1 PRODUCT AND COMPANY IDENTIFICATION

Product Identifier: Breakthrough Clean Technologies® Copper Remover

Product Code: BTCR-2OZ, BTCR-6OZ

Revision Date: 7/21/2023

Version: 2

Product Description: Copper Remover is safe for chrome moly and stainless steel, non-hazardous, low odor, biodegradable, ammonia and petroleum free.

Product Use: Use as received at ambient temperature or heated to 140 F. May be diluted with water up to 50:1 depending on your application. Hand wipe, mop or dip

Instructions: NOTE: The information contained herein is accurate to the best of our knowledge. We do not suggest or guarantee that any hazards listed herein are the only ones which exist. Allen Company | Breakthrough Clean Technologies® provides this information as guidance for providing personal protection to your employees. The user has the sole responsibility to determine the suitability of the materials for any use and the manner of use contemplated. The user must meet all applicable safety and health standards.

Supplier Details:
Allen Company | Breakthrough Clean Technologies®
609 South 104th Street,
Louisville, CO 80027
+1-800-876-8600
+1-303-469-1857 Monday-Friday 7:00-4:30 MTN time
www.breakthroughclean.com info@breakthroughclean.com

Emergency:
Velocity EHS:
United States, Canada, Puerto Rico, and the U.S. Virgin Islands: +1-800-255-3924
International: +1-813-248-0585

2 HAZARDS IDENTIFICATION

Classification of the Substance or Mixture

GHS Classification in Accordance with 29 CFR 1910 (OSHA HCS):

Health, Acute toxicity, 4 Oral
Health, Acute toxicity, 4 Dermal
Health, Skin corrosion/irritation, 3
Health, Serious Eye Damage/Eye Irritation, 1
Health, Acute toxicity, 4 Inhalation

GHS Label Elements, Including Precautionary Statements

GHS Signal Word: DANGER

GHS Hazard Pictograms:

2 Con't HAZARDS IDENTIFICATION

GHS Hazard Statements:

H302 - Harmful if swallowed
H312 - Harmful in contact with skin
H316 - Causes mild skin irritation
H318 - Causes serious eye damage
H332 - Harmful if inhaled

GHS Precautionary Statements:

P210 - Keep away from heat/sparks/open flames/hot surfaces.
P261 - Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 - Wash skin thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P271 - Use only outdoors or in a well-ventilated area.
P273 - Avoid release to the environment.
P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell.
P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353 - IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 - Immediately call a POISON CENTER or doctor/ physician.
P322 - Specific measures (see supplemental first aid instructions on this label).
P363 - Wash contaminated clothing before reuse.
P370 + P378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P403 + P235 - Store in a well-ventilated place. Keep cool.
P405 - Store locked up.
P501 - Dispose of contents/ container to an approved waste disposal plant.

3 COMPOSITION/INFORMATION OF INGREDIENTS

Chemical Ingredients:

CAS#	%	Chemical Name:
7732-18-5	>70%	Water
0	0.4-3%	Surfactant blend
141-43-5	10-20%	Ethanolamine
57-55-6	1-10%	Propylene glycol

4 FIRST AID MEASURES

After Skin Contact: If on skin (on hair): Take off immediately all contaminated clothing. Rinse with water/safety shower. Call doctor if irritation persists.
After Eye Contact: If in eyes: Rinse cautiously for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. If irritated, call doctor.
After Ingestion: If swallowed: Rinse mouth. Do NOT induce vomiting.
Most Important Symptoms/Effects
Eye: Irritation of eyes and skin.
Skin: This product can cause mild, transient skin irritation. The severity of irritation will depend on the amount of material that is applied to the skin and the speed and thoroughness that it is removed. Symptons include redness, itching, and burning of the skin. Repeated or prolonged skin contact can produce moderate irritation (dermatitis).

5 FIRE FIGHTING MEASURES

Flash Point: >212 F
Flash Point Method: Closed cup

Suitable and Unsuitable extinguishing media: Will not burn or support combustion. Use extinguishing media appropriate for surrounding fire, such as water spray, dry chemical, foam or carbon dioxide.
Specific hazards arising from the chemical: Carbon oxides may be produced.
Special protective equipment and precautions for firefighter: Wear chemical resistant protective equipment and self- contained breathing apparatus (SCBA).

6 ACCIDENTAL RELEASE MEASURES

Stop spill at source Caution: Spilled material may be slippery.
If trained in accordance 29 CFR 1910.120, leaks should be stopped. Spills should be contained and cleaned immediately. Persons performing clean up work should wear adequate personal protective equipment and clothing. Spills and releases should be reported, if required, to the appropriate local, state and federal regulatory agencies. Absorb the chemical onto sand, vermiculite, or any other non- combustible absorbent, and collect into containers for later disposal.

