MATERIAL SAFETY DATA SHEET

SECTION I NAME

Product: Copper (II) Sulfate, Pentahydrate

SECTION II INGREDIENTS OF MIXTURES

Principal Component(s) % TLV Units
Cupric sulfate, pentahydrate > 99 % See Section V.

SECTION III PHYSICAL DATA

Melting Point (°F) Boiling Point (°F) Vapor Pressure (mm Hg) Vapor Density (Air=1) Specific Gravity (H₂O = 1)
653°F (1207°F) Decomposes. N/A N/A 2.28 @ 15.6°C
Percent Volatile by Volume (%) N/A
Evaporation Rate (% by Volume (<1)) N/A
Appearance & Odor Blue crystals or fine blue powder; no odor.

SECTION IV FIRE AND EXPLOSION HAZARD DATA

Flammable Limits in Air % by Volume
Lower Upper
Non-flammable. N/A

SECTION V HEALTH HAZARD DATA

Threshold Limited Value
(Air) As copper metal (dust): 1.0 mg/m³.
Copper (fume) TLV 0.2 mg/m³.

Effects of Overexposure
INGESTION: Copper salts impart a metallic taste in mouth. May cause gastrointestinal irritation and vomiting. EYES: Causes conjunctivitis, swelling of the eyelids, ulceration and burning of the cornea. SKIN: Causes irritation. May cause allergic skin reaction. INHALATION: Causes upper respiratory irritation and congestion of the nasal and mucous membranes. Target organs: Liver, kidneys, lungs, spleen.

Emergency and First Aid Procedures
INGESTION: Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person. EYES: Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention. SKIN: Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention. INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

SECTION VI REACTIVITY DATA

Stability Unstable Stable X
Conditions to Avoid Excessive temperature and heat.

SECTION VII SPILL OR LEAK PROCEDURES

Steps to be taken in case material is released or spilled
Ventilate the area. Sprinkle lime or soda ash on spill to form insoluble copper salt. Sweep up and place in a suitable container for disposal. Wash spill area with soap and water. Prevent material from entering sewers and waterways.

SECTION VIII SPECIAL PROTECTION INFORMATION

Respiration Protection (Specify Type) Ventilation Local Exhaust Recommended. Special No.
Mechanical (General) Recommended. Other No.
Other Protective Equipment Safety glasses, smock, apron, vented hood, proper gloves, and eye wash station.

SECTION IX SPECIAL PRECAUTIONS

Precautions to be Taken in Handling & Storing
Keep container tightly closed when not in use.
Other Precautions
Avoid contact with skin, eyes and clothing. Avoid breathing dust. Use with adequate ventilation. Remove and wash contaminated clothing.

GENERAL PRECAUTIONS

Other Precautions
Read label on container before using. Do not wear contact lenses when working with chemicals. For laboratory use only. Not for drug, food or household use. Keep out of reach of children.

SECTION X PROPERTIES

Physical Form Granular
Specific Gravity (D₂₅) 1.875
Vapor Pressure (mm Hg) N/A
Appearance & Odor Blue crystals or fine blue powder; no odor.

SECTION XI STABILITY AND REACTIVITY

Stability Stable
Conditions to Avoid Excessive temperature and heat.

SECTION XII TOXICITY DATA

Threshold Limit Value
(Air) As copper metal (dust): 1.0 mg/m³.
Copper (fume) TLV 0.2 mg/m³.

Effects of Overexposure
INGESTION: Copper salts impart a metallic taste in mouth. May cause gastrointestinal irritation and vomiting. EYES: Causes conjunctivitis, swelling of the eyelids, ulceration and burning of the cornea. SKIN: Causes irritation. May cause allergic skin reaction. INHALATION: Causes upper respiratory irritation and congestion of the nasal and mucous membranes. Target organs: Liver, kidneys, lungs, spleen.

