

Safety Data Sheet

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REVISION (see box 16)

Issue: 16

08:03:2013

SECTION 1 Identification of the Substance/Mixture and Company

1.1 Product identifier	PHOSTOXIN	MAFF 09315
1.2 Relevant identified uses of the mixture and uses advised against	A vertebrate control agent for professional use. Spherical tablets supplied in an aluminium flask. The phosphine gas, which is produced when the tablets come into contact with moisture, has a garlic or carbide odour.	
1.3 Details of the supplier of the safety data sheet	Rentokil Initial Supplies, Liverpool, L33 7SR, UK. Product advice line: +44 (0)151 548 5050 Emergency line: +44 (0)1342 833 022 E-mail: sds@rentokil.com	
National contact	Rentokil Initial Supplies, Liverpool, L33 SR, UK. Product advice line: +44 (0)151 548 5050 Emergency line: +44 (0)1342 833 022	
1.4 Emergency telephone number	0844 892 011 (for use by medical professionals only).	

SECTION 2 Hazards Identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Not applicable. See section 16.

Classification according to Directive 1999/45/EC (See section 16)

F+	Highly flammable	R15/29
T+	Very toxic	R21 R26/28 R32
N	Dangerous to the environment	R50

2.2 Label elements



Highly flammable
Very Toxic
Dangerous for the Environment

Risk phrase(s) (R), in full / Hazard Statement(s) (H), in full.	R15/29: Contact with water liberates toxic, extremely flammable gas R21: Harmful in contact with skin R26/28: Very toxic by inhalation and if swallowed R32: Contact with acids liberates very toxic gas R50: Very toxic to aquatic organisms Hazard statements are a requirement of Regulation (EC) No. 1272/2008 and will be listed when available.
Safety phrase(s) (S), in full / Precautionary Statement(s) (P), in full.	S1/2 Keep locked up and out of reach of children S3/9/49 Keep only in the original container in a cool well-ventilated place. S7/8 Keep container tightly closed and dry. S22 Do not breathe dust. S28 After contact with skin, wash immediately with plenty of soap and water. S30 Never add water to this product. S36/37 Wear suitable protective clothing and gloves. S38 In case of insufficient ventilation wear suitable respiratory equipment. S43 In case of fire, use dry sand, powder or carbon dioxide extinguishers. Never use water. S45 In case of accident or if you feel unwell seek medical advice immediately (show the label where possible). S57 Use appropriate containment to avoid environmental contamination. S60 This material and its container must be disposed of as hazardous waste. S61 Avoid release into the environment. Refer to special instructions/safety data sheet. Precautionary statements are not required.

To avoid risks to man and the environment, comply with the instructions for use.

2.3 Other hazards

Contact with water liberates toxic, extremely flammable gas. Contact with acids liberates very toxic gas. Spontaneous combustion can arise due to sudden release of phosphine gas if a flask, 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.

SECTION 3 Composition / Information on Ingredients (see section 16)

3.2 Mixtures

% w/w	Common*/Chemical name (IUPAC)	CAS No.	EC No.	Index No.	REACH Registration No.	Directive 67/548/EEC classification	Regulation (EC) No 1272/2008 classification
56-57	Aluminium phosphide	20859-73-8	244-088-0	015-004-00-8	-	F: R15/29 T+: R28 R32 N: R50	Water-react 1: H260 EUH 029 Acute tox 2: H300 EUH 032 Aquatic Acute 1 : H400
>25.0 ≤50.0	Ammonium carbamate*	111-78-0	214-185-2	-	-	Xn R22	Not available
>2.5 ≤10.0	Ammonia*	7664-41-7	231-635-3	-	-	C R34 N R50	Not available
>50.0	Aluminum hydroxide	21645-51-2	244-492-7	-	-	Xi R36/37/38	Not available
>25.0 ≤50.0	Phosphine*/Hydrogen phosphide	7803-51-2	232-260-8	-	-	F+ R12 R17 C R34 R26 N R50	Not available

SECTION 4 Section First-Aid Measures

4.1 Description of first aid measures

Inhalation	Do not enter contaminated atmosphere, otherwise where 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 advice immediately.
Eye Contact	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 immediately.
Skin Contact	Remove immediately, brush, or shake any residues from clothing and skin in a well-ventilated area. Allow clothes to aerate for a number of hours prior to machine washing. Seek medical attention immediately.
Ingestion (Swallowing)	If unconscious place in the recovery position and apply supportive measures if necessary. Seek medical attention immediately.