7 HANDLING AND STORAGE

Handling Precautions:

Handling: KEEP OUT OF REACH OF CHILDREN
Use in accordance with good work place practices. Use with adequate ventilation. Keep containers closed when not in use. Always open containers slowly to allow any excess pressure to vent. Avoid breathing vapor or mists. Avoid contact with eyes, skin or clothing. Wash thoroughly with soap and water after handling. Decontaminate soiled clothing thoroughly before re-use. Destroy contaminated leather clothing. Empty containers may contain residues from the product. Treat empty containers with the same precautions as the material last contained. Do not cut, weld or apply heat to empty containers.

Storage Requirements:

Conditions for safe storage, including any incompatibilities
Storage Conditions Store locked up. Keep from freezing. Incompatible materials Strong oxidizing agents, Caustics
Store in a cool, dry area, away from heat or direct sunlight. Keep containers closed when not in use. Do not store with incompatible materials. Do Not Allow to freeze.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls:

NOTE: Exposure to this material can be controlled in many ways. The measures appropriate for a particular worksite depend on how this material is used and on the extent of exposure. This general information can be used to help develop specific control measures. Ensure that control systems are properly designed and maintained. Comply with occupational, environmental, fire, and other applicable regulations.

Engineering Controls: If methods of use deviate from the manufacturer's recommendations, attention to methods of vapor reduction will be necessary. Engineering control methods to reduce hazardous exposures are preferred. Methods include mechanical ventilation (dilution and local exhaust), process or personnel enclosure, control of process conditions, and process modification. Administrative controls and personal equipment may also be required. Use local exhaust ventilation to remove the vapors or mist at source and prevent release into the workplace. Exhaust directly to the outside, taking necessary precautions for environmental protection. Supply sufficient replacement air to make up for air removed by exhaust systems.

Personal Protective Equipment:

RESPIRATORY PROTECTION: A respiratory protection program that meets OSHA 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use.
SKIN PROTECTION: Use gloves to prevent prolonged skin contact. Nitrile or Neoprene gloves may afford adequate skin protection.
EYE PROTECTION: Use safety eyewear designed to protect against splash of liquids.
OTHER PROTECTIVE EQUIPMENT: Refer to safety supervisor or industrial hygienist for further guidance regarding types of personal protective equipment and their applications.
HYGIENIC PRACTICES: Wash thoroughly with soap and water before eating, drinking or smoking. Remove contaminated clothing immediately and launder before reuse.

8 Con't EXPOSURE CONTROLS/PERSONAL PROTECTION

Water cas#:(7732-18-5)
None Established

Ethanolamine cas#:(141-43-5)

TWA	3 ppm	USA. ACGIH Threshold Limit Values(TLV) Skin & eye irritation
STEL	6 ppm	USA. ACGIH Threshold Limit Values (TLV) Skin & eye irritation
TWA	3 ppm	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
STEL	6 ppm	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
TWA	3 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
TWA	3 ppm	USA. NIOSH Recommended Exposure Limits
ST	6 ppm	USA. NIOSH Recommended Exposure Limits

Propylene glycol cas#:(57-55-6)

TWA	10 mg/m3	USA. Workplace Environmental Exposure Levels (WEEL)

Discretion Advised: Chemical Solvents Inc. takes no responsibility for determining what measures are required for personal protection in any specific application. The general information should be used with discretion

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear amber Liquid
Physical State:	Liquid
Odor:	Light fishy
Odor Threshold:	N/A
Solubility:	COMPLETE IN WATER
Spec Grav./Density:	0.96
Viscosity:	N/A
Boiling Point:	212 F
Freezing/Melting Pt.:	32 F
Flash Point:	>212 F
Octanol:	N/A
Vapor Pressure:	N/A
Vapor Density:	>1 (AIR=1)
pH:	10-12
Evap. Rate:	< 1 (N-butyl acetate=1)
Auto-Ignition Temp:	N/A
Decomp Temp:	N/A
UFL/LFL:	N/A

10 STABILITY AND REACTIVITY

Reactivity:	Stable under normal conditions
Chemical Stability:	Stable under recommended storage conditions
Conditions to Avoid:	Excessive heat. Keep from freezing.
Materials to Avoid:	Incompatible with strong oxidizing agents, strong acids and strong alkalies
Hazardous Decomposition:	When heated to decomposition, it emits acrid smoke and irritating fumes.
Hazardous Polymerization:	Will not occur.

