

Material Safety Data Sheet

Purogene MSDS - Revision 11 - September 2008

Tristel

SECTION 1 - IDENTIFICATION OF SUBSTANCE

Product Name: PUROGENE
Application: Disinfectant and precursor solution for chlorine dioxide production
Manufacturer: Tristel Technologies Limited
Address: Lynx Business Park Fordham Road, Snailwell, Cambs, CB8 7NY, UK
Telephone: + 44 (0) 1638 721500
+ 44 (0) 7798 805692 (Out of hours)

SECTION 2 - COMPOSITION/INFORMATION ON HAZARDOUS INGREDIENTS

Ingredients	Per Cent	OSHA	ACGIH	STEL	OTHER	Symbol	Risk Phrases
		PEL	TLV				
Sodium Chlorite [7758-19-2] system	3.36 Minimum	NE	NE	NE	Irritant	Xi	R 36 - Irritating to eyes R 37 - Irritating to respiratory
NE = NOT ESTABLISHED							R 38 - Irritating to skin

SECTION 3 - HAZARDS IDENTIFICATION

May be irritating to eyes and skin. Inhalation of fog/mist may irritate nose and throat. Inhalation of free chlorine dioxide evolved from acid activation may cause irritation of respiratory mucous membranes and severe headaches.

SECTION 4 - FIRST AID

Skin Contact Wash with soap and water. Contaminated clothing should be washed prior to reuse. Seek medical opinion if in doubt.
Inhalation Unactivated product normally has no respiratory effects. If exposure to chlorine dioxide produced from activation occurs, remove to fresh air and rest. Seek medical advice if in doubt.
Eye contact Flush with water for 15 minutes. Seek medical advice.
Ingestion Do not induce vomiting. Seek medical advice immediately.

SECTION 5 - FIRE FIGHTING MEASURES

Flash Point: None to solution boiling point.
Flammable Limits (% by Volume) N/A
Autoignition Temperature N/E
Decomposition Temperature N/E (For dry sodium chlorite: 180 - 200°C)
Extinguishing Media Not Flammable.
Fire Fighting Equipment Standard protective gear with self-contained breathing apparatus.
Special Fire Fighting Procedures Do not allow solutions to evaporate to dryness. If chlorine dioxide gas is produced, vent to atmosphere. Open or vent any large containers of product.
Unusual Fire or Explosive Hazards If allowed to evaporate to dryness, sodium chlorite is a strong oxidiser which supports combustion. Chlorine dioxide, which may evolve from solutions is explosive in the gaseous phase at concentrations greater than 10% by volume. Prevent chlorine dioxide from accumulating within a confined space.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personal Precautions Prevent skin and eye contact. Avoid inhalation of vapours. Wear suitable respiratory equipment if necessary.
Environmental Procedures Not considered significantly environmentally damaging. In case of large spillage appropriate authorities should be informed.
Decontamination Procedures Small spillage <= 25 litres - Flush to foul sewer with copious quantities of water.
Large spillage - Contain and neutralise with an equal part of sodium sulphite or sodium thiosulphate. Transfer to a suitable container prior to disposal in accordance with local Regulations. The vicinity of the spill should be thoroughly flushed with water after clean-up. Do not allow spilled product to dry to a crystalline salt. Do not discharge this product to storm drains or any surface or groundwater source.

SECTION 7 - HANDLING AND STORAGE

Handling Use product only as directed by the label or by an authorised Tristel Technologies representative. Avoid contact with skin and eyes. Avoid breathing any vapors or fumes resulting from product activation. Use in well ventilated areas. Wear appropriate respiratory equipment if necessary. Thoroughly rinse all protective gear and handling equipment such as transfer pumps and lines with water prior to re-use and storage. If allowed to evaporate to dryness, sodium chlorite is a strong oxidiser that supports combustion. Keep away from children, animals and unauthorized personnel.
Storage Store in a cool, dry, well ventilated area away from acids, chlorine and chlorine compounds, hypochlorite (bleach), organic solvents, sulfur and sulfite compounds, phosphorous, combustible/flammable materials, and direct sunlight. Keep containers tightly closed when not in use. Containers should be clearly labeled. Storage on wooden floors and pallets is not recommended. Use within one year of purchase.

SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits	8 Hr TWA	15 Min STEL	Source
Chlorine Dioxide (from acid activation)	0.1 ppm	0.3 ppm	EH40 (Amended Each Year)

Personal Protection

Respirator	Fogging or spraying activated solutions, or when user is likely to be exposed to chlorine dioxide fumes, in confined spaces or unventilated areas, may require the use of a full or half face canister/cartridge facial respirator rated for chlorine/acid vapors or specified for chlorine dioxide if occupational exposure levels for ClO ₂ likely to be exceeded.
Skin Protection	Change any contaminated clothing. Wear suitable gloves.
Eye Protection	Chemical safety glasses.
Engineering Control Measures	Use only in well ventilated areas.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance & Odour	Clear liquid with very faint chlorinous odour.		
Specific Gravity	1.02 - 1.03 (20°C)	Explosive Limits : Upper	N/A
pH	8.2-8.5	Explosive Limits: Lower	N/A
Flash point	N/A	Auto-ignition temp	N/A
Solubility in water	Complete	Vapour pressure	23.7 mm Hg (25°C)
Boiling Point 105°C	Vapour density	0.023 Kg/m ³	
Melting point N/A	Volatiles (by volume)	97% (Water)	

SECTION 10 - STABILITY AND REACTIVITY

Conditions To Avoid	Avoid storing product in sunlight or under conditions in which it could evaporate to crystalline salt. Crystalline sodium chlorite is a powerful oxidising agent.
Incompatible Materials	Avoid accidental contact with acids, chlorine compounds, hypochlorites (bleach), sulphur and sulphite compounds, phosphorus, organic solvents, and combustible/inflammable materials.
Hazardous Decomposition Products	Exposure to acids or chlorine compounds can induce uncontrolled generation of chlorine dioxide gas.

SECTION 11 - TOXICOLOGICAL INFORMATION - OTHER INFORMATION

Condition	LD50/LC50/EC50	Other Information
1 - Eye Contact Mild irritant. Can produce slight irritation of conjunctiva, cornea and eyelid.		
2 - Skin Contact Prolonged exposure may produce localised irritation, contact dermatitis, mild erythema, and edema	Rabbit Acute dermal LD50 >2,020mg/kg	Skin disorder, such as dermal allergies and dermatitis will be aggravated by exposure.
3 - Ingestion - May produce gastric discomfort, nausea, vomiting and diarrhoea	Rat (Oral) LD50 4,360 mg/kg	Ingestion of large quantities may produce methemoglobinemia.
4 - Inhalation Prolonged inhalation of fog/mist will irritate throat and nose.	Acute inhalation LC50 >5.61 mg/L	Exposure to chlorine dioxide will aggravate pulmonary disorders such as emphysema
5 - Dermal Sensitisation Test		Does not elicit a sensitising reaction
6 - Sheepshead Minnow Acute Flow- Through Toxicity	96 Hr LC50 105 mg/l 96 Hr NOEL 60 mg/l	
7 - Acute Flow- Through Mollusc Shell Deposition Test	96 Hr EC50 129 mg/l 96 Hr NOEL 70.6 mg/l	
8 - Static Acute Toxicity to the Freshwater Algae Selenastrum capricornutum	96 Hr EC50 1 mg/l	

Carcinogenicity	No Evidence to date to implicate product as carcinogen or tumour promoter.
Mutagenicity	No evidence to date for mutagenicity from whole animal or <i>in vitro</i> studies.
Reproductive effects	No known effects to date.
Other health hazards	None known.

SECTION 12 - ECOLOGICAL INFORMATION

Environmental Assessment	All spills and leaks involving more than 25 litres should be reported to the nearest Environment Agency Office or other appropriate authority within 24 hours. Any spill which may contaminate water courses, lakes, streams, rivers, or surface waters of any description should be reported to the Environment Agency immediately
Mobility	No specific data.
Persistence and Degradability	Not considered persistent.
Bio-accumulative Potential	No specific data.
Ecotoxicity	Sodium chlorite is not considered a significant pollutant. Chlorine dioxide evolved following activation is subject to exposure controls (see section 8).

SECTION 13 - DISPOSAL CONSIDERATIONS

Unused Product	Dispose of in accordance with Local Regulations through an Authorised Contractor.
Used/Contaminated Product	Dispose of in accordance with Legal Regulations through an Authorised Contractor.
Packing	Wash thoroughly with water immediately after use and dispose of in accordance with Local Regulations.

SECTION 14 - TRANSPORT INFORMATION

Not classified as hazardous for transport

SECTION 15 - REGULATORY INFORMATION

Classification Symbol	Risk Phrases	Safety Phrases					
Irritant	Xi	R 36/37/38	S 7/9	S 24/25	S 23	S 38	S 50

Other: The information contained in this data sheet does not constitute an assessment of workplace risks

SECTION 16 - OTHER INFORMATION: REFERENCES

THE CHEMICALS (HAZARD INFORMATION AND PACKAGING FOR SUPPLY) REGULATIONS 1994 (CHIP2) AS AMENDED (CHIP 96, 97, 98, 99, 2000)
APPROVED CLASSIFICATION AND LABELLING GUIDE
SAFETY DATA SHEET APPROVED CODE OF PRACTICE
APPROVED SUPPLY LIST
COMMISSION DIRECTIVE 84/449/EEC
EH 40
THE CARRIAGE OF DANGEROUS GOODS BY ROAD AND RAIL (CLASSIFICATION, PACKAGING AND LABELLING) REGULATIONS 1995
APPROVED CARRIAGE LIST

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