

# Safety Data Sheet

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**REVISION (see box 16)**

Issue : 04 14 : 06 : 2007

1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY	
Product Name	<b>DEGESCH PLATES</b>
Description	The plates measure approximately 17 x 28 cm, consisting of a polyethylene matrix incorporating magnesium phosphide. Each plate is coated with a yellow paper outer and sealed in an aluminium foil sachet. On contact with moisture, phosphine is produced, which has a garlic/ammoniacal odour. Phosphine is a fumigant, for use against insects, which infest stored commodities, processed food and animal feed.
Company	Rentokil Initial Supplies, Liverpool, L33 7SR. Product advice line: 0151 548 5050 Emergency line: 01342 833022 E-mail: <a href="mailto:techinfo@rentokil-initial.com">techinfo@rentokil-initial.com</a>

2 HAZARD IDENTIFICATION	
Classification (Supply – Use) : In compliance with EC Directive 1999/45.	
<b>F</b>	<b>Highly Flammable</b> R15/29 Contact with water liberates toxic, extremely flammable gas.
<b>T+</b>	<b>Very Toxic</b> R26/28 Very toxic by inhalation and if swallowed.
<b>N</b>	<b>Dangerous for the Environment</b> R50 Very toxic to aquatic organisms.
<b>Adverse Physical, Chemical, Significant Human Health and Environmental Effects (See also box 11):</b>	
Contact with water liberates toxic, extremely flammable gas. Contact with acid liberates very toxic gas. Spontaneous combustion can arise due to sudden release of phosphine gas if a sachet, having been opened once, is then re-opened. Mild exposure by inhalation causes malaise, ringing in the ears, fatigue, nausea and pressure in the chest. Moderate poisoning causes weakness, vomiting, and pains just above the stomach and in the chest, diarrhoea and difficulty in breathing. In severe cases coma, convulsions, pulmonary oedema and death occur. Adverse effects on the environment are unlikely, provided that the product is used as intended.	

3 COMPOSITION / INFORMATION ON INGREDIENTS (SEE ALSO BOX 16)		
% w/w	Common*/Chemical Name, ELINCS/EINECS & CAS No. of Ingredients	EC 1999/45 Classification
56%	Magnesium Phosphide EINECS : 235-023-7 CAS : 12057-74-8	F : R15/29 T+ : R26/28 N : R50
>25.0 ≤50.0%	NB: the hazard from this product is caused by the evolution of phosphine gas on contact with atmospheric moisture. Phosphine EINECS : 232-260-8 CAS : 7803-51-2	F+ : R12, R17 T+ : R26 C : R34 N : R50

## DEGESCH PLATES

<b>4 FIRST-AID MEASURES (SEE ALSO “ADVERSE EFFECTS” IN BOX 2)</b>	
<b>Inhalation</b>	Do not enter contaminated atmosphere, otherwise, wear self-contained breathing apparatus. Remove patient to fresh air, keep warm and at rest. Apply supportive measures if necessary, DO NOT give mouth-to-mouth resuscitation. Seek medical attention.
<b>Eye Contact</b>	Rinse affected eye with clean running water, or eyewash solution, for at least 15 minutes holding eyelids well apart. Rinse entire surface and do not allow run-off to contaminate unaffected eye. Seek medical attention.
<b>Skin Contact</b>	Remove and wash contaminated clothing immediately. Wash affected area thoroughly with soap and water. If the patient feels unwell seek medical advice.
<b>Ingestion (Swallowing)</b>	Do NOT induce vomiting. If unconscious place in the recovery position and apply supportive measures if necessary. If conscious give patient up to ½ litre or 1 pint of water to drink. Seek medical attention.
<b>Emergency Equipment Suggested</b>	Appropriate first-aid equipment should be provided. For the UK this should be in accordance with the Health & Safety (First-Aid) Regulations 1981. See also the Approved Code of Practice “First-aid at Work”.
<b>Note To Doctor</b>	Further information on all Rentokil Initial formulations is lodged with the National Poisons Information Service in the UK.

