

SAFETY DATA SHEET

Product: UltraPhos® Phosphine Fumigant
Company: Specialty Gases Pty Ltd

Date Prepared: 8 Dec 2016

Replaces: 22 Jul 2013

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1 IDENTIFICATION

Product Name: UltraPhos® Phosphine Fumigant
Other Names: Phosphine gas
Uses: Fumigant
Supplier
Name: Specialty Gases Pty Ltd
Address: Suite 18, 12 Tryon Road, Lindfield, NSW 2070
Telephone: 1300 55 71 00
Emergency Telephone: 1300 55 71 00

2 HAZARDS IDENTIFICATION

Hazard Class and Category:

Flammable Gas Category 1
Gas Under Pressure, Liquefied Gas
Acute Toxicity (Inhalation) Category 2
Skin Corrosion/Irritation Category 1B
Hazardous to the Aquatic Environment, Acute Toxicity Category 1

Signal Word:

Danger

Hazard Statements:

H220 Extremely flammable gas
H280 Contains gas under pressure; may explode if heated
H330 Fatal if inhaled
H314 Causes severe skin burns and eye damage
H400 Very toxic to aquatic life



Precautionary Statements:

Prevention

Keep away from heat/sparks/open flames/hot surfaces - No smoking. Do not spray on an open flame or other ignition source.
Pressurized container: Do not pierce or burn, even after use.

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Do not breathe gas. Use only outdoors or in a well-ventilated area.
Wear respiratory protection.
Wash exposed skin thoroughly after handling.
Wear protective gloves/protective clothing/eye protection/face protection.
Avoid release to the environment.

Response

Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
Eliminate all ignition sources if safe to do so.

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
Wash contaminated clothing before reuse.

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.
Collect spillage.

Storage

Protect from sunlight. Store in a well-ventilated place. Keep container tightly closed. Store locked up.

Disposal

Dispose of contents/container in accordance with local regulations.

3 COMPOSITION AND INFORMATION ON INGREDIENTS

Substance Name	CAS Number	Concentration
Phosphine	7803-51-2	>90%

4 FIRST-AID MEASURES

First-Aid	
- Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, immediately

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	call an ambulance or emergency responder. Begin cardiopulmonary resuscitation (CPR), preferable using a bag-valve-mask. First responders/rescuers must use personal protective equipment including respiratory protection (SCBA preferred) during rescue.
- Skin Contact	Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Contact with liquid can cause burns. Do not use hot water when rinsing skin.
- Eye Contact	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- Ingestion	Not an expected route of exposure. If ingested: Rinse mouth. Do NOT induce vomiting.

**If poisoning occurs, contact a doctor or Poisons Information Centre.
Phone 13 11 26.**

5 FIRE-FIGHTING MEASURES

Suitable Extinguishing Equipment:	Dry chemical, carbon dioxide, water spray, alcohol resistant foams.
Flash Point:	Vapour/air mixtures can be explosive.
Explosion Limit Lower: Upper	1.6% 98.0%
Hazards from Combustion Products:	Releases phosphine gas which can decompose. When heated to decomposition releases phosphorous oxides.
Precautions for Fire-Fighters	Containers may rupture or explode. Leaking gas can be ignited from distance resulting in flash back. Stow away from tank ends. Fire-fighters should wear full protective equipment including chemical resistant clothing and SCBA. Fight fire from safe distance. Keep containers cool by spraying with water. Remove containers only if safe to do so.
HAZCHEM CODE	2PE

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6 ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures:

Do not enter potentially contaminated air unless monitoring has confirming concentrations are below allowable exposure limits. If concentration is above acceptable exposure limit or is not known or when handling the product wear suitable respiratory protection, eye and face protection and chemical resistant overalls, buttoned to the neck and wrist and chemical resistant gloves and chemical resistant, safety footwear. Self-contained breathing apparatus (SCBA) preferred if exposure limits might be exceeded.

Environmental Precautions:

Take precautions to prevent gas escaping but only if safe to do so.

Containment:

Shut off leakage if safe to do so. Prevent entry into waterways, drains and confined areas. Use water spray, fog or vapour-suppressing foam to knock down vapours or divert vapour clouds. Do not direct water at source of spill or leak.

Clean Up:

Volatile substance. Provide ventilation. Forced air ventilation using explosion resistant fan may be required. Avoid sources of ignition. Ensure all equipment used in clean-up is grounded.

7 HANDLING AND STORAGE

Handling:

Only use with adequate ventilation. Where concentration not known or monitoring has confirmed levels are above permitted exposure limits wear full protective equipment include self-contained breathing apparatus (SCBA). Do not handle if there is risk of ignition. Do not eat, drink or smoke when handling product.

Requirements for Storage Areas and Containers:

Store locked up. Protect from sunlight. Store in a well-ventilated, fire resistant place preferably outdoors away from sources of ignition. Store cylinders upright. Keep container tightly closed. Keep out of reach of children and unauthorised persons and away from dwellings, animals, food, feedstuffs, seeds and fertilisers.

