



Material Safety Data Sheet

Product Name: COPPER LEAF RELIEF®

ID: 1383

*** Section 1 - Chemical Product and Company Identification ***

Chemical Formula: Copper (Cu) with a variety of alloying elements
Product Use: Formed and perforated panel installed on top of gutters

Ply Gem Industries, Inc.
2600 Grand Blvd., Suite 900, Kansas City, MO 64108

Phone: 1-816-426-8200

Emergency Information: USA: Chemtrec: 1-800-424-9300 or 1-703-527-3887

*** Section 2 - Hazards Identification ***

EMERGENCY OVERVIEW

Solid, perforated sheet. Reddish brown color. Odorless. Non-combustible as supplied. Dust and fines may be ignitable. Heavily concentrated dusts in air can be explosive if subjected to a strong ignition source.

POTENTIAL HEALTH EFFECTS

The following statements summarize the health effects generally expected in cases of overexposures. User specific situations should be assessed by a qualified individual. Additional health information can be found in Section 11.

The health effects listed below are not likely to occur unless processing of this product generates dust or fumes.

Eyes

Dust or fume from processing: Can cause mechanical irritation.

Skin

Health effects from mechanical processing (e.g., cutting, grinding): Can cause irritation. Prolonged or repeated contact with the skin can cause sensitization and allergic contact dermatitis.

Inhalation

Health effects from mechanical processing (e.g., cutting, grinding): **Chronic overexposures:** Can cause irritation of upper respiratory tract, hair discoloration, respiratory sensitization and scarring of the lungs.

Carcinogenicity and Reproductive Hazard

Product as shipped: Does not present any cancer or reproductive hazards.

Dust and fumes from mechanical processing: Can present a cancer hazard (Nickel dust/fume).

Medical Conditions Aggravated By Exposure to Product, Components or Compounds Formed During Processing

Dust or fume from processing: Asthma, chronic lung disease, and skin rashes.

*** Section 3 - Composition / Information on Ingredients ***

Complete composition is provided below and may include some components classified as non-hazardous.

CAS #	Component	Percent
7440-50-8	Copper	68-100
7440-02-0	Nickel	0-18
7429-90-5	Aluminum	0-9
7440-66-6	Zinc	0-5
	Polymeric sealing strip	0-2

Material Safety Data Sheet

Product Name: COPPER LEAF RELIEF®

ID: 1383

*** Section 4 - First Aid Measures ***

First Aid: Eyes

Dust or fume from processing: Flush eyes with plenty of water or saline for at least 15 minutes. Consult a physician.

First Aid: Skin

Dust or fume from processing: Wash skin with soap and water for at least 15 minutes. Consult a physician if irritation persists.

First Aid: Inhalation

Dust or fume from processing: Remove to fresh air. If unconscious or severely injured, check for clear airway, breathing and presence of pulse. Perform CPR if there is no pulse or respiration. Consult a physician.

*** Section 5 - Fire Fighting Measures ***

Flammable/Combustible Properties

This product does not present fire or explosion hazards as shipped. Dust and fines may be ignitable. Heavily concentrated dusts in air can be explosive if subjected to a strong ignition source.

Extinguishing Media

Use Class D extinguishing agents on dusts, fines or molten metal.

Unsuitable Extinguishing Media

DO NOT USE:

- * Halogenated agents on dust or fines.
- * Water around molten metal.

Fire Fighting Equipment/Instructions

Fire fighters should wear NIOSH approved, positive pressure, self-contained breathing apparatus and full protective clothing when appropriate.

*** Section 6 - Accidental Release Measures ***

Small/Large Spill

Recover using mechanical means.

*** Section 7 - Handling and Storage ***

Handling/Storage

Avoid contact with sharp edges or heated metal. Avoid generating dust.

*** Section 8 - Exposure Controls / Personal Protection ***

Engineering Controls

If dust or fumes are generated through processing: Use with adequate ventilation to meet the limits listed in Section 8, Exposure Guidelines.

Personal Protective Equipment

Respiratory Protection

If dust or fumes are generated through processing: Use NIOSH-approved respiratory protection as specified by an Industrial Hygienist or other qualified professional if concentrations exceed the limits listed in Section 8, Exposure Guidelines. Suggested respiratory protection: N95

Eye Protection

Wear safety glasses/goggles to avoid eye injury.

Skin Protection

Wear appropriate gloves to avoid any skin injury.

