

Safety Data Sheet

DATE : 01: 04 : 2003

ISSUE NO : 01

NOTE: Access to a copy of this Safety Data Sheet (SDS) via our Website does not constitute the issue of a Controlled Copy under EU legislation. To be issued with such a Copy please contact Rentokil Initial at the address below by telephone, fax or in writing. In order to confirm the latest version of the SDS for this product see web: www.ri-research.com and click on Technical Information / Product Safety.

1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND COMPANY

PRODUCT NAME	: OZONE IN AIR
DESCRIPTION	: A colourless gas with bleach-type odour. Ozone is generated in-situ in the Ozone Generator and used to neutralise malodours in washrooms and toilets.
COMPANY	: Rentokil Initial UK Ltd, Hygiene Division, Felcourt, East Grinstead, West Sussex. RH19 2JY. England. Telephone: +44 (0)1342 833022 Facsimile: +44 (0)1342 326229.

2. HAZARDS IDENTIFICATION

CLASSIFICATION OF PRODUCT (SUPPLY - Use) UK CHIP 3 (The Chemicals (Hazard Information and Packaging for Supply) Regulations, 2002) / EC Directive 1999/45. NOT CLASSIFIED	DANGER SYMBOL (UK CHIP 3) : NOT REQUIRED
ADVERSE PHYSICOCHEMICAL, HUMAN HEALTH AND ENVIRONMENTAL EFFECTS (see also box 11) : Ozone is a powerful oxidising agent. Ozone is irritating to the mucous membranes of the eyes and the respiratory tract. At low concentrations, inhalation of ozone may induce nausea and headaches. Ozone is acutely toxic at high concentrations and can cause pulmonary oedema. Adverse effects on humans are unlikely, provided that the product is used as intended. Adverse effects on the environment are unlikely, provided that the product is used as intended.	

3. COMPOSITION / INFORMATION ON INGREDIENT(S)

% w/w	COMMON*/CHEMICAL NAME, ELINCS / EINECS AND CAS No OF INGREDIENT(S)	UK CHIP 3 / EC 1999/45 CLASSIFICATION OF INGREDIENT(S)
> 50 ≤ 100	Air	Not classified
0.00002% (0.2ppm - maximum)	Ozone, CAS No: 10028-15-6	T+ - Very Toxic : R26: Very toxic by inhalation

4. FIRST-AID MEASURES (see also "adverse effects" in box 2)

INHALATION (Breathing)	: Remove patient to fresh air, keep warm and at rest. Apply supportive measures if necessary and seek medical attention.
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.
SKIN CONTACT	: Not applicable, product is a gas.
INGESTION (Swallowing)	: Not applicable, product is a gas.
EMERGENCY EQUIPMENT SUGGESTED	: 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".
NOTE TO DOCTOR	: For further information contact the National Poisons Information Service in the UK.

5. FIRE-FIGHTING MEASURES

FIRE EXTINGUISHER - TYPES	: Use water spray or fog.
SPECIAL FIRE-FIGHTING PROCEDURES	: Wear suitable personal protective equipment.
SPECIAL EXPOSURE HAZARDS	: Ozone is a powerful oxidising agent. Ozone at the concentrations generated can support combustion slightly better than air.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS (see also box 8)	: Wear suitable personal protective equipment. Wear respiratory protection if continually exposed to levels above 0.2ppm.
PROCEDURE (see also box 13)	: Not applicable. Ozone will decay naturally to oxygen.

7. HANDLING AND STORAGE (see also box 8)

HANDLING	: Avoid breathing ozone directly from the generator. Use only in well-ventilated areas.
STORAGE	: Cannot be stored as it will revert back to oxygen over a short period of time. Keep away from materials that degrade or oxidise in the presence of ozone such as certain textiles, fabrics, organic dyes, rubbers and plants.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION (see also box 7)