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8 EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure Guidelines:

TWA: 0.3 ppm; 0.42 mg/m³ (SWA)

STEL: 1.0 ppm; 1.4 mg/m³ (SWA)

Engineering Controls:

Provide local ventilation if monitoring indicates levels above or could exceed permitted exposure levels. Ensure ventilation equipment is explosion resistant. Isolate all potential sources of ignition.

Personal Protective Equipment:

Respiratory Protection:

Full respiratory protection (self-contained breathing apparatus)

Eye and Face Protection:

Full facepiece respirator with combined dust and gas cartridge or supplied air respirator. Provide eye-wash and safety shower near potential areas of exposure.

Skin and Body Protection:

Chemical resistant clothing buttoned to neck and wrist and chemical resistant gloves and chemical resistant safety footwear. Provide eye-wash and safety shower near potential areas of exposure.

Thermal Hazards:

Liquid can cause burns. Wear resistant gloves if there is risk of exposure to liquid.

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Colourless gas
Odour:	Pungent. Fish or garlic like
pH:	Not applicable
Melting Point/Freezing Point:	-133°C
Initial Boiling Point & Boiling Range:	-87.7°C
Upper/Lower Flammability or Explosive Limits:	1.6% - 98.0%
Vapour Pressure:	2.93 x 10 ⁴ mm Hg (3.9 x 10 ⁶ Pa) at 25°C
Vapour Density:	1.17
Solubility:	Slightly soluble in water. Soluble in alcohol and ether.
LogP_{ow}:	Not available
Auto-Ignition Temperature:	100°C

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Decomposition Temperature:	Not available
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10 STABILITY AND REACTIVITY

Reactivity:

Hazardous polymerisation not known to occur.

Stability:

Stable up to 55°C

Conditions to Avoid:

Sources of ignition.

Incompatible Materials:

Oxidising agents, halogens, acids and copper, silver and gold (and their salts).

Hazardous Decomposition Products:

Phosphorous oxides, hydrogen

11 TOXICOLOGICAL INFORMATION

Acute Toxicity:

Oral:

Not a likely source of exposure.
Oral exposure to liquid can result to burns and inhalation of gas.

Inhalation:

Highly Toxic: LC50 4 hr: 34 mg/m³ (rats)

Dermal:

Can cause burns.

Skin Corrosion/Irritation:

Exposure to liquid can cause burns.

Eye Damage/Irritation:

Exposure to liquids can cause serious damage to eyes

Sensitisation:

Not a sensitiser

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Carcinogenicity:

None of the components are classified as carcinogens

Target Organ Toxicity:

Single Exposure:

Respiratory system, Nervous system including central nervous system,
Cardiovascular system, Liver, Digestive system

Repeated Exposure:

Respiratory system, Nervous system

12 ECOLOGICAL INFORMATION

Ecotoxicity:

A fumigant that can be lethal to organisms if organisms are exposed to the gas.

Persistence and Degradability:

No data available.

Bioaccumulation Potential:

No data available

Other Adverse Effects:

No data available.

13 DISPOSAL CONSIDERATIONS

Disposal of Containers:

Cylinders remain the property of Specialty Gases Pty Ltd. Return empty cylinders to supplier. Empty cylinders and close valves before returning

14 TRANSPORT INFORMATION

Classified as Dangerous Goods for Transport within by Road and Rail according to the criteria of ADG 7.

UN Number:	UN 2199
Proper Shipping Name:	PHOSPHINE
Class:	2.3 (2.1)

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Packing Group:	Not applicable
Special Precautions:	Store cylinders upright. Avoid exposure to temperatures above 55°C.
HAZCHEM	2PE

15 REGULATORY INFORMATION

Poison Scheduling:	S7
APVMA Registration No:	68499
Other:	

16 OTHER RELEVANT INFORMATION

Glossary:

BCF: Bioconcentration Factor - a measure for the characterization of the accumulation of a chemical in an organism. It is defined as the concentration of a chemical in an organism (plants, microorganisms, animals) divided by the concentration in a reference compartment (e.g. food, surrounding water).

EC₅₀: Concentration of a substance in an environmental medium expected to produce a certain effect in 50% of test organisms in a given population under a defined set of conditions.

Explosive Limits - The range of concentrations (% by volume in air) of a flammable gas or vapour that can result in an explosion for ignition in a confined space.

K_{oc} - the organic carbon partition coefficient (mL soil water /g organic carbon).

LC₅₀ - The concentration of chemical in air or water that will kill 50% of the test organisms.

LD₅₀ - The dose of a chemical that will kill 50% of the test animals receiving it.

pH - Measure of how acidic or alkaline a material is using a 1 - 14 scale. pH 1 is strongly acidic and pH 14 strongly alkaline.

P_{ow} - The octanol-water partition coefficient. Commonly used to indicate potential the fate of chemicals in the environment.

SWA: Safe Work Australia.

STEL - Short Term Exposure Limit. The maximum concentration workers can be exposed to a contaminant in air for up to 15 minutes without suffering adverse effects.

TWA - Time Weighted Average. The average concentration of a chemical in air over the total exposure time - usually an 8 hour work day.