Material Safety Data Sheet

Product Name: COPPER LEAF RELIEF®

ID: 1383

A: Component Exposure Limits

Copper (7440-50-8)

ACGIH 0.2 mg/m3 TWA (fume); 1 mg/m3 TWA (dust and mist, as Cu)

OSHA 0.1 mg/m3 TWA (fume); 1 mg/m3 TWA (dust and mist)

Nickel (7440-02-0)

ACGIH 1.5 mg/m3 TWA (inhalable fraction)

OSHA 1 mg/m3 TWA

Aluminum (7429-90-5)

ACGIH 10 mg/m3 TWA (metal dust)

OSHA 15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)

*** Section 9 - Physical & Chemical Properties ***

Physical State: Solid, perforated sheet	Appearance: Reddish brown
Boiling Point: 4703°F (2595°C)	Melting Point: 1981°F (1083°C)
Vapor Pressure: Not applicable	Solubility in Water: Not soluble
Density: 0.29 lb/in ³ (8.04 g/cm ³)	pH Level: Not applicable
Odor: Odorless	Octanol-Water Coefficient: Not applicable

*** Section 10 - Chemical Stability & Reactivity Information ***

Stability

Stable under normal conditions of use, storage, and transportation.

Incompatibility

Mercury, ammonia, acetylene, halogens, strong acids, strong alkalis and strong oxidizers.

Hazardous Polymerization

Will not occur.

*** Section 11 - Toxicological Information ***

Health Effects Associated with Individual Ingredients

Copper dust and mists Can cause irritation of eyes, mucous membranes, skin and respiratory tract. Chronic overexposures: Can cause reduction in the number of red blood cells (anemia), skin abnormalities (pigmentation changes) and hair discoloration.

Nickel dust and fumes Can cause irritation of eyes, skin and respiratory tract. Eye contact: Can cause inflammation of the eyes and eyelids (conjunctivitis). Skin contact: Can cause sensitization and allergic contact dermatitis. Chronic overexposures: Can cause perforation of the nasal septum, inflammation of the nasal passages (sinusitis), respiratory sensitization, asthma and scarring of the lungs (pulmonary fibrosis). **Nickel alloys** IARC/NTP: Reviewed but not recommended for listing by the NTP. Listed as possibly carcinogenic to humans by IARC (Group 2B)*.

Aluminum dust, fines and fumes Low health risk by inhalation. Generally considered to be biologically inert (milling, cutting, grinding).

Acute Toxicity of Ingredients/Formed Compounds

A: General Product Information

No information available for product.

B: Component Analysis - LD50/LC50

Nickel (7440-02-0)

Oral LD50 Rat: >9000 mg/kg

Material Safety Data Sheet

Product Name: COPPER LEAF RELIEF®

ID: 1383

Carcinogenicity of Ingredients

A: Ingredient Carcinogenicity - IARC/NTP

Component	CAS	IARC 1	IARC 2A	IARC 2B	IARC 3	IARC 4	NTP K	NTP RA
Nickel	7440-02-0	No	No	Yes	No	No	No	Yes

B: Ingredient Carcinogenicity - ACGIH

Nickel (7440-02-0)

ACGIH A5 - Not Suspected as a Human Carcinogen

C: Ingredient References

Nickel (7440-02-0)

IARC Monograph 49, 1990; Supplement 7, 1987

Descriptions of IARC and NTP Classifications

IARC 1: The agent is carcinogenic to humans. There is sufficient evidence that a causal relationship existed between exposure to the agent and human cancer.

IARC 2A: The agent is probably carcinogenic to humans. Generally includes agents for which there is limited evidence of carcinogenicity in humans and sufficient evidence of carcinogenicity in experimental animals.

IARC 2B: The agent is possibly carcinogenic to humans. Generally includes agents for which there is limited evidence in humans and less than sufficient evidence in experimental animals.

IARC 3: The agent is not classifiable as to its carcinogenicity to humans. Generally includes agents for which there is inadequate evidence in humans and inadequate or limited evidence in experimental animals.

IARC 4: The agent is probably not carcinogenic to humans. Generally includes agents for which there is evidence suggesting lack of carcinogenicity in humans and in experimental animals.

NTP K: Known to be a human carcinogen.

NTP RA: Reasonably anticipated to be a human carcinogen.