4.2 Most important symptoms and effects both acute and delayed

Emergency Equipment Suggested	Appropriate first-aid equipment should be provided.
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4.3 Indication of any immediate medical attention and special treatment needed

Note To Doctor	Further information on all Rentokil Initial formulations is lodged with the local National Poisons Information Service.
Antidote	No known antidote.

SECTION 5 Fire Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media	The product itself does not burn, extinguish fires in the vicinity with dry sand or powder and then with carbon dioxide.
Unsuitable extinguishing media	DO NOT USE WATER or extinguishers containing water.
5.2 Special hazards arising from the mixture	In case of fires hazardous combustion gases are formed; caustic phosphoric acid aerosols (phosphide pentoxide)
5.3 Advice for fire fighters	Wear self contained breathing apparatus and suitable personal protective equipment conforming to EN469.

SECTION 6 Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures	Wear and use suitable personal protective clothing and equipment including self-contained breathing apparatus (SCBA). All clothing and equipment should be machine washed immediately after use.
6.2 Environmental precautions	This product is classified as dangerous for the environment. Keep away from drains, surface and ground water, and soil. Notify authorities if product enters sewers or public waters.
6.3 Methods and material for containment and cleaning up	Evacuate the spillage area and ensure the area is well-ventilated. Wear and use suitable protective clothing and equipment including SCBA. Prevent dispersion. Clean up the remainder carefully. DO NOT USE WATER for cleaning. The area should be kept secure and aerated until checked for zero gas concentration using appropriate gas sampling equipment. Remove as hazardous waste, according to National or local legislation.
6.4 Reference to other sections	Please also see sections 8 and 13 for further information.
Additional information	None.

SECTION 7 Handling and Storage

7.1 Precautions for safe handling	Open the flask outdoors immediately before use and ensure it is pointing away from you. Read the product label carefully for further instructions about handling and usage.
7.2 Conditions for safe storage, including any incompatibilities	Store in original flask in a cool dry, ventilated place out of reach of children and away from food, drink and animal feeding stuffs. USE ALL THE CONTENTS OF THE FLASK. DO NOT RE-SEAL. Spontaneous combustion can arise due to a sudden release of phosphine gas if a flask having been opened once is then re-opened.
7.3 Specific end use(s)	Plant Protection Product and Biocide.

SECTION 8 Exposure Controls/Personal Protection

8.1 Control Parameters

Exposure standard - Directive 98/24/EC (1st IOELV Directive)	Workplace Exposure Limit (WEL) long-term exposure (8 hour Time Weighted Average)	WEL for phosphine is 0.14 mg/m ³
	Workplace Exposure Limit (WEL) short-term exposure (15 minute reference period)	WEL for phosphine is 0.28 mg/m ³
	Substance name used in Directive EC/98/24 (1st IOELV Directive)	Not applicable.

8.2 Exposure controls

Appropriate engineering controls	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.
Individual Protection Measures	
Eye/face protection	When opening the flask, point away from face and other people. Wear a full-face respirator with appropriate filter cartridge (which also meets P3 standard for particulates) or SCBA. (Contact your PPE supplier for advice on suitable PPE and RPE).
Hand protection	Suitable hand protection such as synthetic rubber/PVC gloves.
Skin/body protection	Suitable skin protection such as coveralls.
Respiratory protection	Suitable respiratory protection such as a full-face respirator with appropriate gas filter cartridge (which also meets P3 standard for particulates) or SCBA. (Contact your PPE supplier for advice on suitable PPE and RPE).
Environmental Exposure Controls	Use only in accordance with instructions given. Any spillage should be dealt with a priority in order that contamination of watercourses is avoided.

SECTION 9 Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Appearance, odour and physical state	Grey spherical tablets. The phosphine gas has a garlic or carbide odour.		
pH	Not applicable.	Solubility in water	Not applicable due to decomposition.
Density	Aluminium phosphide: 2.3 g/cm ³	Solubility in other solvents	Not determined.
Specific gravity	Not applicable.	Explosive properties	Hydrogen phosphide: LEL 1.8% v/v (1.79-1.89)
Flash point	Not applicable.	Combustibility	Hydrogen phosphide (phosphine) is spontaneously combustible at concentrations over 1.8% v/v.
Flammability	Extremely flammable.	Oxidising properties	Not determined.
Boiling Point / Range	Phosphine: -87.4°C	Evaporation rate	Not applicable.

