

# Copper Matte

## Section 1. Identification of the Substance and Company

### 1.1 Product Identification:

*Product name:* Copper Matte

*Synonyms:* MK

EC No: 266-967-8

CAS No: 67711-91-5

REACH Registration number: see Section 15

### 1.2 Uses

Identified Uses:

Intermediate feed material

### 1.3 Company Identification

*Manufactured by:*

Vale Canada Limited

Ontario Operations

Sudbury, ON

Canada PoM 1No

*Distributed by:*

Vale Canada Limited

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Suite1600, South Tower

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*REACH Only Representative for Vale Canada Limited:*

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**for Europe call CHEMTREC: +(44) 870 8200418**

## Section 2. Hazard Identification

### 2.1 Classification of the substance:

Carcinogenicity – Category 1A;

Single Target Organ Toxicity, Repeated exposure – Category 2

Hazard Pictograms: GHS08 - Health Hazard,

Signal Word: Danger

Hazard Statements: H350i - May cause cancer by inhalation  
H373 - May cause damage to organs through prolonged or repeated exposure

Precautionary Statements: P201, P202, P260, P280, P308+P313, P314, P405, P501

## 2.2: Label elements

Product identifier: Copper Matte

CAS #: 67711-91-5

Symbols:

GHS08 - Health Hazard



Signal Word: Danger

Hazard Statements: H350 – May cause cancer by inhalation  
H373 – May cause damage to organs through prolonged or repeated exposure

Precautionary Statements: P202- Do not handle until all safety precautions have been read and understood  
P260 - Do not breathe dust or fume  
P280 - Wear protective gloves and protective clothing  
P308+P313 - If exposed or concerned: Get medical advice/attention  
P501- Dispose of contents/container in accordance to local regional, national and international regulations

(NOTE: P-statements have been reduced)

For full text of Precautionary statements see section 15.

## Section 3. Composition

Substance

Mixture

Hazardous Ingredients	Typical Composition	C.A.S. Number	EINECS/ EC Label No.
Copper Sulphide	85-100	22205-45-4	244-842-9
Nickel Subsulphide	3-7	12035-72-2	234-829-6
Iron	0.1-1	7439-89-6	231-096-4

#### Section 4. First Aid Measures

<i>Skin Contact:</i>	If on skin, wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention.
<i>Eye Contact:</i>	Immediately flush with water for 15 minutes hold eyelids open while flushing with water
<i>Inhalation:</i>	For respiratory tract irritation remove to fresh air. If symptoms persist, seek medical attention.
<i>Ingestion:</i>	If exposed or concerned: Get medical advice/attention

#### Section 5. Fire Fighting Measure

<i>Suitable extinguishing media:</i>	Any, type to be selected according to materials stored in the immediate neighbourhood.
<i>Special risks:</i>	Non-flammable. This material contains sulphides which when exposed to flame may evolve sulphur dioxide.
<i>Special protective Equipment for fire fighting:</i>	None needed. Wear protective equipment if required for other materials within the immediate vicinity.

#### Section 6. Accidental Release Measures

<i>Person related precautionary measures:</i>	Avoid generation of dusty atmospheres. Do not inhale dusts.
<i>Environmental Protection measures:</i>	Avoid release to the environment.
<i>Procedures for cleaning/absorption:</i>	Pick up and replace in original container. Material is normally collected to recover metal values.

#### Section 7. Handling and Storage

<i>Handling:</i>	Prevent the generation of inhalable dusts e.g. by the use of suitable ventilation. Do not inhale dust. Wear appropriate nationally approved respirators if handling is likely to cause the concentration of airborne dusts to exceed the locally prescribed exposure limits. Wear suitable protective clothing and gloves.
<i>Storage:</i>	Keep in the container supplied, and keep container closed when not in use. Local regulations should be followed regarding the storage of this product.

## Section 8. Exposure Controls / Personal Protection

### 8.1.1 Exposure Limits:

	ACGIH TLV Exposure Limit (mg/m <sup>3</sup> ) <sup>1</sup>	UK WEL Exposure Limit (mg/m <sup>3</sup> ) <sup>2</sup>
Copper Sulphide	1.0 (as Cu)	1 (as Cu)
Nickel Subsulphide	0.1 * (as Ni)	0.5 (as Ni)
Iron	N/A	5

\* - inhalable fraction

### DNEL's

	Unit	DNEL
Inhalation		
Acute local	mgCu/m <sup>3</sup>	1.0
Long-term local	mgCu/m <sup>3</sup>	1.0

	Unit	DNEL
Dermal		
Long-term local	mgNi/cm <sup>2</sup> /day	0.035
Inhalation		
Acute local	mgNi/m <sup>3</sup>	4.0
Long-term	mgNi/m <sup>3</sup>	0.05
Long-term local	mgNi/m <sup>3</sup>	0.05

### 8.1.2 Environmental Limits:

#### PNEC's

Compartment	Unit	PNEC
Freshwater	µg Cu/L	7.8
Marine	µg Cu/L	5.2

Compartment	Unit	PNEC
Freshwater	µg Ni/L (bioavailable)	7.1
Marine	µg Ni/L	8.6
Terrestrial	mg Ni/kg	29.9

### 8.2.1 Occupational exposure controls:

Mechanical extraction ventilation may be required. Maintain airborne levels as low as possible. Do not breathe dust. Avoid repeated skin contact.

