Safety Data Sheet

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.

Issue : 02 31 : 07 : 2007

1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY

Product Name	**Ozone in Air**
Description	Ozone is generated in-situ in the Ozone Generator to neutralise malodours in washrooms and toilets. A colourless gas with a bleach-type odour at concentrations above 0.03 ppm.
Company	Rentokil Initial Supplies, Liverpool, L33 7SR. Product advice line: 0151 548 5050 Emergency line: 0800 731 6 731 Email: eurotech.techinfo@rentokil-initial.com

2 HAZARD IDENTIFICATION

Classification (Supply – Use) : In compliance with EC Directive 1999/45.

Not classified

Adverse Physical, Chemical, Significant Human Health and Environmental Effects (See also box 11):

Ozone is a powerful oxidising agent. The half-life of ozone in the gas phase at room temperature is 10 minutes to 2 hours.

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 the product is used as intended.

No other significant adverse effects expected under normal conditions of handling and use.

3 COMPOSITION / INFORMATION ON INGREDIENTS (SEE ALSO BOX 16)

% w/w	Common*/Chemical Name, ELINCS/EINECS & CAS No. of Ingredients	EC 1999/45 Classification
>50.0 ≤100.0	Air	Not classified.
0.00002% (0.2 ppm – maximum for Pure Air units with output up to 40 mg/h)	Ozone EINECS : 233-069-2 CAS : 10028-15-6	T : R23 Xi : R37

4 FIRST-AID MEASURES (SEE ALSO "ADVERSE EFFECTS" IN BOX 2)

Inhalation	Remove patient to fresh air, keep warm and at rest. Apply supportive measures if necessary and seek medical attention.
Eye Contact	This route of exposure is not anticipated because product is a gas
Skin Contact	This route of exposure is not anticipated because product is a gas
Ingestion (Swallowing)	This route of exposure is not anticipated because 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	Further information on all Rentokil Initial formulations is lodged with the National Poisons Information Service in the UK.

5 FIRE FIGHTING MEASURES

Fire Extinguisher Type	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. The half-life of ozone in the gas phase at room temperature is 10 minutes to 2 hours.

6 ACCIDENTAL RELEASE MEASURES

Personal Precautions (See also box 8)	Wear suitable personal protective equipment. Wear respiratory protection if continually exposed to levels above 0.2 ppm.
Environmental Precautions	Not applicable. Ozone will decay naturally to oxygen. The half-life of ozone in the gas phase at room temperature is 10 minutes to 2 hours.
Clean-up Procedure (See also box 13)	Not applicable. Ozone will decay naturally to oxygen. The half-life of ozone in the gas phase at room temperature is 10 minutes to 2 hours.

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

Exposure Standard - Directive EC/98/24 (1St IOELV Directive)	Workplace Exposure Limit (WEL) for ozone is 0.4 mg/m^3 (0.2 ppm) 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 Time Weighted Average 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 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:
Eye Protection	None necessary during normal handling and use.
Hand Protection	None necessary during normal handling and use.
Skin Protection	None necessary during normal handling and use.
Breathing Protection	None necessary during normal handling and use.
Environmental Exposure Controls	Use only in accordance with instructions given.

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance and Odour	A colourless gas with a bleach-type odour at concentrations above 0.03 ppm.		
pH	Not applicable.	**Solubility in Water**	3 ppm at 20°C
Specific Gravity	1.62 at –195.4°C	**Solubility in Other Solvents**	Not determined.
Flash Point	Not applicable.	**Explosive Properties**	May react violently with combustible materials and reducing agents.
Flammability	Non-flammable.	**Combustibility**	Combustible.
Boiling Point/Range	-111.9°C	**Oxidising Properties**	Strong oxidising agent.
Vapour Density	1.6 (air = 1)	**Evaporation Rate**	Not applicable.
Vapour Pressure	20 mmHg at –157.2°C	**Partition Coefficient**	Not applicable.
Viscosity	Not applicable.	**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, 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. The half-life of ozone in the gas phase at room temperature is 10 minutes to 2 hours.