* * * Section 12 - Ecological Information * * *

Ecotoxicity

A: General Product Information

No information available for product.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Copper (7440-50-8)

96 Hr LC50 Pimephales promelas: 23 µg/L; 96 Hr LC50 Oncorhynchus mykiss: 13.8 µg/L; 96 Hr LC50 Lepomis macrochirus: 236 µg/L

72 Hr EC50 Scenedesmus subspicatus: 120 µg/L

96 Hr EC50 water flea: 10 µg/L; 96 Hr EC50 water flea: 200 µg/L

Nickel (7440-02-0)

96 Hr LC50 Oncorhynchus mykiss: 31.7 mg/L (adult); 96 Hr LC50 Pimephales promelas: 3.1 mg/L; 96 Hr LC50 Brachydanio rerio: >100 mg/L

72 Hr EC50 freshwater algae (4 species): 0.1 mg/L; 72 Hr EC50 Selenastrum capricornutum: 0.18 mg/L

96 Hr EC50 water flea: 510 µg/L

Zinc (7440-66-6)

96 Hr LC50 Pimephales promelas: 6.4 mg/L

96 Hr EC50 Selenastrum capricornutum: 30 µg/L

72 Hr EC50 water flea: 5 µg/L

Environmental Fate

No information available for product.

* * * Section 13 - Disposal Considerations * * *

Disposal Instructions

Reuse or recycle material whenever possible. Material may be disposed of at a sanitary landfill.

Material Safety Data Sheet

Product Name: COPPER LEAF RELIEF®

ID: 1383

US EPA Waste Number & Descriptions

A: General Product Information

RCRA Status: Not federally regulated in the U.S. if disposed of "as is". Otherwise, characterize in accordance with applicable regulations (40 CFR 261 or state equivalent in the U.S.)

B: Component Waste Numbers

RCRA waste codes other than described under Section A may apply depending on use of product. Refer to 40 CFR 261 or state equivalent in the U.S.

*** Section 14 - Transportation Information ***

Special Transportation

	PSN #1	PSN #2	PSN #3	PSN #4
Notes:	(1)			
Proper Shipping Name:	Not regulated			
Hazard Class:	-			
UN NA Number:	-			
Packing Group:	-			
RQ:	-			
Other - Tech Name:	-			
Other - Marine Pollutant:	-			

Notes:

- (1) When "Not regulated," enter the proper freight classification, "MSDS Number," and "Product Name" on the shipping paperwork.

Canadian TDG Hazard Class & PIN:	Not regulated
----------------------------------	---------------

*** Section 15 - Regulatory Information ***

US Federal Regulations

A: General Product Information

In reference to Title VI of the Clean Air Act of 1990, this material does not contain nor was it manufactured using ozone-depleting chemicals.

B: Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

Copper (7440-50-8)

SARA 313: 1.0 % de minimis concentration

CERCLA: 5000 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is equal to or exceeds 0.004 inches); 2270 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is equal to or exceeds 0.004 inches)

Nickel (7440-02-0)

SARA 313: 0.1 % de minimis concentration

CERCLA: 100 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is equal to or exceeds 0.004 inches); 45.4 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is equal to or exceeds 0.004 inches)

Aluminum (7429-90-5)

SARA 313: 1.0 % de minimis concentration (dust or fume only)

Material Safety Data Sheet

Product Name: COPPER LEAF RELIEF®

ID: 1383

Zinc (7440-66-6)

SARA 313: 1.0 % de minimis concentration (dust or fume only)

CERCLA: 1000 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is equal to or exceeds 0.004 inches);
454 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter of the solid metal released is equal to or exceeds 0.004 inches)

SARA 311/312 Physical and Health Hazard Categories:

Immediate (acute) Health Hazard: No

Delayed (chronic) Health Hazard: Yes, if particulates/fumes generated during processing

Fire Hazard: No

Sudden Release of Pressure: No

Reactive: No

State Regulations

A: General Product Information

PENNSYLVANIA "Special Hazardous Substance": Nickel

Chemical(s) known to the State of California to cause cancer: Nickel (metallic)

B: Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS #	CA	FL	MA	MN	NJ	PA
Copper	7440-50-8	Yes	No	Yes	Yes	Yes	Yes
Nickel	7440-02-0	Yes	No	Yes	Yes	Yes	Yes
Aluminum	7429-90-5	Yes	No	Yes	Yes	Yes	Yes
Zinc	7440-66-6	Yes	No	Yes	No	Yes	Yes

The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):

WARNING! This product contains a chemical known to the state of California to cause cancer.