**PPE**

*Respiratory protection:* If required, use an approved respirator with particulate filters.

*Eye protection:* None

*Hand & Skin Protection:* Wear suitable protective clothing and gloves, which should be selected specifically for the working place, depending on concentration and quantity of the hazardous material (overalls and leather/rubber gloves). Wash skin thoroughly after handling and before eating, drinking or smoking. Change contaminated clothing frequently. Launder clothing and gloves as needed.

Section 9. Physical and Chemical Properties

Black, moist odourless powder

Physical state at 20°C and 101.3 kPa	solid
Melting / freezing point	Not applicable
Boiling point	Not available
Decomposition temperature	Not available
Relative density	Not available
Vapour pressure	Not applicable
Vapour density	Not applicable
Surface tension	Not applicable
Water solubility	Insoluble
pH	Not applicable
Evaporation rate	Not applicable
Partition coefficient n-octanol/water (log value)	Not applicable
Flash point	Not applicable
Flammability	Non-flammable
Explosive properties	Non-explosive
Self-ignition temperature	Very finely divided metal in the fully reduced state can smoulder in the presence of oxygen or air.
Oxidising properties	Non-oxidising
Granulometry	Powder
Stability in organic solvents and identity of relevant degradation products	Not applicable
Dissociation constant	Not applicable

Viscosity

Not applicable

## Section 10. Stability and Reactivity

<i>Conditions to be avoided:</i>	Product is stable. Hazardous polymerization will not occur.
<i>Materials to be avoided:</i>	Upon contact with acids, hydrogen sulphide is evolved. Many sulphides react violently and explosively with powerful oxidizers
<i>Hazardous decomposition products:</i>	SO <sub>x</sub> , H <sub>2</sub> S

## Section 11. Toxicological Information<sup>3</sup>

### Copper Sulphide

No standard animal toxicity values (LD<sub>50</sub>'s) were located.

<i>Inhalation:</i>	Copper dusts may be irritating to the respiratory tract.
<i>Pre-existing conditions:</i>	Wilson's disease can occur in certain individuals with a rare, inherited metabolic disorder characterized by retention of excessive amounts of copper in the liver, brain, kidneys and corneas. These deposits eventually lead to tissue necrosis and fibrosis, causing a variety of clinical effects, especially liver disease and neurologic changes. Wilson's disease is progressive and, if untreated, leads to fatal liver failure.

### Nickel Subsulphide

#### Acute Toxicity:

a) Oral:	Non toxic - LD <sub>50</sub> ORAL RAT >5000 mg/kg
b) Inhalation:	LC <sub>50</sub> (inhalation) 1,140mg/m <sup>3</sup> air
c) Dermal:	No information available.

#### Corrosivity/Irritation:

a) Respiratory Tract:	None
b) Skin:	See sensitization section.
c) Eyes:	Mechanical irritation may be expected.

#### Sensitization:

a) Respiratory tract:	No information available.
b) Skin:	Nickel Subsulphide is classified as a skin sensitizer. Direct and prolonged skin contact may induce nickel allergy and elicit nickel allergic skin reactions in those people already sensitized to nickel, so called nickel allergic contact dermatitis.
c) Pre-existing conditions:	Individuals known to be allergic to nickel should avoid contact with the material whenever possible to reduce the likelihood of nickel allergic contact dermatitis reactions (skin rashes). Repeated contact may result in persistent chronic

palmar/hand dermatitis in a smaller number of individuals, despite efforts to reduce or avoid nickel exposure.

*Chronic toxicity:*

*a) Oral:*

No information available

*b) Inhalation:*

No information available

*c) Dermal:*

Direct and prolonged skin contact with nickel metal may cause nickel sensitization resulting in nickel allergic contact dermatitis /skin rash.

*Mutagenicity /*

*Reproductive toxicity:*

No data.

*Carcinogenicity*

*a) Ingestion:*

The U.S. National Institute for Occupational Safety and Health (NIOSH) concluded that there is no evidence that nickel metal is carcinogenic when ingested.

*b) Inhalation:*

Rats exposed by inhalation to (approx.) 1 mg Ni<sub>3</sub>S<sub>2</sub>/m<sup>3</sup> experienced an increased incidence of malignant lung tumours. Repeated intratracheal instillation of nickel subsulphide produced an increased incidence of malignant lung tumours in rats. Repeated intratracheal instillation of nickel subsulphide did not produce an increased incidence of malignant lung tumours in hamsters when administered at the maximum tolerated dose.