11 TOXICOLOGICAL INFORMATION (SEE ALSO BOX 2)

Acute Toxicity	**Oral**	This route of exposure is not anticipated.
	Inhalation	LC_{50} (rats, mice, guinea pigs) (3-4h): 5-35 mg/L Death occurs as a result of lung damage characterised by pulmonary congestion, oedema and haemorrhage. At concentrations >0.2 ppm 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 hyper-responsiveness, 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 to 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	This route of exposure is not anticipated.
Corrosivity/ Irritation	**Skin**	This route of exposure is not anticipated, however ozone is not expected to be irritating to skin.
	Eyes	This route of exposure is not anticipated, however irritation to mucous membranes in the eyes may be experienced at levels >0.1 ppm.
	Respiratory tract	Irritation to mucous membranes in the nose and throat may be experienced at levels >0.1 ppm.
Sensitisation	**Skin**	Contains no known skin sensitisers.
	Respiratory	Contains no known respiratory sensitisers.
Repeat-Dose Toxicity		Repeated exposure to ozone has been demonstrated to have an effect upon lung function in animals at levels of 1-2 ppm.
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.
	Development	Product does not contain any components known to be toxic to the reproductive system.
Other Information		None known.

12 ECOLOGICAL INFORMATION

General Information	This product does not contain any substances that are classified as dangerous to the environment. Controlled release of this product is not expected to cause environmental contamination. Use only in accordance with instructions given.
Ecotoxicity Data	Not applicable, reverts back to oxygen. The half-life of ozone in the gas phase at room temperature is 10 minutes to 2 hours.
Mobility	Not applicable, reverts back to oxygen. The half-life of ozone in the gas phase at room temperature is 10 minutes to 2 hours.
Persistence and Degradability	Not applicable, reverts back to oxygen. The half-life of ozone in the gas phase at room temperature is 10 minutes to 2 hours.
Bioaccumulative Potential	Not applicable, reverts back to oxygen. The half-life of ozone in the gas phase at room temperature is 10 minutes to 2 hours.
Other Adverse Effects	None known.

13 DISPOSAL CONSIDERATIONS

Disposal of Waste / Containers	Not applicable – product is a gas.
Classification	Hazard Code: Not classified.
(Council Directive 91/689/EC, Commission Decision 2000/532/EC (amended) Commission Decision 2001/118/EC))	Components making the waste hazardous — Concentrations (%): Not required.
Note for Disposal	Not applicable.

14 TRANSPORT INFORMATION (INTERNATIONAL UNLESS OTHERWISE INDICATED)

UN No.	Not classified.	**Tremcard Reference No.**	Not required.	**RIS Code**
Transport Category	Not required.	**UK Hazchem EAC**	Not required.	F08, F015, F016, F018
ADR 2007 (International Road)	**Class** Not required.	**ADR HIN**	Not required.	**Labels**
Proper Shipping Name	Not required.			
Limited Quantity Exemptions	Not required.			
Special Requirements	Not required.	**Packing Group**	Not required.	Not required.
IMDG 2006 (Sea)	**Class** Not required.	**IMDG EMS**	Not required.	
Proper Shipping Name	Not required.			
Limited Quantity Exemptions	Not required.			
Special Requirements	Not required.	**Packing Group**	Not required.	
Note for Transport	Local, State or National requirements may apply to the carriage of this product.			

15 REGULATORY INFORMATION (HEALTH AND SAFETY INFORMATION (SEE ALSO BOX 2))

Safety Phrases	Not applicable.
Additional Label Phrases	Not applicable.
Legislation	Labelling is in accordance with UK regulations implementing the EC Directive 1999/45. Additional labelling requirements may be necessary in accordance with other National legislation. Outside the UK, the registration of this product may be necessary before use and any additional local requirements must be observed at all times. The information given on this Safety Data Sheet (SDS) **does not** constitute an assessment in accordance with Control of Substances Hazardous to Health (COSHH) Regulations 2002, in the UK. Other National measures or guidance should be followed where appropriate.

16 **Other Information** and indication of revisions

Packaging Information	Not applicable.
Revisions	Changes have been made to the content of boxes 01, 14 & 16 (as indicated by the thick lines on the left-hand side of the boxes) compared with issue 01.
Risk phrase text (From box 3 - These refer to the ingredients only. See box 2 for the product risk phrases)	R23 : Toxic by inhalation R37 : Irritating to respiratory system.

Telephone: +44 (0) 1293 858000 Fax: +44 (0) 1342 836180 Web: www.ri-research.com