MATERIAL SAFETY DATA SHEET

SECTION I: IDENTIFICATION OF PRODUCT

PRODUCT NAME: Jet Cide 250

PRODUCT USE: Oil well fluid additive

CHEMICAL FAMILY: Gluteraldehyde

WORK PLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)

WHMIS CLASSIFICATION: Class E

WORK PLACE HAZARD: Corrosive

TRANSPORTATION OF DANGEROUS GOODS (TDG)

SHIPPING NAME: Jet Cide 250

TDG CLASSIFICATION: Corrosive Liquid, Acidic Organic, N.O.S. (Gluteraldehyde)

UN NUMBER (PIN): 3265

PACKING GROUP: N/A

SECTION II: HAZARDOUS INGREDIENTS

INGREDIENT	PERCENT	CAS NUMBER	$LD_{(50)}$ RAT	OSHA PEL	ACGIH TLV
Methanol	<0.5%	667-56-1	N/A	N/A	N/A
Gluteraldehyde	50%	111-30-8	N/A	N/A	N/A
Water	N/A	7732-18-5	N/A	N/A	N/A

SECTION III: TOXICOLOGICAL PROPERTIES

ROUTE OF ENTRY: **[XX] SKIN** **[XX] EYE CONTACT** **[XX] INHALATION** **[XX] INGESTION**

EYE CONTACT: Liquid will cause a severe and persistent conjunctivitis, seen as excess redness and marked swelling of the conjunctiva with profuse discharge. Severe corneal injury may develop, which could permanently impair vision if prompt first aid and medical treatment are not obtained. Vapour will cause stinging sensations in the eye with excess tear production, blinking, and possibly a slight excess redness of the conjunctiva.

SKIN CONTACT: Brief contact will cause itching with mild to moderate local redness and possibly swelling. Prolonged contact may result in pain, severe redness and swelling, with ulceration, tissue destruction, and possibly bleeding into the inflamed area.

MATERIAL SAFETY DATA SHEET

INHALATION: Vapour is irritating to the respiratory tract, causing stinging sensations in the nose and throat, discharge from the nose, possibly bleeding from the nose, coughing, chest discomfort and tightness, difficulty with breathing, and headache.

INGESTION: Moderately toxic. May cause moderate to marked irritation or chemical burns of the mouth, throat, oesophagus, and stomach, with discomfort or pain in the mouth, throat, chest, and abdomen, nausea, vomiting, diarrhoea, dizziness, faintness, drowsiness, weakness, thirst, circulatory collapse, and coma.

EFFECTS OF OVEREXPOSURE: Repeated skin contact may cause or aggravate an existing cumulative dermatitis. Inhalation may aggravate asthma/inflammatory/fibrotic pulmonary disease. Lab studies show that gluderaldehyde is not teratogenic and not to be mutagen. Preliminary, as yet not quality assured, hispathological findings in the 24- month sacrifice of a combined oncogenicity/chronic toxicity study in Fischer 344 rats given gluteraldehyde in drinking water (50,250, and 1000 ppm) showed an increase in the incidence of the spontaneously occurring large granular cell lymphocytic leukaemia (LGL) at all dosage compared with the controls only for the female rats. Male rats had the same incidence in controls and at all levels of exposures. Since the incidence of this leukemia was low in the control female rats, comparison with other control data and further statistical analysis are currently being under taken in order to further define the relevance of this study. May cause skin sensitization in a small portion of individuals and present as an allergic contact dermatitis. This usually results from contact with liquid, but occasionally there may be a reaction to gluteraldehyde vapour.

SECTION IV: FIRST AID MEASURES

SKIN CONTACT: Immediately remove contaminated clothing and shoes. Wash skin with soap and water. Obtain medical attention. Wash clothing before reuse. Discard contaminated leather articles such as shoes and belt.

EYE CONTACT: Immediately flush eyes with water and continue washing for at least 15 minutes. Obtain medical attention without delay, preferably from an opthamologist.

INGESTION : DO NOT INDUCE VOMITING. Do not gibe anything to drink. Obtain medical attention without delay.

INHALATION: Remove to fresh air. Give artificial respiration if not breathing. If breathing is difficult, oxygen may be given by qualified personnel. Obtain medical attention.

NOTE TO PHYSICIAN: The hazards of this material are due mainly to its severely irritant properties on skin and mucosal surfaces. Moderately toxic by swallowing and absorption across the skin. Due to the severely Irritating or corrosive nature of the material, swallowing may lead to Ulceration and inflammation of the upper alimentary tract with haemorrhage and fluid loss. Also, perforation of the oesophagus or stomach may occur, leading to mediastinitis or peritonitis and the resultant complications. The stomach should be evacuated carefully in cases of ingestion. Any material aspirated during vomiting may cause lung injury. Therefore, emesis should not be induced mechanically or pharmacologically. If it is considered necessary to evacuate the stomach contents. This should be done by means least likely to cause aspiration (e.g. gastric lavage after endotracheal intubation).