Vapour Density	Phosphine: 1.2 (air = 1)	Partition coefficient	Not applicable.
Vapour pressure	Hydrogen phosphide: 34.6@20°C	Decomposition temperature	Not determined.
Melting point / Freezing point	Not determined.	Auto-ignition temperature	Not determined.
9.2 Other information			
Upper/lower flammability or explosive limits	Not applicable.	Other safety information	None known.
Viscosity	Not determined.		

SECTION 10 Stability and Reactivity

10.1 Reactivity	Highly reactive when in contact with water or acids, produces extremely flammable and very toxic hydrogen phosphide (phosphide), ammonia and carbon dioxide.
10.2 Chemical stability	Contact with water or acids, produces extremely flammable and very toxic hydrogen phosphide (phosphide), ammonia and carbon dioxide.
10.3 Possibility of hazardous reactions	On contact with water or acids, produces extremely flammable and very toxic hydrogen phosphide (phosphide), ammonia and carbon dioxide.
10.4 Conditions to avoid	Avoid contact with water, acids and ambient humidity. Phosphine gas is considered to be corrosive to copper, copper alloys, silver and gold.
10.5 Incompatible materials	Avoid contact with water and acids as this will cause aluminium phosphide to decompose in a violent reaction into extremely flammable and very toxic hydrogen phosphide.
10.6 Hazardous decomposition products	Hydrogen phosphide, phosphoric pentoxide and phosphoric acid.

SECTION 11 Toxicological Information (see also box 2)

11.1 Information on toxicological effects		
Acute Toxicity	Oral	For aluminium phosphide: LD ₅₀ (rat): 8.7 mg/kg For Phostoxin: LD ₅₀ (rat): 11.5 mg/kg
	Inhalation	For hydrogen phosphide (phosphine): LC ₅₀ (rat) (4h): 11 ppm = 0.015 mg/L LC ₅₀ (rat)(6h): >15 mg/m ³
	Dermal	For aluminium phosphide: LD ₅₀ (rat): 500-1000 mg/kg
Corrosivity/ Irritation	Skin	Not classifiable as a skin irritant.
	Eyes	Contact with water liberates very toxic highly flammable gas which is damaging to the eyes.
	Respiratory tract	Contact with water liberates very toxic highly flammable gas which is damaging to the respiratory system.
Sensitisation	Skin	Contains no known skin sensitisers.
	Respiratory	Contains no known respiratory sensitisers.
Repeat-Dose Toxicity	Product does not contain any components known to have any effects relating to repeated-dose toxicity.	
Mutagenicity	Product does not contain any components known to have a mutagenic effect.	
Carcinogenicity	Product does not contain any components known to have a carcinogenic effect.	
Reproductive Toxicity	Fertility	Product does not contain any components known to have effects on fertility.
	Developmental	Product does not contain any components known to be toxic to the reproductive system.
Other data	MISUSE OF THIS PRODUCT CAN BE FATAL. There is no effective treatment for phosphine poisoning. Less than one sixth of a 3g tablet (0.5g) is a fatal dose for a 70kg human, ingested or inhaled. Phosphine directly inhibits cytochrome oxidase is an action similar to that of cyanide. Symptoms of poisoning include: epigastric burning, vomiting, thirst, cardiovascular collapse, acidosis and hypokalemia (potassium deficiency). IDLH (Immediately Dangerous to Life and Health) = 50ppm phosphine.	

SECTION 12 Ecological Information

12.1 Toxicity



General information	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.
Ecotoxicity data	For Phostoxin: LC ₅₀ (Rainbow Trout) (96h): 9.7 x 10 ³ ppm. EC ₅₀ (<i>Daphnia magna</i>) (24h): 0.2 mg/L
12.2 Persistence and degradability	Phosphine decomposes in the atmosphere within 5-28h.
12.3 Bioaccumulative potential	This product is not expected to bioaccumulate.
12.4 Mobility in soil	Not determined.
12.5 Results of PBT and vPvB Assessment	No data available.
12.6 Other Adverse Effects	None known.