The International Agency for Research on Cancer (IARC) concluded there was sufficient evidence that nickel compounds are carcinogenic to humans and that crystalline nickel sulphides are carcinogenic to animals. Epidemiological studies of workers engaged in the oxidation of nickel subsulphide (Ni<sub>3</sub>S<sub>2</sub>) by dusty processes indicated the presence of a significant respiratory cancer hazard. The American Conference of Governmental Industrial Hygienists (ACGIH) have classified nickel subsulphide as Confirmed Human Carcinogen (A1).

### Section 12. Ecological Information

*Toxicity:* Not classified as toxic to the aquatic environment

*Persistence and degradability:* No information available

*Bioaccumulative* No information available

*Potential:*

*Mobility in soil:* The substance is essentially insoluble in water

*Results of PBT and vPvB assessment:* Not classified as PBT or vPvB

*Other adverse effects:* None anticipated

### Section 13. Disposal Considerations

*Waste treatment methods* Recover or recycle if possible. Dispose of contents in accordance with local, state or national legislation.

*Additional Information* No information available.

### Section 14. Transport Information

International Maritime Dangerous Goods Code	Not regulated.
International Civil Aviation Organization Technical Instructions for the Carriage of Dangerous Goods by Air	Not regulated.
U.S. Dept. of Transportation Regulations	Not regulated.
Canadian Transportation of Dangerous Goods Act	Not regulated.
European Agreement Concerning the International Carriage of Dangerous Goods by Road	Not regulated.

### **MARPOL Annex V**

Under the 7 Criteria contained within the MARPOL Annex V, This material is classified as:

	Harmful to the Marine Environment (HME)
<b>X</b>	<b>Not Harmful to the Marine Environment (non-HME)</b>

### Section 15. Regulatory Information

Europe:

REACH Registration #'s

ECHA: 01-2119489451-33-XXXX – Vale Canada Limited (H2 Compliance acting as Only Representative)



UK: UK-01-4444210825-2-0001 – Vale Canada Limited (Vale Europe acting as Only Representative)

Classification according to Part 3 of Annex VI of EU Regulation No. 1272/2008

Carcinogenicity – Category 1A;  
 Single Target Organ Toxicity, Repeated exposure – Category 2

Symbols: GHS08 - Health Hazard,



Signal Word: Danger

Hazard Statements: H350i - May cause cancer by inhalation  
 H373 - Causes damage to lungs through prolonged or repeated inhalation exposure

Precautionary Statements: Prevention  
 P201 - Obtain special instructions before use  
 P202 - Do not handle until all safety precautions have been read and understood  
 P260 - Do not breathe dust or fume  
 P280 - Wear protective gloves and protective clothing

Response:  
 P308+P313 - If exposed or concerned: Get medical advice/attention  
 P314 - Get medical advice/attention if you feel unwell.

Storage:  
 P405 - store locked up

Disposal:  
 P501 - Dispose of contents/container in accordance to local; regional; national and international regulations

Canada:  
 WHMIS 2015 Classification:  
 Carcinogenicity - Category 1A;  
 Single Target Organ Toxicity, Repeated exposure – Category 2

Section 16. Other Information

Indications of Change

1.0 – Original Document

- 1.1 – updated Marketed by Information
- 2.0 – Updated classification (section 2 & section 14) based on REACH evaluation data.
- 2.1 – Updated Nickel Subsulphide Acute Toxicity, Inhalation.
- 3.0 – WHMIS 2015 classification update
- 3.1 – Updated Only Representative
- 3.3 – Updated UK REACH registrations

The following acronyms may be found in this document:

ACGIH	American Conference of Governmental Industrial Hygienists
DNEL	Derived No Effect Level
LTEL	Long Term Exposure Limit
LR	Lead Registrant
MMAD	Mass Median Aerodynamic Diameter
NIOSH	National Institute of Occupational Safety and Health
OEL	Occupational Exposure Limits
OR	Only Representative
OSHA	Occupational Safety and Health Administration
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No Effect Concentration
STOT	Specific Target Organ Toxicity
TLV-TWA	Threshold Limit Value – Time Weighted Average
vPvB	very Persistent and vey Bioaccumulative
WEL	Workplace Exposure Limit (UK HSE EH40)

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**Note:**

***Vale Canada Limited believes that the information in this Safety Data Sheet is accurate. However, Vale makes no express or implied warranty as to the accuracy of such information and expressly disclaims any liability resulting from reliance on such information.***

1. Threshold Limit Values of the American Conference of Governmental Industrial Hygienists. 2016.
2. Maximum Exposure Limit of the Health and Safety Executive in the U.K. in EH40/00.
3. Describes possible health hazards of the product supplied. If user operations change it to other chemical forms, whether as end products, intermediates or fugitive emissions, the possible health hazards of such forms must be determined by the user.