OCCUPATIONAL EXPOSURE LIMITS	: OES for ozone is 0.4 mg/m^3 (0.2ppm) short-term exposure (15 minute reference period). Given that the lead health effect of ozone is primary irritancy occurring on initial contact with the upper respiratory tract, an 8-hour TWA is considered inappropriate and the short-term exposure limit more suitable. Exposure is usually for short periods of time in washrooms and toilets. Therefore, no significant health effects would be expected to occur following exposure to ozone in air at a concentration generated by the Ozone Generator in washrooms and toilets.
ENGINEERING CONTROLS	: Where prevention of exposure is not reasonably practicable, adequate control of exposure should be achieved by engineering controls rather than the provision of personal protective equipment and clothing. More specific details cannot be given without carrying out a full risk assessment for each and every use scenario. Suitable and approved personal protective equipment and clothing may include the following item(s):
EYE PROTECTION	: None necessary under normal conditions of use.
HAND PROTECTION	: None necessary under normal conditions of use.
SKIN PROTECTION	: None necessary under normal conditions of use.
BREATHING PROTECTION	: None necessary under normal conditions of use.
ENVIRONMENTAL EXPOSURE CONTROLS	: Product should be used in accordance with instructions given in the Hygiene Technical Manual.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOUR	: A colourless gas with bleach-type odour.		
FLASH POINT	: Not applicable.	SOLUBILITY IN WATER	: 3ppm at 20°C
FLAMMABILITY	: Non flammable but supports combustion.	SOLUBILITY IN FAT	: No data available.
AUTOFLAMMABILITY	: Not applicable.	PARTITION COEFFICIENT	: Not applicable.
VAPOUR PRESSURE	: 20mm Mercury at -157.2°C	BOILING POINT/RANGE	: -111.9°C
SPECIFIC GRAVITY	: 1.62 at -195.4°C	MELTING POINT/RANGE	: -196°C
OXIDISING PROPERTIES	: Strong oxidising agent.	pH	: Not applicable.
EXPLOSIVE PROPERTIES	: Not explosive as a gas.	VAPOUR DENSITY	: 1.6 (air=1)
VISCOSITY	: No data available.	EVAPORATION RATE	: No data available.
OTHER DATA	: None known.		

10. STABILITY AND REACTIVITY

CONDITIONS TO AVOID	: Thermal decomposition occurs at temperatures above 200°C and in a few hours at room temperature.
MATERIALS TO AVOID	: Avoid contact with certain textiles, fabrics, organic dyes, rubbers and plants.
HAZARDOUS BREAKDOWN PRODUCTS	: Ozone is a powerful oxidising agent and during fires, can support combustion in the same way as air.

11. TOXICOLOGICAL INFORMATION (see also box 2)

ACUTE TOXICITY	Oral	: No data available. Not an expected route of exposure.
	Inhalation	: LC ₅₀ (rats, mice, guinea pigs) (3-4hr): 5-35 mg/l Death occurs as a result of lung damage characterised by pulmonary congestion, oedema and haemorrhage. At concentrations >0.2ppm, ozone is a lung irritant in humans and has given rise to respiratory symptoms such as coughing, pain on deep breathing as well as changes to lung function. A level of 0.5-1ppm for several hours can lead to damage to the airway lining, airway hyperresponsiveness, poor response to light and nausea and headache. A level of > 9ppm in humans can lead to pulmonary oedema. A clear No Observed Adverse Effect Level (NOAEL) cannot be identified due to variations in human susceptibility. However, the available human data suggests that no significant effects on health would be expected to occur in the majority of individuals in the workplace upon exposure to 0.2ppm ozone for between 2 and 7 hours.
	Dermal	: No data available. No acute toxicity effects to the skin are expected.
CORROSIVITY / IRRITATION	Skin	: Ozone is not expected to be irritating to the skin.
	Eyes	: Irritation to mucous membranes in the eyes may be experienced at levels >0.1ppm.
	Respiratory tract	: Irritation to mucous membranes in the nose and throat may be experienced at levels >0.1ppm.
SENSITISATION	Skin	: Contains no known skin sensitisers.
	Respiratory	: Contains no known respiratory sensitisers.
REPEATED-DOSE TOXICITY		: Repeated exposure to ozone has been demonstrated to have an effect upon lung function in animals at levels of 1-2ppm.
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 be toxic to the reproductive system, and having effects on fertility.
	Developmental	: Product does not contain any components known to be toxic to the reproductive system, and having effects on development.
OTHER INFORMATION		: No specific antidote known.