11 TOXICOLOGICAL INFORMATION

Water cas#:(7732-18-5) [>80%]
Acute toxicity: no data available
Inhalation: no data available
Dermal: no data available
Skin corrosion/irritation: no data available
Serious eye damage/eye irritation: no data available
Respiratory or skin sensitisation: no data available
Germ cell mutagenicity: no data available
Carcinogenicity:
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
Reproductive toxicity: no data available
Specific target organ toxicity - single exposure: no data available
Specific target organ toxicity - repeated exposure: no data available
Aspiration hazard: no data available

Additional Information: To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Surfactant Mix
Acute toxicity LD50 Oral - Rat - > 2,000 mg/kg (OECD Test Guideline 423)
Inhalation: No data available
LD50 Dermal - Rat - > 2,000 mg/kg (OECD Test Guideline 402)
Skin corrosion/irritation Skin - EPISKIN Human Skin Model Test Result: No skin irritation
Serious eye damage/eye irritation Eyes - Rabbit Result: No eye irritation
Respiratory or skin sensitization in vivo assay - Mouse May cause sensitisation by skin contact. (OECD Test Guideline 429)
Germ cell mutagenicity No data available
Carcinogenicity No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC, ACGIH, NTP or OSHA
Reproductive toxicity No data available
Specific target organ toxicity - single exposure No data available
Specific target organ toxicity - repeated exposure No data available
Aspiration hazard No data available

Ethanolamine cas#:(141-43-5) [5-10%]
Likely routes of exposure: Eye and Skin contact, Inhalation.
Acute toxicity data:

LD50Oral (mg/kg)	LD50 Dermal (mg/kg)	LC50 Inhalation (mg/m3, 4 hrs.)
1 720 (rat, female)	1 000 (rabbit)	>1 210 (mouse)

Skin corrosion / irritation: MEA is classified as corrosive to skin based on pH and information from animal testing. Application of 0.5 mL undiluted or 45% ethanolamine in water, to intact skin under a patch for 4 hours, caused tissue damage (necrosis) in rabbits (scores at 24 hours: edema, 4/4; redness, 4/4).
Serious eye damage / irritation: MEA is classified as corrosive to eyes based on pH and information from animal testing. Application of in excess of a 5% solution of ethanolamine caused corrosive injury in rabbits (scored over 5 where 5 is severe injury).
STOT (Specific Target Organ Toxicity) Single Exposure: Corrosive damage to respiratory tract, eyes and skin. In animal studies, exposures to ethanolamine mist caused severe bronchitis, chemical pneumonitis and pulmonary edema (a life-threatening accumulation of fluid in the lungs), and injury to the liver and kidneys. Symptoms of pulmonary edema, which include shortness of breath and coughing, could be delayed for several hours after exposure and are aggravated by physical exertion.
Aspiration hazard: Data are not available. Due to the corrosive nature of MEA, any aspiration during ingestion or vomiting could result in severe lung injury.
STOT (Specific Target Organ Toxicity) Repeated Exposure: Data not available. The substance MEA may cause effects on the central nervous system. Exposure may cause drowsiness or weakness.
Respiratory and / or skin sensitization: Rare cases of sensitization reactions have been reported in humans. Skin contact caused an allergic skin reaction in workers who had dry, irritated skin from repeated exposures to metalworking fluids containing ethanolamine

11 Con't TOXICOLOGICAL INFORMATION

substances. Respiratory sensitization has rarely been reported in workers exposed to airborne MEA.
Germ cell mutagenicity: Negative results for mutagenic effects of MEA were obtained in an unconfirmed test using live mice and in most tests using cultured mammalian cells, bacteria and yeast.
Reproductive effects: Limited data from animal studies does not indicate that MEA is a reproductive toxin.
Developmental effects: Limited data from animal studies does not indicate that MEA is a developmental toxin.
Effects on or via lactation: Data not available.
Carcinogenicity: This product does not contain any component that is considered a human carcinogen by IARC (International Agency for Research on Cancer), ACGIH (American Conference of Governmental Industrial Hygienists, OSHA (Occupational Safety and Health Administration) or NTP (National Toxicology Program).
Interactions with other chemicals: The use of ethanolamines and nitrites together as additives in metalworking fluids can lead to the formation of N-nitrosodiethanolamine, a possible carcinogen.