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INGESTION: Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person. EYES: Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention. SKIN: Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention. INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

SECTION XI SPECIAL PRECAUTIONS

Precautions to be Taken in Handling & Storing
Keep container tightly closed when not in use.
Other Precautions
Avoid contact with skin, eyes and clothing. Avoid breathing dust. Use with adequate ventilation. Remove and wash contaminated clothing.

GENERAL PRECAUTIONS

Other Precautions
Read label on container before using. Do not wear contact lenses when working with chemicals. For laboratory use only. Not for drug, food or household use. Keep out of reach of children.

SECTION XII PROPERTIES

Physical Form Granular
Specific Gravity (D₂₅) 1.875
Vapor Pressure (mm Hg) N/A
Appearance & Odor Blue crystals or fine blue powder; no odor.

SECTION XIII STABILITY AND REACTIVITY

Stability Stable
Conditions to Avoid Excessive temperature and heat.

SECTION XIV TOXICITY DATA

Threshold Limit Value
(Air) As copper metal (dust): 1.0 mg/m³.
Copper (fume) TLV 0.2 mg/m³.

Effects of Overexposure
INGESTION: Copper salts impart a metallic taste in mouth. May cause gastrointestinal irritation and vomiting. EYES: Causes conjunctivitis, swelling of the eyelids, ulceration and burning of the cornea. SKIN: Causes irritation. May cause allergic skin reaction. INHALATION: Causes upper respiratory irritation and congestion of the nasal and mucous membranes. Target organs: Liver, kidneys, lungs, spleen.

Emergency and First Aid Procedures
INGESTION: Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person. EYES: Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention. SKIN: Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention. INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

SECTION XIII SPECIAL PRECAUTIONS

Precautions to be Taken in Handling & Storing
Keep container tightly closed when not in use.
Other Precautions
Avoid contact with skin, eyes and clothing. Avoid breathing dust. Use with adequate ventilation. Remove and wash contaminated clothing.

GENERAL PRECAUTIONS

Other Precautions
Read label on container before using. Do not wear contact lenses when working with chemicals. For laboratory use only. Not for drug, food or household use. Keep out of reach of children.

SECTION XIV PROPERTIES

Physical Form Granular
Specific Gravity (D₂₅) 1.875
Vapor Pressure (mm Hg) N/A
Appearance & Odor Blue crystals or fine blue powder; no odor.

SECTION XV STABILITY AND REACTIVITY

Stability Stable
Conditions to Avoid Excessive temperature and heat.

SECTION XVI TOXICITY DATA

Threshold Limit Value
(Air) As copper metal (dust): 1.0 mg/m³.
Copper (fume) TLV 0.2 mg/m³.

Effects of Overexposure
INGESTION: Copper salts impart a metallic taste in mouth. May cause gastrointestinal irritation and vomiting. EYES: Causes conjunctivitis, swelling of the eyelids, ulceration and burning of the cornea. SKIN: Causes irritation. May cause allergic skin reaction. INHALATION: Causes upper respiratory irritation and congestion of the nasal and mucous membranes. Target organs: Liver, kidneys, lungs, spleen.

Emergency and First Aid Procedures
INGESTION: Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person. EYES: Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention. SKIN: Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention. INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

SECTION XV SPECIAL PRECAUTIONS

Precautions to be Taken in Handling & Storing
Keep container tightly closed when not in use.
Other Precautions
Avoid contact with skin, eyes and clothing. Avoid breathing dust. Use with adequate ventilation. Remove and wash contaminated clothing.

GENERAL PRECAUTIONS

Other Precautions
Read label on container before using. Do not wear contact lenses when working with chemicals. For laboratory use only. Not for drug, food or household use. Keep out of reach of children.

SECTION XVI PROPERTIES

Physical Form Granular
Specific Gravity (D₂₅) 1.875
Vapor Pressure (mm Hg) N/A
Appearance & Odor Blue crystals or fine blue powder; no odor.