<b>5 FIRE FIGHTING MEASURES</b>	
<b>Fire Extinguisher Type</b>	DO NOT USE WATER. Use carbon dioxide, sand or dry powder extinguishers.
<b>Special Fire-Fighting Procedures</b>	Wear suitable personal protective equipment.
<b>Special Exposure Hazards</b>	On contact with water, phosphine gas is evolved. Fires containing phosphine or metal phosphides may produce phosphoric acid.

<b>6 ACCIDENTAL RELEASE MEASURES</b>	
<b>Personal Precautions (See also box 8)</b>	Wear suitable personal protective equipment.
<b>Environmental Precautions</b>	This product is classified as dangerous for the environment. Keep away from drains, surface and ground water, and soil.
<b>Clean-up Procedure (See also box 13)</b>	Evacuate the spillage area and ensure area is well ventilated. Wear a suitable respirator fitted with an appropriate gas filter cartridge (which also meets P3 standard for particulates) and personal protective equipment, carefully transfer plates into a bucket containing water and detergent. Afterwards adequately ventilate spillage area. It is advisable to establish that the environment is free from phosphine gas using appropriate gas sampling equipment such as Kitagawa or Draeger measurement units. If the spillage occurs outdoors, work upwind from the area.

<b>7 HANDLING AND STORAGE (SEE ALSO BOX 8)</b>	
<b>Handling</b>	At least two operators should be present. Open container outdoors immediately before use and ensure the container is pointing away from you. Read the product label carefully for further instructions about handling and usage.
<b>Storage</b>	Store in original container in a cool, dry, well-ventilated place out of the reach of children and away from food, drink and animal feeding stuffs. Store in a safe place under lock and key. DO NOT store open sachets. DO NOT re-seal opened sachets. Spontaneous combustion can arise due to a sudden release of phosphine gas if a sachet having been opened once, is then re-opened.

<b>8 EXPOSURE CONTROLS/PERSONAL PROTECTION</b>	
<b>Exposure Standard - Directive EC/98/24 (1<sup>st</sup> IOELV Directive)</b>	Workplace Exposure Limit (WEL) for phosphine is 0.42 mg/m <sup>3</sup> short-term exposure (15 minute reference period).
<b>Engineering Controls</b>	Where exposure may occur, engineering controls, rather than the provision of Personal Protective Equipment (PPE) should be employed. On completion of a risk assessment, the following PPE may be required:
<b>Eye Protection</b>	When opening, point sachet away from face and other people. Wear suitable respiratory protection such as a full-face respirator with appropriate gas filter cartridge (which also meet P3 standard for particulates), or other respiratory equipment offering equivalent protection.
<b>Hand Protection</b>	Suitable hand protection such as gloves.
<b>Skin Protection</b>	Suitable skin protection such as coveralls.
<b>Breathing Protection</b>	Suitable respiratory protection such as a full-face respirator with appropriate gas filter cartridge (which also meet P3 standard for particulates), or other respiratory equipment offering equivalent protection.
<b>Environmental Exposure Controls</b>	Product should be used in accordance with instructions given on the label and HSE guidance documents: CS22: Fumigation and Pesticides: Code Of Practice for the Safe Use of Pesticides on farms and Holdings. Any spillage should be dealt with as a priority in order that contamination of watercourses or ground is avoided.

