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MATERIAL SAFETY DATA SHEET — 16 Sections

SECTION 1 — CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Identifier Copper (II) Sulfate Pentahydrate		[WHMIS Classification]	
Product Use			
Manufacturer's Name James Instruments, Inc.		Supplier's Name Alfa Aesar, Thermo Fisher Scientific Chemicals, Inc.	
Street Address 3727 N Kedzie Ave.		Street Address 30 bond Street	
City Chicago	State IL	City Ward Hill	State MA
Postal Code 60618	Emergency Telephone 800-424-9300	Postal Code 01835-8099	Emergency Telephone (800) 343-0660, (866) 928-0789
Date MSDS Prepared	MSDS Prepared By James Instruments, Inc.		Phone Number 1-773-463-6565

SECTION 2 — COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Ingredients (<i>specific</i>)	%	CAS Number	LD ₅₀ of Ingredient (<i>specify species and route</i>)	LC ₅₀ of Ingredient (<i>specify species</i>)
Copper (II) Sulfate Pentahydrate	98.0-102.0	7758-99-8	(Rat)(Oral) 30mg/kg	

SECTION 3 — HAZARDS IDENTIFICATION

Route of Entry	<input checked="" type="checkbox"/> Skin Contact	<input type="checkbox"/> Skin Absorption	<input checked="" type="checkbox"/> Eye Contact	<input checked="" type="checkbox"/> Inhalation	<input checked="" type="checkbox"/> Ingestion
[Emergency Overview] Materials is considered hazardous if ingested, may cause irritation of skin, eyes, or respiratory if not handled properly.					
WHMIS Symbols] Skull with crossbones. Black "T" letter.					
Potential Health Effects Ingestion: Toxic is swallowed					
*Skin: May cause Irritation					
*Eyes: May cause serious Irritation					
*Inhalation: Do not breathe dust, vapors, fumes, gas, mist or spray.					

SECTION 4 — FIRST AID MEASURES

Skin Contact Immediately wash with water and soap and rinse thoroughly. Seek immediate medical advice.
Eye Contact Rinse opened eye for several minute under running water. Then consult a doctor.
Inhalation Supply fresh air. If required, provide artificial respiration. Keep patient warm. Seek immediate medical advice.
Ingestion Seek medical treatment immediately.

SAMPLE FORMAT PROVIDED BY THE WORKERS' COMPENSATION BOARD OF BRITISH COLUMBIA

57M6 (6/99)

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SECTION 5 — FIRE FIGHTING MEASURES

Flammable <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		If yes, under which conditions?	
Means of Extinction Product is not flammable, use fire fighting measures that suit the surrounding fire.			
Flashpoint (° C) and Method N/A		Upper Flammable Limit (% by volume) N/A	Lower Flammable Limit (% by volume) N/A
Autoignition Temperature (°C) N/A		Explosion Data — Sensitivity to Impact N/A	Explosion Data — Sensitivity to Static Discharge N/A
Hazardous Combustion Products If this product is involved in a fire, the following can be released” sulfur Oxides (SOx), Copper Oxides			
[NFPA] N/A			

SECTION 6 — ACCIDENTAL RELEASE MEASURES

Leak and Spill Procedures Wear protective equipment. Keep unprotected person away. Ensure adequate ventilation. Wash hands before and after handling. Avoid contact with the eyes and skin. DO NOT allow product to reach sewage or any water course. Remove all soiled and contaminated clothing immediately. Dispose of the contaminated material as waste according to section 13 regulations.

SECTION 7 — HANDLING AND STORAGE

Handling Procedures and Equipment Wear self-contained respirator when high concentrations are present. Wear fully protective impervious suit and gloves. Use proper safe glasses. Keep container tightly sealed and away from foodstuffs, beverages, and feed. Maintain an ergonomically appropriate working environment.
Storage Requirements Store in cool, dry place in tightly closed containers. Prevent formation of dust. Store away from oxidizing agents and metal powders.