Other Regulations

A: General Product Information

Material meets the criteria for inclusion in WHMIS Class D2A.

B: Component Analysis - WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

Component	CAS #	Minimum Concentration
Copper	7440-50-8	1 %
Nickel	7440-02-0	0.1 %
Aluminum	7429-90-5	1 %

C: Component Analysis - Inventory

Component	CAS #	TSCA	DSL	EINECS	AUST.	MITI
Copper	7440-50-8	Yes	Yes	Yes	Yes	No
Nickel	7440-02-0	Yes	Yes	Yes	Yes	No
Aluminum	7429-90-5	Yes	Yes	Yes	Yes	No
Zinc	7440-66-6	Yes	Yes	Yes	Yes	No

Inventory information

MITI Inventory: Pure metals are not specifically listed by CAS or MITI number on the MITI Inventory. However, the class of compounds for each of these metals is listed.

*** Section 16 - Other Information ***

MSDS History

Original: May 24, 2006

Supersedes: December 18, 2007

Revised: January 17, 2011

Material Safety Data Sheet

Product Name: COPPER LEAF RELIEF®

ID: 1383

MSDS Status

01/17/11: Changes to section 1, manufacturer name, address and phone number.
12/18/07: Changes to section 1, manufacturer name, address and phone number.
07/17/07: Changes to section 1, manufacturer name, address and phone number.
05/24/2006: New MSDS.

Prepared By

Preparer: Jesse D. Aiken, 937-498-6117

Other Information

- * Guide to Occupational Exposure Values-2006, Compiled by the American Conference of Governmental Industrial Hygienists (ACGIH).
- * Documentation of the Threshold Limit Values and Biological Exposure Indices, Sixth Edition, 1991, Compiled by the American Conference of Governmental Industrial Hygienists, Inc. (ACGIH).
- * NIOSH Pocket Guide to Chemical Hazards, U.S. Department of Health and Human Services, February 2004.
- * Patty's Industrial Hygiene and Toxicology: Volume II: Toxicology, 4th ed., 1994, Patty, F. A.; edited by Clayton, G. D. and Clayton, F. E.: New York: John Wiley & Sons, Inc.
- * expub, www.expub.com, Expert Publishing, LLC.

Key-Legend:

ACGIH	American Conference of Governmental Industrial Hygienists
AICS	Australian Inventory of Chemical Substances
CAS	Chemical Abstract Service
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CPR	Cardio-pulmonary Resuscitation
DOT	Department of Transportation
DSL	Domestic Substances List (Canada)
EC	Effective Concentration
ED	Effective Dose
EINECS	European Inventory of Existing Commercial Chemical Substances
EPA	Environmental Protection Act
IARC	International Agency for Research on Cancer
LC ₅₀	Lethal concentration (50 percent kill)
LC _{Lo}	Lowest published lethal concentration
LD ₅₀	Lethal dose (50 percent kill)
LD _{Lo}	Lowest published lethal dose
LFL	Lower Flammable Limit
MITI	Ministry of International Trade & Industry
NFPA	National Fire Protection Association
NIOSH	National Institute for Occupational Safety and Health
NTP	National Toxicology Program
OEL	Occupational Exposure Limit
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
PIN	Product Identification Number
PSN	Proper Shipping Name
RCRA	Resource Conservation and Recovery Act
SARA	Superfund Amendments and Reauthorization Act
STEL	Short Term Exposure Limit
TCLP	Toxic Chemicals Leachate Program
TDG	Transportation of Dangerous Goods
TLV	Threshold Limit Value
TSCA	Toxic Substance Control Act
TWA	Time Weighted Average
UFL	Upper Flammable Limit
WHMIS	Workplace Hazardous Materials Information System
atm	atmosphere
cm	centimeter
g, gm	gram
in	inch
kg	kilogram
lb	pound
m	meter
mg	milligram
ml, mL	milliliter
mm	millimeter

Material Safety Data Sheet

Product Name: COPPER LEAF RELIEF®

ID: 1383

mppcf	million particles per cubic foot
n.o.s.	not otherwise specified
ppb	parts per billion
ppm	parts per million
psia	pounds per square inch absolute
u	micron
ug	microgram

INFORMATION HEREIN IS GIVEN IN GOOD FAITH AS AUTHORITATIVE AND VALID; HOWEVER, NO WARRANTY, EXPRESS OR IMPLIED, CAN BE MADE.

This is the end of MSDS # 1383