SECTION 13 Disposal Considerations

13.1 Waste treatment methods	All pesticides must be disposed of as hazardous waste. Never wash out empty flasks with water. Once pest control activity has been completed, ensure that all residues of product are removed. Empty the flasks completely at site of use by upending and tapping the flask so that any remaining powder residue is deposited in the treatment burrow or run. Check that the flask is visibly empty. If residue remains repeat upending and tapping until fully removed. Ensure that the empty flask is kept dry. Tap out any residues from the applicator at the site of use as for the flasks.				
Product/packaging disposal	<p>Disposal of waste flasks: Handle and store empty flasks as if they still contained product. Flasks must never be rinsed or cleaned. Screw the cap back onto the empty flask loosely (this action should only be carried out prior to transporting to designated storage area, flasks should not be re-capped if they still contain tablets, ensure that all product is used during the pest control treatment), this will help to ensure that any gas generated within the flask during transport from the treatment area is contained. Place the flask into a suitable bag. Label the bag and place the written confirmation that the waste treatment methods have been completed, date and sign. Seal the bag using tie wraps. Once at designated storage area and prior to waste collection, whilst wearing a full-face respirator with appropriate gas filter cartridge (which also meets P3 standard for particulates) or SCBA (contact your PPE supplier for advise on suitable PPE and RPE) and whilst wearing suitable gloves and skin protection such as rubber/PVC gloves and coveralls, remove the flask from the sealed bag. Remove caps, taking care and pointing flask away from face and other people, as any generated gas may be present. Invert the flasks on a mesh shelf in a secure caged area until all gas has vented from the flask. We recommend venting the flasks for 48 hours. Once venting is complete, re-cap flask and replace into and seal the plastic bag. Record on the written confirmation that the flasks have been vented. Store in a designated secure storage area until collection by a licensed waste-disposal contractor.</p> <p>Disposal of used PPE (gloves, coveralls, respirators): Place used PPE in plastic bags and seal. Dispose of as hazardous waste, EWC code 15 02 02*.</p> <p>Disposal of unusable product: Pack and seal, using tie wraps any flasks and/or cartons containing the product, which has been subject to damage or is otherwise unusable into a clear plastic bag. Consult Rentokil for advice on disposal</p> <p>Disposal of applicators: Exposure to atmospheric moisture should be sufficient to ensure that applicators will not be contaminated. However, do not carry or keep contaminated applicators in confined spaces. If the applicator is to be disposed, place in a plastic bag and seal with tie wraps. Dispose of the applicator as hazardous waste EWC code 15 01 10*.</p>				
Classification (Council Directive 91/689/EC, Commission Decision 2000/532/EC (amended) Commission Decision 2001/118/EC))	<p>Hazard Code: Packaging containing residues or contaminated by Phostoxin EWC –15 01 10* Redundant Phostoxin stock, damaged containers EWC - 20 01 19 H12 - Produces toxic gases in contact with water, air or acids H14 – Ecotoxic H3A(v) – Highly flammable H6 – very toxic</p> <table border="1"> <thead> <tr> <th>Substances making the waste hazardous:</th> <th>Concentrations (%):</th> </tr> </thead> <tbody> <tr> <td>Aluminium phosphide</td> <td>56-57%</td> </tr> </tbody> </table>	Substances making the waste hazardous:	Concentrations (%):	Aluminium phosphide	56-57%
Substances making the waste hazardous:	Concentrations (%):				
Aluminium phosphide	56-57%				
Note for Disposal	The best means of disposal of any product is through proper use according to the label. Disposal must be in accordance with Local, State or National Requirements.				

SECTION 15 Transport Information (International unless otherwise indicated)

ADR 2011 (International Road) / IMDG 2010 (Sea)

14.1 UN No.	UN1397	RIS Code	-
14.2 Proper Shipping Name	ALUMINIUM PHOSPHIDE MIXTURE		
14.3 Class	4.3		
ADR HIN	Not applicable.		
UK Hazchem EAC	Not applicable.		
IMDG EMS	F-G, S-N		
14.4 Packing Group	I	Labels  	
Transport category	1		
14.5 Environmental hazards	-		
Marine pollutant	Yes		
Additional precautions	Not applicable.		
14.6 Special precautions for user	Not applicable.		
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code	Not applicable.		
Limited Quantity Exemptions	Not permitted.		
Note for transport	Local, State or National requirements may apply to the carriage of this product.		