## DEGESCH PLATES

## 9 PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance and Odour</b>	The plates measure approximately 17 x 28 cm, consisting of a polyethylene matrix incorporating magnesium phosphide. Each plate is coated with a yellow paper outer and sealed in an aluminium foil sachet. On contact with moisture, phosphine is produced, which has a garlic/ammoniacal odour.		
<b>pH</b>	Not applicable.	<b>Solubility in Water</b>	Phosphine: 22.8 cm <sup>3</sup> /100 mL at 17°C
<b>Density</b>	Phosphine: 1.17 (air = 1.0)	<b>Solubility in Other Solvents</b>	Phosphine: Alcohol: 286 cm <sup>3</sup> / 100 mL at 25°C
<b>Flash Point</b>	Not applicable.	<b>Explosive Properties</b>	Lower explosion limit: phosphine: 1.8 (1.79-1.89).
<b>Flammability</b>	Highly flammable gas released on contact with moisture.	<b>Combustibility</b>	Phosphine is spontaneously combustible at concentrations over 1.8% (25 mg/m <sup>3</sup> )
<b>Boiling Point</b>	Not determined.	<b>Oxidising Properties</b>	Phosphine is corrosive to metals, especially copper or copper containing alloys.
<b>Vapour Density</b>	Not determined.	<b>Evaporation Rate</b>	Not determined.
<b>Vapour Pressure</b>	Phosphine: 34.6 bar (20°C)	<b>Partition Coefficient</b>	Not applicable.
<b>Viscosity</b>	Not applicable.	<b>Other Data</b>	Melting Point: For magnesium phosphide: >500°C

## 10 STABILITY AND REACTIVITY

<b>Conditions to avoid</b>	Avoid extremes of temperature and damp. DO NOT use in wet weather (contact with water liberates phosphine gas).
<b>Materials to avoid</b>	Avoid contact with water, oxidising agents and dilute strong acids. Phosphine may corrode metals such as copper, copper alloys, gold and silver. Photographic film and some inorganic pigments are also sensitive to phosphine.
<b>Hazardous Breakdown Products</b>	On contact with water, phosphine gas is evolved. Fires containing phosphine or metal phosphide may produce phosphoric acid.

## 11 TOXICOLOGICAL INFORMATION (SEE ALSO BOX 2)

<b>Acute Toxicity</b>	Oral	For magnesium phosphide: LD <sub>50</sub> (rat): 11.2 mg/kg.
	Inhalation	For magnesium phosphide: LC <sub>50</sub> (rat) (4hr) : 0.015 mg/L.
	Dermal	Not determined.
<b>Corrosivity/Irritation</b>	Skin	May cause irritation to skin.
	Eyes	May cause irritation to eyes.
	Respiratory tract	Inhalation of phosphine may cause severe pulmonary irritation.
<b>Sensitisation</b>	Skin	Contains no known skin sensitisers.
	Respiratory	Contains no known respiratory sensitisers.
<b>Repeat-Dose Toxicity</b>		Product does not contain any components known to have any effects relating to repeated-dose toxicity.
<b>Mutagenicity</b>		Product does not contain any components known to have a mutagenic effect.
<b>Carcinogenicity</b>		Product does not contain any components known to have a carcinogenic effect.
<b>Reproductive Toxicity</b>	Fertility	Product does not contain any components known to have effects on fertility.
	Development	Product does not contain any components known to be toxic to the reproductive system.
<b>Other Information</b>		There is no effective treatment for phosphine poisoning. Phosphine directly inhibits cytochrome oxidase in an action similar to that of cyanide. Symptoms of poisoning include: epigastric burning, vomiting, thirst, cardiovascular collapse, acidosis and hypokalaemia.

## 12 ECOLOGICAL INFORMATION

<b>General Information</b>	This product is classified as very toxic to aquatic organisms. However, when used in accordance with instructions given, controlled release of this product is not expected to cause environmental contamination.
<b>Ecotoxicity Data</b>	For aluminium phosphide: LC <sub>50</sub> : Rainbow trout (96hr) : 0.0097 ppm. EC <sub>50</sub> : <i>Daphnia magna</i> (24h) = 0.2 mg/L
<b>Mobility</b>	Not determined.
<b>Persistence and Degradability</b>	Phosphine gas is produced when Degesch Plates come into contact with moisture. Phosphine decomposes in the atmosphere within 5-28 hours.
<b>Bioaccumulative Potential</b>	Not determined.
<b>Other Adverse Effects</b>	None known.

