

MATERIAL SAFETY DATA SHEET

SECTION 1 - IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product (material) Name: Glutaraldehyde 70%. Catalogue # C00370, C003701.
Other Names: Glutaral, Glutaric Dialdehyde
Recommended Use: A fixative for electron microscopy

Supplier Name: ProSciTech
Postal Address: PO Box 111, Thuringowa Central Qld. 4817 Australia
Street Address: 1/11 Carlton Street, Kirwan, Qld. 4817 Australia
Telephone Number: (07) 4773 9444
Fax Number: (07) 4773 2244
Emergency Contact: (07) 4773 9444 8:30am – 5:00pm, Monday to Friday

SECTION 2 - HAZARDS IDENTIFICATION

Hazard Classification: Hazardous according to criteria of NOHSC.
Risk Phrases:
Safety Phrases:

SECTION 3 - COMPOSITION / INFORMATION ON INGREDIENTS

SUBSTANCE:

Chemical Identity: Glutaraldehyde
Common Name(s):
CAS Number(s): 111-30-8

MIXTURE:

Ingredients	Cas Number(s)	Proportion (%)
Glutaraldehyde	111-30-8	70%
Water	7732-18-5	<30%
Methanol	67-56-1	0.5%

SECTION 4 - FIRST AID MEASURES

Swallowed: DO NOT INDUCE VOMITING. Do not give victim anything to drink, obtain immediate medical attention.

Eye: Flush eyes with water continuously for at least 15 minutes. Do not remove contact lenses. Obtain medical attention from an ophthalmologist.

Skin: Remove contaminated clothes. Wash skin with soap and water, obtain medical attention. Wash clothing before using again, throw away contaminated leather items (shoes, belt).

Inhaled: Remove to fresh air, if not breathing give artificial respiration. If breathing is difficult oxygen should be administered by qualified personnel. Obtain medical attention.

First Aid Facilities: Eye bath, Safety shower

Medical Attention & Special Treatment:

The hazards of this material are due to its severely irritant properties on skin and mucosal surfaces. Moderately toxic by swallowing or absorption through the skin. Swallowing may lead to ulceration and inflammation of the upper alimentary tract with hemorrhage and fluid loss. Perforation of the oesophagus or stomach may occur, leading to mediastinitis or pharmacologically. If it is considered necessary to empty stomach contents, it should be done by means least likely to cause aspiration, eg gastric lavage after endotracheal intubation.

ADDITIONAL INFORMATION: Skin contact may aggravate an existing dermatitis. Inhalation of material may aggravate asthma and inflammatory of fibrotic pulmonary disease.

SECTION 5 - FIRE FIGHTING MEASURES

Suitable Extinguishing Media:	LARGE FIRE: Use an alcohol type or all purpose type applied by manufacturer's recommended techniques. SMALL FIRE: Use carbon dioxide or dry chemical media.
Hazards from Combustion Products:	Under fire conditions some of the components of this product may decompose, the smoke may contain unidentified toxic and/or irritating compounds. Combustion products may include and are not limited to: Carbon monoxide, Carbon dioxide.
Precautions for Fire Fighters:	Use self contained breathing apparatus and protective clothing.
Hazchem Code:	2R

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Emergency Procedures:	Contain spilled material if possible. Collect in suitable and properly labeled containers.
Containment and clean up:	Very low concentrations (5ppm or less of glutaraldehyde) can be degraded in a biological wastewater treatment system, to do this flush the small spill with large quantities of water. Large spills are harmful to the treatment system, thus they have to be decontaminated by carefully applying sodium hydroxide or sodium bisulphite. Depending on the conditions, considerable heat and fumes can be liberated by the decontamination process. Please refer to your local and state laws on waste removal. Use appropriate safety equipment, goggles, gloves (butyl or nitrile), protective clothing, depending upon the situation.

SECTION 7 - HANDLING & STORAGE

Precautions for Safe Handling:	Do not get in eyes, on skin, on clothing. Avoid breathing vapour. Do not swallow. Wear goggles, protective clothing, and butyl or nitrile gloves. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse.
Conditions for Safe Storage:	Keep container closed, in a well ventilated area.

SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

National Exposure Standards:	Methanol: 200 ppm TWA8 ACGIH, 262 mg/m ³ TWA8 ACGIH, 250 ppm STEL ACGIH, 328 mg/m ³ STEL ACGIH, 200 ppm TWA8 OSHA, 260 mg/m ³ TWA8 OSHA, 250 ppm STEL OSHA, 325 mg/m ³ STEL OSHA.
Biological Limit Values:	
Engineering Controls:	Provide a general and/or local exhaust ventilation to control airborne levels below the exposure guidelines.
Personal Protective Equipment:	Use chemical goggles, protective clothing resistant to chemicals (face shield, boots, apron, or full body suit depending on the task), rubber gloves (either butyl or nitrile are recommended) and use an NIOSH approved air purifying respirator in a situation where the atmospheric levels are above the exposure guidelines.