SECTION 15 Regulatory Information

15.1 Safety, Health and environmental regulations/legislation specific for the substance or mixture

Authorisations and/or restrictions on use	Information to be made available according to ECHA review programme.
Other EU regulations	This safety data sheet was prepared in accordance with EC Directive 1907/2006. Labelling is in accordance with EC Directive 1999/45. Additional labelling requirements may be necessary in accordance with other National legislation. The registration of this product may be necessary before use and any additional local requirements must be observed at all times. Other National measures or guidance should be followed where appropriate.
15.2 Chemical safety assessment	Information to be made available according to ECHA review programme.

SECTION 16 Other Information

Revisions	Changes have been made to the contents of boxes 13 & 16 compared with issue 15.
Abbreviations and acronyms	<p>Typical standard abbreviations and acronyms used in Rentokil Initial Safety Data Sheets are as follows:</p> <p>ADR 2011 - International Carriage of Dangerous Goods by Road (ADR) ADR HIN - ADR Hazard Identification Number (HIN) Annex I DNEL or PNEC - Derived No Effect Level / Predicted No Effect Concentration CAS No - Chemicals Abstract Service Registry Number COSHH assessments - Control of Substances Hazardous to Health ECHA - European Chemicals Agency EC No - European Commission number EN469 - European standard for Personal Protective Equipment used for fire fighting EN standards for PPE - European Standards for Personal Protective Equipment EWC - European Waste Catalogue Code IMDG 2010 - International Maritime Dangerous Goods (IMDG) Code IUPAC - International Union of Pure and Applied Chemistry LD50 - Median lethal dose LC50 - Lethal concentration REACH - Registration, Evaluation, Authorisation and restriction of Chemicals RIS Code - Internal manufacturing code number WEL - Workplace Exposure Limit UK Hazchem EAC - UK Hazchem Emergency Action Code</p> <p>Typical Directives and Regulations referred to Rentokil Initial Safety Data Sheets are as follows:</p> <p>Commission Decision 95/320/EC - Scientific Committee for Occupational Exposure Limits to Chemical Agents Commission Decision 2000/532/EC - List of wastes Commission Decision 2001/118/EC - Amendment to 2000/532/EC with regards to List of wastes Directive 67/548/EEC - Dangerous Substances Directive Directive 76/768/EC (as amended) - The Cosmetics Directive Directive 89/686/EEC - The Personal Protective Equipment (PPE) Directive Directive 91/689/EC - Directive on Hazardous waste Directive 98/24/EC (1st IOELV Directive) - Chemical Agents Directive 98/24/EC Protection of the Health and Safety of Workers from the Risks from Chemical Agents IOELV Directive: Indicative Occupational Exposure Limit Values Directive 1907/2006 - REACH (Registration, Evaluation, Authorisation and restriction of Chemicals) Directive 1999/45/EC - Dangerous Preparations Directive Directive 2004/37/EC - Carcinogens and Mutagens Directive Regulation (EC) No. 648/2004 - Detergents Regulation Regulation (EC) No 1272/2008 - Classification, Labelling and Packaging</p>

Key literature references and sources for data	For details of the data and information sources used, please contact Rentokil Initial using the details in Section 1.
Classification and used classification procedure for mixtures labelled to Directive 1999/45/EC according to Regulation (EC) No 1272/2008	Not currently classified to Regulation (EC) No. 1272/2008 until 31/05/2015.
Risk phrase/Hazard statement text (From section 3 - These refer to the ingredients only. See section 2 for the product risk phrases)	R12: Extremely flammable R15/29: Contact with water liberates toxic extremely flammable gas R17: Spontaneously flammable in air R22: Harmful if swallowed R32: Contact with acids liberates very toxic gas R34: Causes burns R36/37/38: Irritating to eyes, respiratory system and skin R50: Very toxic to aquatic organisms H260: In contact with water releases flammable gases which may ignite spontaneously H300: Fatal if swallowed H400: Very toxic to aquatic life EUH 029: Contact with water liberates toxic gas EUH 032: Contact with acids liberates very toxic gas
Training advice	Always read the label and product information before use.
Further Information	Not applicable.

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Before using any product, ensure that you read and understand its label.

The information contained in this safety data sheet is, to the best of our knowledge and belief, accurate and reliable at the time of publication. The information relates only to the specific material designated in this safety data sheet and may not be valid for such material if it is used in combination with any other material(s) or any other use than that specified herein. Neither Rentokil Initial plc nor any of its subsidiaries accepts any liability for the use of this product for any other purpose than that described in this safety data sheet. This does not affect your statutory rights. It is the user's responsibility to satisfy him/herself as to the suitability in completeness of such information for his/her own particular use.