12. ECOLOGICAL INFORMATION

GENERAL INFORMATION	: The full ecotoxicological profile of this product has not been evaluated. Do not contaminate the environment.
ECOTOXICITY DATA	: No data available.
MOBILITY (of appropriate constituents)	: Not applicable, reverts back to oxygen.
PERSISTENCE AND DEGRADABILITY (of appropriate constituents)	: Not applicable, reverts back to oxygen.
BIOACCUMULATIVE POTENTIAL (of appropriate constituents)	: Not applicable, reverts back to oxygen.
ENVIRONMENTAL CONSIDERATIONS	: This product does not contain any substances that are classified as dangerous to the environment. Thus, when supplied, used and disposed of as directed this product is not expected to present a danger to the environment.
OTHER ADVERSE EFFECTS	: None known.

13. DISPOSAL CONSIDERATIONS

DISPOSAL OF WASTE	: Not applicable, product is a gas.
DISPOSAL OF CONTAINERS	: Not applicable, product is a gas.
UK SPECIAL WASTE	: <u>Hazard Code</u> : Not classified.
REGULATIONS, 1996	: <u>Components making the waste special and their concentrations</u> : Not applicable.
NOTE FOR DISPOSAL	: Not applicable.

14. TRANSPORT INFORMATION (International unless otherwise indicated)

UN NUMBER : Not required.	UK HAZCHEM EAC : Not required.	ADR HIN : Not required.
UK CDGRoad Transport Category : Not required.	Tremcard Reference No. : Not required.	IMDG EMS: _Not required.
<u>UK CDGCPL2 CARRIAGE</u> :		
CLASS :	Not classified.	
PROPER SHIPPING NAME :	Not required.	
PACKING GROUP :	Not required.	
LIMITED QUANTITY EXEMPTIONS :	Not required.	
SPECIAL REQUIREMENTS :	Not required.	
LABELS :	Not required.	
<u>IMDG 2000 (SEA) CARRIAGE</u> :		
CLASS :	Not classified.	
PROPER SHIPPING NAME :	Not required.	
PACKING GROUP :	Not required.	
LIMITED QUANTITY EXEMPTIONS :	Not required.	
SPECIAL REQUIREMENTS :	Not required.	
LABELS :	Not required.	
<u>ADR 2001 (ROAD) CARRIAGE</u> :		
CLASS :	Not classified.	
PROPER SHIPPING NAME :	Not required.	
PACKING GROUP :	Not required.	
LIMITED QUANTITY EXEMPTIONS :	Not required.	
SPECIAL REQUIREMENTS :	Not required.	
LABELS :	Not required.	

15. REGULATORY INFORMATION

INDICATION OF DANGER	HEALTH AND SAFETY INFORMATION (see also box 2)
NOT CLASSIFIED	
SAFETY PHRASES : Not required.	
LEGISLATION : This product is not classified, in the UK, under The Chemicals (Hazard Information and Packaging for Supply) Regulations, 2002 (CHIP 3), as dangerous for supply. This product is not classified, in the UK, under the Carriage of Dangerous Goods (Classification, Packaging and Labelling) and Use of Transportable Pressure Receptacles CDGCPL2 Regulations 1996, as dangerous for carriage.	

16. OTHER INFORMATION and indication of revisions

The information given on this Safety Data Sheet (SDS) does not constitute an assessment in accordance with the Control of Substances Hazardous to Health (COSHH) Regulations 1999.

SDS No. 822

OZONE IN AIR – CHIP 3

PAGE: 4 of 4

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. Rentokil Initial UK Ltd is not liable 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.
--

Copyright © (2003) Rentokil Initial plc, R&D Division, Felcourt, East Grinstead, West Sussex, RH19 2JY, England

Telephone: +44 (0) 1342 833022 Fax: +44 (0) 1342 326229 Web: www.ri-research.com