SECTION 9 - PHYSICAL & CHEMICAL PROPERTIES

Appearance:	Liquid, clear
Odour:	Fruity
pH:	not available
Vapour pressure:	(@ 20°C 0.03 kPa Active Ingredient /0.20mmHg Active Ingredient
Vapour density:	(air = 1): 1.1
Boiling point/range:	(760MMHg): ~ 100.5°C
Freezing/melting point:	-21°C
Solubility:	20°C at 100%
Specific gravity or density:	(h ₂ O = 1): 1.129 20°C/20°C
Flash Point:	not available
Flammable (explosive) limits:	not available
Ignition temperature:	not available
Additional Information:	

SECTION 10 - STABILITY AND REACTIVITY

Chemical stability:	Stable
Conditions to avoid:	Avoid high temperature (above 100°C) and evaporation of water.
Incompatible Materials:	Strong alkalis. Acids catalyse an aldol-type condensation (exothermic but not expected to be violent).
Hazardous Decomposition Products:	
Hazardous Reactions:	

SECTION 11 - TOXICOLOGICAL INFORMATION

Acute and chronic health effects:	Peroral: rat LD50 female 154 (116-206) mg/kg and male 246 (179-339) mg/kg - sluggishness, lacrimation, diarrhea, piloerection, perinasal encrustation. Percutaneous: rabbit LD50 24 hr occluded 2.54 (1.46-4.41) ml/kg - necrosis at application site. Inhalation: dynamic generation of vapour, exposure time 4 hours, 163 ppm rat female at room temperature - Kill rate 0/5, signs of blepharospasm, periocular wetness, audible respiration. Inhalation: static generation of substantially saturated vapour, exposure time 4 hours, rat female, temperature 20oC - Kill rate 0/5, signs of blepharospasm.
Possible routes of exposure:	Swallowing, inhalation or skin/eye exposure.
Range of effects following exposure:	Inhalation: stinging sensations in the nose and throat, nose bleeds, coughing, chest discomfort and tightness, difficulty breathing and headache. Eye: severe conjunctivitis, cornea injury may develop. Skin: itching, redness and swelling. Pain, severe redness and swelling with ulceration, tissue destruction and possible bleeding into the inflamed area. Ingestion: chemical burns to the mouth, throat, esophagus and stomach. Discomfort and pain in the chest and abdomen, nausea, vomiting, diarrhea, dizziness, faintness, drowsiness, thirst, weakness, circulatory shock, collapse and coma. Apiration into lungs may occur during ingestion or vomiting, resulting in lung injury.
Dose likely to cause injury:	
Delayed effects:	
Relevant negative data:	

SECTION 12 – ECOLOGICAL INFORMATION

Ecotoxicity:	Toxic to aquatic invertebrates: Daphnia LC50 48 h 11.5 mg/l
Persistence and degradability:	
Mobility:	
Additional Information:	

SECTION 13 - DISPOSAL CONSIDERATIONS

Disposal Methods:	Atomize into a very hot incinerator fire or mix with a suitable flammable solvent and incinerate under appropriate Federal, State and local regulations. High water content may dampen flame. Dispose in accordance with all applicable Federal, State, Provincial and local environmental regulations. Empty containers should be recycled or disposed of through an approved waste management facility.
Special Precautions:	

SECTION 14 - TRANSPORT INFORMATION

UN Number:	UN3265
UN Proper Shipping Name:	Corrosive liquid, Acidic, Organic, n.o.s
Class and Subsidiary risk:	8
Packing Group:	PGII
Special Precautions for User:	
Hazchem Code:	2R

SECTION 15 - REGULATORY INFORMATION**Poison Schedule Number:** None allocated**SECTION 16 - OTHER INFORMATION**

Date of preparation of MSDS: 31 August 2007

Significant Data with possible Relevance to Humans

Studies in humans have shown that glutaraldehyde is neither phototoxic nor a photosensitiser. Subchronic drinking water studies in rats, mice and dogs using concentrations up to 1000 ppm showed no evidence for any target organ toxicity. In vitro studies for genotoxicity using a variety of assays have given results varying from no activity through equivocal, to weakly positive; however, all *in vivo* studies for genotoxicity have been uniformly negative. Several developmental toxicity studies have demonstrated that at maternally non-toxic doses, glutaraldehyde does not produce fetotoxic, embryotoxic or teratogenic effects. A two-generation reproduction study involving continuous exposure of rats to glutaraldehyde up to 1000 ppm in drinking water there were effects on parental body weight and food consumption at 1000 ppm (due to an aversion to the taste), but no adverse effects on reproductive performance. In a chronic 2-year continuous drinking water combined chronic toxicity-oncogenicity study using Fischer 344 rats, there was no evidence for non- oncogenic target organ toxicity. The only possible oncogenicity- related finding was an increase in the incidence of large granular cell lymphocytic leukemia in female, but not male, rats. The pattern of the response suggests that it does not represent direct chemical carcinogenic activity but, rather, a modifying influence on the expression of this spontaneous and commonly occurring neoplasm in the Fischer 344 rat. Repeated applications of aqueous solutions of glutaraldehyde to the rat skin for 20 doses over a 28-day/period at 50,100,or 150 mg/kg/day produced mild local inflammatory effects, but no evidence for target organ or tissue systemic toxicity. An extensive clinical survey has been conducted on nursing staff in 59 endoscopy units (340 currently employed workers and 18 former employees); investigational procedures included detailed questionnaire, sensitisation to common allergens, blood for IgE measurements, lung function tests, peak flow diaries and measurement of workplace glutaraldehyde vapour concentrations. About two-thirds of current employees had ocular, nasal, or lower respiratory tract symptoms, but these were more prevalent for non-work conditions. The only effect correlated with glutaraldehyde exposure was nasal irritation. There was a slight, but no statistically or biologically significant decrease in FEV1 for those with lower respiratory tract symptoms. There were no indications of asthma and no objective evidence for respiratory sensitisation.
