

MATERIAL SAFETY DATA SHEET

IDENTIFICATION & USE	TYPE OF PRODUCT Chlorine SLeD Diffusion Reagent		CHEMICAL FAMILY organic acid solution							
	PRODUCT NUMBER Orion 157011		FORMULA							
	MANUFACTURER'S NAME AND ADDRESS Thermo Fisher		PRODUCT USE Analyzer reagent							
	166 Cummings Center		EMERGENCY TELEPHONE NO. 1-800-424-9300							
	Beverly, MA 01915									
	CONTAINER SIZE AND TYPE		USE AS RECEIVED		YES					
HAZARDOUS INGREDIENTS	SHIPPING NAME Acetic Acid solution more than 80 % acid, by mass (mixture)		CLASS		8 (9.2)					
	PIN 2789	WHMIS Classification Class E — Corrosive Material		PACKING GROUP		II				
	CONCENTRATION*	HAZARDOUS	INGREDIENTS	CHEMICAL NAMES	LD ₅₀ mg/kg	LC ₅₀ **	CAS REGISTRY NO.			
	1 >95		acetic acid		ORL-RAT	IHL	64-19-7			
					3310mg/kg	5620ppm/h				
	1 1		ferrous sulfate	LO ORL-WMN 200 mg/kg			7720-78-7			
PHYSICAL DATA	FREEZING POINT		16.6 °C	MELTING POINT		NA °C	BOILING POINT		118 °C	
	VAPOUR PRESSURE		11 mm Hg	VAPOUR DENSITY (AIR = 1)		2.1	SPECIFIC GRAVITY (H ₂ O = 1)		1.05	
	COEFFICIENT OF WATER/OIL DISTRIBUTION		No Data	EVAPORATION RATE		.97	pH AT 25 °C		< 1.8	
	ODOUR THRESHOLD		No Data	PHYSICAL STATE		GAS	LIQUID	PASTE	SOLID	POWDER
	ODOUR AND APPEARANCE		green liquid, pungent, vinegar-like odour							
	FLASH POINT AND METHOD OF DETERMINATION		41°C, closed cup (100% acetic acid)			FLAMMABLE LIMITS		L.E.L.	U.E.L.	
FIRE & EXPLOSION DATA	CONDITIONS OF FLAMMABILITY		none							
	MEANS OF EXTINCTION		alcohol foam, dry chemical, carbon dioxide							
	HAZARDOUS COMBUSTION PRODUCTS		hazardous gases such as carbon monoxide							
			AUTO IGNITION TEMP.							
	EXPLOSION DATA		SENSITIVITY TO MECHANICAL IMPACT		NA					
			SENSITIVITY TO STATIC DISCHARGE		NA					
SPECIAL FIRE FIGHTING PROCEDURES										

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REACTIVITY	STABLE	YES	CONDITIONS TO AVOID heat			PRODUCT NUMBER Orion 157011
	UNSTABLE					
	INCOMPATIBILITY — MATERIALS TO AVOID Strong oxidizers (chromic acid, sodium peroxide, nitric acid, etc). Strong caustics.					
	HAZARDOUS DECOMPOSITION PRODUCTS Toxic gases such as carbon monoxide may be released.					
CONDITIONS OF REACTIVITY						
HEALTH HAZARD DATA	HAZARDOUS ROUTES OF ENTRY	INHALATION YES	INGESTION YES	EYE CONTACT YES	SKIN CONTACT YES	SKIN ABSORPTION YES
	EFFECTS OF EXPOSURE (ACUTE) Inhalation: irritation of eyes, nose and throat, coughing, choking and difficulty breathing. Severe overexposure results in pulmonary edema. Skin and eyes: can cause severe					
	EFFECTS OF EXPOSURE (CHRONIC) burns, pain and brownish or yellowish stains. Ingestion: May cause severe burning and pain in the mouth, throat, and abdomen. Vomiting, diarrhea and perforation of the esophagus, stomach.					
	EXPOSURE LIMITS					
	SENSITIZATION TO PRODUCT					
	CARCINOGENICITY Not listed as a carcinogen by NTP					
	OTHER TOXICOLOGICAL EFFECTS No information available.					
	EMERGENCY AND FIRST AID PROCEDURES Seek medical attention for all serious forms of exposure.					
	Eyes and Skin: immediately flush with a stream of running water for a minimum of 15 minutes, occasionally lifting eye lid. Wash skin with soap and water.					
	Inhalation: Remove victim to fresh air. Give artificial respiration if necessary.					
Ingestion: Get immediate medical attention. Give large amount of water or milk. Do not induce vomiting.						
PREVENTIVE MEASURES	RESPIRATORY PROTECTION					
	VENTILATION	LOCAL EXHAUST to control exposure limits			SPECIAL	
		MECHANICAL (GENERAL) Yes, when transferring.			OTHER	
	HAND PROTECTION	impervious gloves			EYE PROTECTION chemical goggles	
	PROCEDURES TO BE FOLLOWED IN CASE OF LEAK OR SPILL Apply inert sorbent. Collect product and neutralize. Collect neutralization sludge for disposal.					
	Eliminate all ignition sources.					
	WASTE DISPOSAL METHOD Neutralize and dispose of in accordance with local, provincial, and federal laws.					
	HANDLING PROCEDURES AND EQUIPMENT Use only in a well-ventilated area. Safety shower and eye batch located close to working area.					
	Do not breathe fumes when adding diffusion tubes to bottle.					
	STORAGE REQUIREMENTS Store in a cool, well ventilated area. Keep from freezing. Keep away from heat, sparks, flame.					
PREPARATION	PREPARED BY Peter Bakker		APPROVED BY Peter Bakker			
	TITLE Chemistry Manager		TITLE Chemistry Manager		TELEPHONE (519) 941-8161	
			<i>Peter Bakker</i>		DATE November 5, 2009	
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