SECTION V: PHYSICAL DATA

APPEARANCE AND ODOUR: Clear, liquid

SPECIFIC GRAVITY(@ 20°C): 1.129

MATERIAL SAFETY DATA SHEET

BOILING POINT (°C):	760mm Hg: 100.5°C (213 °F)
FREEZING POINT (°C):	-21°C (-5.8)
SOLUBILITY IN WATER:	100%
PERCENT VOLATILE BY VOLUME:	N/A
EVAPORATION RATE:	1.02 (Butyl acetate = 1)
VAPOUR PRESSURE (mm Hg):	16 @ 20°C
VAPOUR DENSITY (Air = 1):	1.05 (Air=1)

SECTION VI: FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:	N/A tag closed cup ASTM D 66 N/A Tag open cup ASTM D 1310
FLAMMABLE LIMITS:	N/D
EXTINGUISHING MEDIA:	Non flammable (aqueous solution): After water evaporated, remaining material will burn. Use alcohol-type or all-purpose-foam, applied by manufacturers recommended techniques for large fires. Use carbon dioxide or dry chemical media for small fires.
SPECIAL FIRE FIGHTING PROCEDURES:	Use self contained breathing apparatus and protective clothing.
UNUSUAL FIRE/EXPLOSION HAZARDS:	None.

SECTION VII: REACTIVITY DATA

STABILITY: **Stable [XX]** **Unstable [ ]**

INCOMPATIBILITY (CONDITIONS TO AVOID):	Alkalies catalyze an aidol-type condensation (exothermic, but not expected to be violent). Avoid high temperature and evaporation of water. Temperatures above 100°C. Although polymerization may occur, it is not hazardous.
CONDITIONS OF REACTIVITY:	N/A
HAZARDOUS DECOMPOSITION PRODUCTS:	Burning can produce the following products: Carbon monoxide and/ or carbon dioxide. Carbon monoxide is highly toxic if inhaled; carbon dioxide in sufficient concentrations can act as an axphyxiant.
HAZARDOUS POLYMERIZATION:	Will Not Occur [XX] May Occur [ ]

SECTION VIII: PREVENTIVE MEASURES

SPECIAL PROTECTION INFORMATION

MATERIAL SAFETY DATA SHEET

RESPIRATORY PROTECTION:	Use self contained breathing apparatus in high vapour concentrations. If self-breathing apparatus is N/A, a MSHA/NIOSH approved air purifying respirator equipped with an organic vapour cartridge should be used.
VENTILATION:	General (mechanical) room ventilation is expected to be satisfactory if this material is kept in covered equipment of if the solution is highly diluted. However, if vapours are strong enough to be irritating to the nose (or eyes), the TLV is probably being exceeded and special ventilation may be required.
PROTECTIVE GLOVES:	Rubber, Nitrile (NBR), Buryl or Polyehtelene.
EYE PROTECTION:	Monogoggles or faceshield.
OTHER PROTECTIVE EQUIPMENT:	Chemical apron, Eye bath, Safety shower, Rubber boots.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Danger: corrosive-causes irreversible eye damage. Causes skin burns. Harmful if inhaled, swallowed, absorbed through skin, and may cause skin sensitization. Do not get in eyes, on skin, on clothing. Avoid breathing vapor. Do not swallow. Wear goggles, protective clothing, and rubber gloves. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse. For industry use only.

STEPS TO BE TAKEN IN CASE THE MATERIAL IS SPILLED OR RELEASED

Wear suitable protective equipment. Toxic to fish; avoid discharge to natural waters. Very low concentrations (10ppm or less) can be degraded in a biological treatment system. Thus, small spills can be flushed with large quantities of water.

Large quantities of “slugs” can be harmful to the treatment system. Thus, large spills should be collected for disposal. It may also be possible to decontaminate spilled material by careful application of aqueous sodium hydroxide or dibasic ammonium phosphate solution. Depending on conditions, considerable heat and fumes can be liberated by the decontamination reaction.

WASTE DISPOSAL METHOD

Atomize into a very hot incinerator fire or mix with a suitable flammable solvent, and incinerate where permitted under appropriate Federal, State, and local regulations. High water content may dampen flame.

SECTION IX: PREPARATION

THE INFORMATION CONTAINED HEREIN IS GIVEN IN GOOD FAITH, BUT NO WARRANTY, EXPRESSED OR IMPLIED, IS MADE.

DATE PRINTED:	**March 28, 2007**	**BY:**	**MILLENNIUM TECHNOLOGIES LTD.**
DATE MODIFIED:	**February 2007**	**APPROVED BY:**	
SUPERSEDES:	**May 2004**		
24 HOUR PHONE:	**403-252-5904**		