SAFETY DATA SHEET

GREAT LAKES COPPER LTD.

1010 Clarke Road, London, Ontario. N5Y 5S6

SECTION 1. IDENTIFICATION

PRODUCT NAME:	Copper pipe, C10100, C10200, C10300, C10400, C10700, C11000, C11400, C11500, C11600, C12200, C14420
RECOMMENDED USE:	Domestic plumbing and industrial applications
SUPPLIER:	Great Lakes Copper Ltd. | 1010 Clarke Road | London, Ontario | N5Y 5S6
TELEPHONE NUMBER:	519-455-0770
EMERGENCY TELEPHONE NUMBER:	519-455-0770

SECTION 2. HAZARDS IDENTIFICATION

COMPONENT	**Copper**
COMPOSITION *Minor ingredients at concentrations less than 0.1% is not classified under GHS	**> 99.9**
SYMBOL / SIGNAL WORD / HAZARD STATEMENT	**None Listed**

POTENTIAL HEALTH HAZARDS
Copper and copper alloys are not considered hazardous in bulk form. Grinding, cutting, milling, melting, or welding may generate hazardous dust or fumes.

EMERGENCY OVERVIEW
Copper pipes are considered articles and not hazardous. Emergency overview not applicable

POTENTIAL HEALTH EFFECTS OF DUST OR FUME

EYES	May cause eye irritation
SKIN	May cause skin irritation
INGESTION	May cause gastrointestinal irritation. Harmful if swallowed.
INHALATION	Fume may cause flu-like symptoms, with metallic taste, fever, chills, cough, weakness, chest pain, muscle pain, and increased white blood cell count.
CHRONIC	Prolonged or repeated exposure may cause dermatitis, damage to liver, kidney and or lunG

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL NAME	Copper
CAS NUMBER	7440-50-8
Copper	> 99.9
Other Ingredients include silver, tellurium, tin and phosphorus, totaling :	< 0.1*
OTHER INGREDIENTS (<0.1% IN CONCENTRATION):	Silver, Tellurium, Tin and Phosphorus

SECTION 4. FIRST-AID MEASURES

EYES
Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Seek medical attention.

SKIN
Flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Get medical aid, if irritation persists.

INGESTION
May cause gastrointestinal irritation. Harmful if swallowed.

INHALATION
Remove from exposure to fresh air. If not breathing provide artificial respiration and quickly transport to emergency care.

INGESTION
If victim is conscious, wash mouth out with water and drink water to dilute. Do not induce vomiting. Obtain medical care.

SECTION 5. FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA
Not applicable. Product is non-flammable. Use Class D extinguishing agents or sand on fires involving dust. Use any means suitable for surrounding fire.

SPECIFIC HAZARDS ARISING FROM MATERIAL
None applicable to bulk product. Dust from grinding may burn, if ignited.

HAZARDOUS COMBUSTION PRODUCTS
At temperatures above the melting point, fumes containing oxides of copper may be produced.

SPECIAL PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIRE FIGHTERS
As in any fire, wear self contained breathing apparatus in pressure-demand and full protective gear. Dust can be an explosion hazard when exposed to heat or flame.

SECTION 6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES
Not applicable to bulk copper. If process involves formation of dust or fumes, clean-up personnel should wear NIOSH approved respirator (See Section 8).

ENVIRONMENTAL PRECAUTIONS
Not applicable to bulk copper. If spill involves, dust, do not flush into surface water or sanitary sewer system.

METHODS AND MATERIALS FOR CONTAINMENT AND CLEAN-UP
Not applicable to bulk copper. If cleaning-up dust, wet sweeping is recommended. Avoid generating dust.

SECTION 7. HANDLING AND STORAGE

HANDLING
No Special precautions for copper in bulk. If dust or fume is generated in process, evaluate the potential for worker exposure, use controls (engineering, personnel protection, administrative) to maintain airborne levels below occupational exposure limits. Observe good housekeeping and personal hygiene practices.

STORAGE
No special precautions necessary.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

CAS NUMBER FOR COPPER 7440-50-8

OCCUPATIONAL EXPOSURE LIMITS: IF WORK PROCESS INVOLVES POTENTIAL FOR GENERATION OF DUST, FUME OR MIST, FOLLOWING WOULD APPLY:

CHEMICAL NAME	CAS NUMBER	ACGIH TLV in mg/m³	OSHA PEL in mg/m³
Copper	7440-50-8	0.2 for fumes 1 for dust	0.1 for fumes 1 for dust
Tellurium	13494-80-9	0.1	0.1

Tin	7440-31-5	2	2
Phosphorous	May be present as cuprous phosphide, not as elemental phosphorus. Occupational Exposure limits for cuprous phosphide not available.		
Silver	7440-22-4	0.1 (metal, dust and fume)	0.01

ENGINEERING CONTROLS
Provide sufficient general and/or local exhaust ventilation, as appropriate to keep airborne levels below respective occupational exposure limits.

