toxic by inhalation. Symptoms may include dizziness, headache, nausea and loss of co-ordination. Prolonged exposure to small concentrations may result in pulmonary oedema. Delayed adverse effects possible. Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.

Skin/eye contact

Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Obtain medical assistance

Ingestion

Ingestion is not considered a potential route of exposure.

5 FIRE FIGHTING MEASURES

Specific hazards

Escaping gas cannot be extinguished. Exposure to fire may cause containers to rupture/explode.

Hazardous combustion products

If involved in a fire the following toxic and/or corrosive fumes may be produced by thermal decomposition: Phosphorus oxides/acids

Suitable extinguishing media

Water Carbon dioxide Dry powder

Specific methods

If possible, stop flow of product. Move container away or cool with water from a protected position. Do not extinguish a leaking gas flame unless absolutely necessary. Spontaneous/explosive re-ignition may occur. Extinguish any other fire. Extinguish any other fire.

Special protective equipment for fire fighters

Use self-contained breathing apparatus and chemically protective clothing.

6 ACCIDENTAL RELEASE MEASURES

Personal precautions

Evacuate area. Eliminate ignition sources. Ensure adequate air ventilation. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.

Environmental precautions

Try to stop release. Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous. Reduce vapour with fog or fine water spray.

Clean up methods

Ventilate area.

7 HANDLING AND STORAGE

Handling and storage

Ensure equipment is adequately earthed. Suck back of water into the container must be prevented. Purge air from system before introducing gas. Do not allow backfeed into the container. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt. Keep away from ignition sources (including static discharges). Refer to supplier's container handling instructions. Observe "Technische Regeln Druckgase (TRG) 280 Ziffer 5" Prevent bottles from falling down Segregate from oxidant gases and other oxidants in store. Keep container below 50°C in a well ventilated place.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limit value

Value type

value

Note

TLV (ACGIH)

0,3 ppm

ACGIH 1995 - 1996

Germany - MAK

0,1 ppm

TRGS 900

Personal protection

Ensure adequate ventilation. Protect eyes, face and skin from liquid splashes. Do not smoke while handling product. Keep self contained breathing apparatus readily available for emergency use. While using gas cylinders use protective gloves and shoes

9 PHYSICAL AND CHEMICAL PROPERTIES

General information

Appearance/Colour: Colourless gas

Odour: Rotten fish Poor warning properties at low concentrations. Odour can persist.

Important information on environment, health and safety

Molecular weight: 34 g/mol

Melting point: -134 °C

Boiling point: -88 °C

Critical temperature: 51,6 °C

Autoignition temperature: < 85 °C

Flammability range: Pyrophoric.

Relative density, gas: 1,2

Relative density, liquid: 0,74

Vapour Pressure 20 °C: 34,6 bar

Solubility mg/l water: 300 mg/l

Other data

Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

10 STABILITY AND REACTIVITY

Stability and reactivity

May react violently with oxidants. Can ignite spontaneously in air. Fire cannot be put out. Can form violent, spontaneously explosive mixture in air.

11 TOXICOLOGICAL INFORMATION

Acute toxicity

Irritation to eyes, skin and respiratory tract. Damage to central nervous system. Delayed fatal pulmonary edema possible.

LC50/1h (ppm) 20 ppm

12 ECOLOGICAL INFORMATION

General

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May cause pH changes in aqueous ecological systems. Toxic to water organisms.

13 DISPOSAL CONSIDERATIONS

General

Avoid discharge to atmosphere. Do not discharge into any place where its accumulation could be dangerous. Do not discharge into areas where there is a risk of forming an explosive mixture with air. Waste gas should be flared through a suitable burner with flash back arrestor. Toxic and corrosive gases formed during combustion should be scrubbed before discharge to atmosphere. Contact supplier if guidance is required.

EWC Nr. 16 05 04

14 TRANSPORT INFORMATION

ADR/RID

Class 2 Classification Code 2TF

UN number and proper shipping name

UN 2199 Phosphine

UN 2199 Phosphine

ADR/RID-Labels 2.3,
2.1

Other transport information

Avoid transport on vehicles where the load space is not separated from the driver's compartment. Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency. Before transporting product containers ensure that they are firmly secured and: - cylinder valve is closed and not leaking - valve outlet cap nut or plug (where provided) is correctly fitted - valve protection device (where provided) is correctly fitted - there is adequate ventilation. - compliance with applicable regulations.

15 REGULATORY INFORMATION

Number in Annex I of Dir 67/548

Not included in Annex I.

EC Classification: Proposed by the industry

T+; R26, R12, R17, R34, R50 | F+; R12, R17

Labelling

- Symbols

T+ Very toxic.
F+ Extremely flammable.

- Risk Phrases

R12 Extremely flammable.
R17 Spontaneously flammable in air.
R26 Very toxic by inhalation.

- Safety Phrases

S1 Keep locked up.
S9 Keep container in well ventilated place.
S16 Keep away from ignition source - No smoking.
S33 Take precautionary measures against static discharges.
S36 Wear suitable protective clothing.
S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

Further national regulations

Regulations for the prevention of industrial accidents
Pressure Vessel Regulation
Gefahrstoffverordnung (GefStoffV)
Technical Regulations for hazardous substances (TRGS)

Water pollution class

according to §19 WGH Annex 1 : WGK 2 (water endangering)

16 OTHER INFORMATION

Ensure all national/local regulations are observed. Ensure operators understand the flammability hazard. Ensure operators understand the toxicity hazard. Users of breathing apparatus must be trained. Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out.

Advice

Whilst proper care has been taken in the preparation of this document, no liability for injury or damage resulting from its use can be accepted. Details given in this document are believed to be correct at the time of going to press.

Further informations

Kühn-Birett: Merkblätter gefährliche Arbeitsstoffe
Hommel: Handbook of dangerous goods
Linde safety advice

End of document