SECTION 8 — EXPOSURE CONTROL / PERSONAL PROTECTION

Exposure Limits <input type="checkbox"/> ACGIH TLV <input type="checkbox"/> OSHA PEL <input type="checkbox"/> Other (specify)
Specific Engineering Controls (such as ventilation, enclosed process) Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100ft per minute.
Personal Protective Equipment <input checked="" type="checkbox"/> Gloves <input checked="" type="checkbox"/> Respirator <input checked="" type="checkbox"/> Eye <input type="checkbox"/> Footwear <input checked="" type="checkbox"/> Clothing <input type="checkbox"/> Other
If checked, please specify type Recommended: Use a respirator with type P100 (USA) or P3 (EN 143) cartridges as a backup to engineering controls. Nitrile rubber (NBR) impervious gloves. Check protective gloves prior to each use for their proper condition. Only use equipment tested and approved under appropriate government standards.

SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

Physical State Solid (Crystalline)	Odour and Appearance Blue/Odorless	Odour Threshold (ppm) Not Determined
Specific Gravity Not Determined	Vapour Density (air = 1) \\ Not Determined	Vapour Pressure (mmHg) Not Determined
Evaporation Rate Not Determined	Boiling Point (° C) Not Determined	Freezing Point (° C) Not Determined
pH 20°C (68°F) at (50 g/l): 4	Coefficient of Water/Oil Distribution Not Determined	[Solubility in Water] Water at 20°C (68°F) 317 g/l Soluble

SECTION 10 — STABILITY AND REACTIVITY

Chemical Stability <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If no, under which conditions? Stable under recommended storage conditions.
Incompatibility with other Substances <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes, which ones? Oxidizing agents, Metal powders
Reacting with strong oxidizing agents.	
Reactive, and under what conditions? No information known.	
Hazardous Decomposition Products Sulfur Oxides (SOx) Copper Oxides	

SECTION 11 — TOXICOLOGICAL INFORMATION

Effects of Acute Exposure	
Effects of chronic exposure	
No information known to target specific organ system.	
Irritancy of Product No data available	
Skin sensitization No sensitizing effects known.	Respiratory sensitization No data available
Carcinogenicity-IARC Inadequate human and animal evidence not available	Carcinogenicity - ACGIH Inadequate human and animal evidence not available
Reproductive toxicity No effect known.	Teratogenicity No data available
Embrototoxicity No effect known.	Mutagenicity The registration of Toxic Effects of Chemical Substance contains mutation data for this substance.
Name of synergistic products/effects No data available	

SECTION 12 — ECOLOGICAL INFORMATION

[Aquatic Toxicity]

Very toxic for aquatic organisms. Do not allow product to reach ground water, water course or sewage system, even in small quantities. Poisonous for fish and plankton in water bodies. Avoid transfer into the environment.

Danger to drinking water if even extremely small quantities leak into the ground.

SECTION 13 — DISPOSAL CONSIDERATIONS

Waste Disposal

See Section 13 for Disposal.

Consult state, local, or national regulations to ensure proper disposal and official regulations. Water, if necessary with cleansing agents.

SECTION 14 — TRANSPORT INFORMATION

Special Shipping Information

Warning: Toxic substance. Environment Hazard and Marine Polutant (Symbol: fish and tree)

UN-Number (DOT,IMDG,IATA): UN3288, Toxic solid, inorganic, n.o.s (Copper (II) sulfate pentahydrate), 6.1, III

PIN

TDG

[DOT]

6.1 Toxic Substance (T5)

[IMO]

[ICAO]

SECTION 15 — REGULATORY INFORMATION

[WHMIS Classification]

(D1B)- Toxic material causing immediate/serious toxic effect
(D1B)- Toxic material causing other toxic effects.

[OSHA]

GHS06- Toxic if swallowed, cause skin/eye irritation

[SERA]

[TSCA]

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by CPR.

SECTION 16 — OTHER INFORMATION

The conditions of restriction according to Article 67 and Annex XVII of the regulation (EC) NO 1907/2006 (REACH) for the manufacturing , placing on the market and use must be observed.

Employers should use this information only as supplement to other information gathered by them, and should make independent judgment of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process is the responsibility of the user. A chemical safety assessment has not been carried out.