PERSONAL PROTECTIVE EQUIPMENT

- **Respiratory Protection**
  If airborne exposures do not exceed the OELs, respiratory protection may be worn, if desired. NIOSH-Approved N95 Particulate Filtering Face piece air-purifying respirators are appropriate.
- **Hand Protection**
  Avoid skin contact. Wear gloves, as required.
- **Eye Protection**
  Avoid eye contact. Wear eye glasses or goggles as required. An eyewash station should be provided.
- **Body Protection**
  If handling molten metal, wear suitable clothing to prevent burns, to cover full body.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE	Bright Reddish Solid
ODOUR	Odourless
ODOUR THRESHOLD	Not Applicable
pH	Not Applicable
MELTING POINT/FREEZING POINT	1085 °C (Melting point)
INITIAL BOILING POINT/BOILING RANGE	2562 °C (Boiling point)
FLASH POINT	Not Applicable
EVAPORATION RATE	Not Applicable
FLAMMABILITY	Not Flammable in Bulk
LOWER FLAMMABLE/EXPLOSIVE LIMIT	Not Applicable
UPPER FLAMMABLE/EXPLOSIVE LIMIT	Not Applicable
VAPOUR PRESSURE	Not Applicable
VAPOUR DENSITY	Not Applicable
RELATIVE DENSITY	8.94
SOLUBILITY	Not Soluble
PARTITION COEFFICIENT-N-OCTANOL/WATER	Not Applicable
AUTO-IGNITION TEMPERATURE	Not Applicable
DECOMPOSITION TEMPERATURE	No Data Available
VISCOSITY	Not Applicable

SECTION 10. STABILITY AND REACTIVITY

REACTIVITY	May discolour on exposure to air and moisture.
CHEMICAL STABILITY	Copper is stable under normal storage conditions.
POSSIBILITY OF HAZORDOUS REACTIONS	No known hazardous reactions
CONDITIONS TO AVOID	Dust formation; contact with oxidizers and acids; contact of molten metal with water.
INCOMPATIBLE MATERIALS	Strong acids, particularly nitric acid, oxidizers, acetylene and halogens.
HAZORDOUS DECOMPOSITION PRODUCTS	None known

SECTION 11. TOXICOLOGICAL INFORMATION

LIKELY ROUTES OF EXPOSURE

- **Inhalation**
  If dust is inhaled, may cause irritation of nose and throat. If heated, resulting in formation of fumes, exposure may cause metal fume fever, a flu-like condition.
- **Ingestion**
  Not a likely route of entry in industrial environment, if good hygiene practices are followed (Example: washing before eating, drinking, smoking etc.).
- **Skin**
  Dust and fumes at high concentrations may cause skin irritation.
- **Eye**
  Dust and fumes at high concentrations may cause irritation (mechanical irritation) to the eye.

TOXICITY GENERAL
None for bulk copper. Copper is considered to have low toxicity.

ACUTE TOXICITY
None for bulk copper. LD^{50} not known. LC^{50}

CHRONIC TOXICITY
None for copper in bulk.

Carcinogenicity:	Not Classified as a Carcinogen, (By ACGIH or IARC).
Mutagenicity:	No data available.
Teratogenicity:	No data available.
Reproductive Toxicity:	No data available.
Synergistic Effects:	No data available.

EFFECTS OF SHORT-TERM EXPOSURE
None for bulk copper. Exposure to dust and fume may cause metallic taste in the mouth, dryness or irritation of the throat, feeling of illness, similar to the common cold with sensations of chills and stuffiness of the head. Small particles may enter the eye and cause irritation and damage to the eye.

EFFECTS OF LONG-TERM EXPOSURE
None for bulk copper. Prolonged and repeated exposure to copper dust, mist and fumes may cause allergic skin reactions.

SECTION 12. ECOLOGICAL INFORMATION

ECOTOXICITY
Not applicable to bulk copper. Toxicity of copper in the aquatic environment is reduced by the presence of naturally occurring humic material. Fish species vary in their sensitivity to free cupric ions. LD50 for 96-h exposure to copper sulphate reported to be approximately 58 mg per litre (tilapia) and 70 mg per litre (catfish).

Persistence and degradability:	No data available
Bioaccumulative potential:	No data available
Mobility in soil:	No data available for bulk copper. Copper dust may migrate into soil and ground water.
Other adverse effects:	None known.

SECTION 13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHODS
Dispose in accordance with applicable federal, provincial/state or municipal Regulations. Do not discharge material contaminated with copper dust to the environment, in sewers or watercourses.

SECTION 14. TRANSPORT INFORMATION

GENERAL SHIPPING INFORMATION
Not regulated for transport

SECTION 15. REGULATORY INFORMATION

CANADIAN REGULATIONS

WHMIS Classification:	Not a controlled/hazardous product
Domestic Substance List:	CAS# 7440-50-8 is on Federal DSL inventory

US REGULATIONS

SARA Threshold Planning Quantity:	There is no specific Threshold Planning Quantity for this material
TSCA Inventory:	Materials of this product are listed on the Toxic Substances Control Act Inventory.

This product has been classified in accordance with the hazard criteria of the Canadian Federal Hazardous Products Regulations and the US Hazard Communication Standard and the SDS contains all the information required by those Regulations.

SECTION 16. OTHER INFORMATION

Date of Preparation/Revision: March 2013/ Revised: March 2018