Propylene glycol cas#:(57-55-6)
Acute toxicity:
Oral LD50 LD50 Oral - rat - 20,000 mg/kg
Inhalation LC50 no data available
Dermal LD50 LD50 Dermal - rabbit - 20,800 mg/kg
Other information on acute toxicity LD50 Intramuscular - rat - 14 g/kg
LD50 Intravenous - dog - 26 g/kg
LD50 Intraperitoneal - rat - 6,660 mg/kg
LD50 Subcutaneous - rat - 22,500 mg/kg
LD50 Intravenous - rat - 6,423 mg/kg
LD50 Intraperitoneal - mouse - 9,718 mg/kg
Remarks: Lungs, Thorax, or Respiration:Chronic pulmonary edema. Kidney, Ureter, Bladder:Changes in both tubules and glomeruli. Blood:Changes in spleen.
LD50 Subcutaneous - mouse - 17,370 mg/kg
Remarks: Behavioral:Change in motor activity (specific assay). Behavioral:Muscle contraction or spasticity. Cyanosis
LD50 Intravenous - mouse - 6,630 mg/kg
LD50 Intravenous - rabbit - 6,500 mg/kg
Skin corrosion/irritation: Skin - Human - Mild skin irritation - 7 d
Serious eye damage/eye irritation: Eyes - rabbit - Mild eye irritation
Respiratory or skin sensitisation: no data available
Germ cell mutagenicity: no data available
Carcinogenicity:
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
Reproductive toxicity: no data available
Teratogenicity: no data available
Specific target organ toxicity - single exposure (Globally Harmonized System): no data available
Specific target organ toxicity - repeated exposure (Globally Harmonized System): no data available
Aspiration hazard: no data available
Potential health effects: Inhalation May be harmful if inhaled. May cause respiratory tract irritation. Ingestion May be harmful if swallowed. Skin May be harmful if absorbed through skin. May cause skin irritation. Eyes May cause eye irritation.
Signs and Symptoms of Exposure: Gastrointestinal disturbance, Nausea, Headache, Vomiting, Central nervous system depression

12 ECOLOGICAL INFORMATION

Water cas#:(7732-18-5)
Toxicity: no data available
Persistence and degradability: not applicable
Bioaccumulative potential: no data available
Mobility in soil: no data available
Results of PBT and vPvB assessment PBT/vPvB assessment not available as chemical safety assessment not required/not conducted
Other adverse effects: no data available.

12 Con't ECOLOGICAL INFORMATION

Ethanolamine cas#:(141-43-5)
Toxicity:
Toxicity to fish LC50 - Pimephales promelas (fathead minnow) - 227 mg/l - 96 h.
Toxicity to daphnia and EC50 - Daphnia magna (Water flea) - 65 mg/l - 48 h.
other aquatic invertebrates
Toxicity to algae EC50 - Desmodesmus subspicatus (green algae) - 15 mg/l - 72 h.
Persistence and degradability: no data available
Bioaccumulative potential: no data available
Mobility in soil: no data available
Results of PBT and vPvB assessment PBT/vPvB assessment not available as chemical safety assessment not required/not conducted
Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Harmful to aquatic life.

Propylene glycol cas#:(57-55-6)
Toxicity:
Toxicity to fish mortality NOEC - Pimephales promelas (fathead minnow) - 52,930 mg/l - 96 h.
Toxicity to daphnia mortality NOEC - Daphnia - 13,020 mg/l - 48 h.
and other aquatic invertebrates
EC50 - Daphnia magna (Water flea) - > 10,000 mg/l - 48 h
Persistence and degradability: no data available
Bioaccumulative potential: no data available
Mobility in soil: no data available
PBT and vPvB assessment: no data available
Other adverse effects: no data available

13 DISPOSAL CONSIDERATIONS

DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN SDS SECTION: Composition Information. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Recycler. Reclaimer.

14 TRANSPORT INFORMATION

Not Regulated by D.O.T., PGIII

15 REGULATORY INFORMATION

[%] RQ (CAS#) Substance - Reg Codes

[>70%] Water (7732-18-5) TSCA

[0.4-3%] Surfactant blend (0)

[10-20%] Ethanolamine (141-43-5) HAP, MASS, OSHAWAC, PA, TSCA, TXAIR

[1-10%] Propylene glycol (57-55-6) HAP, PA, TSCA

This product does not contain chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

Regulatory Code Legend

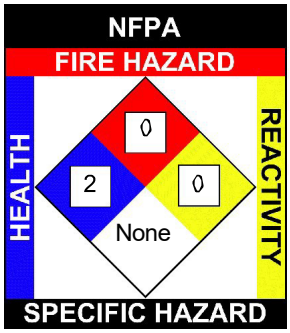
TSCA = Toxic Substances Control Act
HAP = Hazardous Air Pollutants
MASS = MA Massachusetts Hazardous Substances List
OSHAWAC = OSHA Workplace Air Contaminants
PA = PA Right-To-Know List of Hazardous Substances
TXAIR = TX Air Contaminants with Health Effects Screening Level

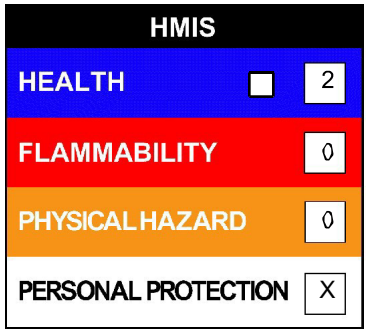
16 OTHER INFORMATION

NFPA: HMIS III: Health = 2, Fire = 0, Reactivity = 0, Specific Hazard = None

HMIS: Health = 2, Fire = 0, Physical Hazard = 0

PPE: X - Consult your supervisor for special instructions





NOTICE TO THE READER:

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.