Great Lakes Copper Ltd.

1010 Clarke Road, London, Ontario. N5Y 5S2

SAFETY DATA SHEET

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 5S2**
Telephone Number:	519-455-0770
Emergency Telephone Number:	519-455-0770

SECTION 2. HAZARDS IDENTIFICATION

Component

Copper: > 99.9

* Minor i*ngredients at concentrations less than 0.1% is not classified under GHS*

Symbol, Signal word, Hazard statement or precautionary statements: None Listed.

Potential Health Hazards: Copper and copper alloys are not considered hazardous in its bulk form. However, if process involves grinding, cutting, milling, melting or welding, hazardous dust or fume may be generated and released to the environment.

Emergency Overview: Copper pipes are considered articles. They are not considered hazardous. Emergency overview is not applicable.

Potential Health Effects of dust or fume:

Eye: May cause eye irritation

Skin: May causes 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 eyes with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Get medical aid, if irritation persists.
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/m^3)	OSHA PEL (in mg/m^3)
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
Phosphorus	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 hazardous 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.
Hazardous 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.
$LC_{50:}$ Not known.

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 Substances 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**