Printing date 07/17/2021

Reviewed on 07/14/2021

1 Identification

- · Product name
- Trade name: Copper chromite, barium promoted (62-64% Cr2CuO4, 22-24% CuO, 6% BaO, 0-4% Graphite, 1% CrO3), 1% Cr2O3)
- Item number: 29-0410
- Details of the supplier of the safety data sheet • Manufacturer/Supplier:
- Strem Chemicals, Inc. 7 Mulliken Way NEWBURYPORT, MA 01950 USA info@strem.com
- · Information department: Technical Department
- Emergency telephone number: EMERGENCY: CHEMTREC: + 1 (800) 424-9300 During normal opening times: +1 (978) 499-1600

2 Hazard(s) identification

· Classification of the substance or mixture

GHS07

Acute Tox. 4 H302 Harmful if swallowed.

Acute Tox. 4 H332 Harmful if inhaled.

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2A H319 Causes serious eye irritation.

STOT SE 3 H335 May cause respiratory irritation.

- · Label elements
- · GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- · Hazard pictograms

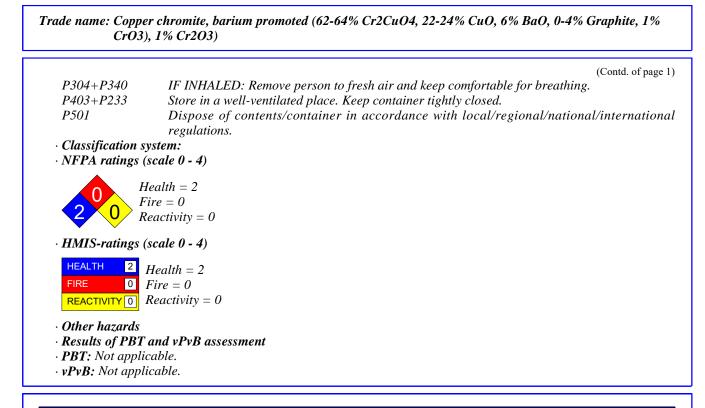


· Signal word Warning

· Hazard-determining components of labeling: copper oxide barium oxide · Hazard statements H302+H332 Harmful if swallowed or if inhaled. H315 Causes skin irritation. H319 Causes serious eye irritation. H335 May cause respiratory irritation. · Precautionary statements P262 Do not get in eyes, on skin, or on clothing. P280 Wear protective gloves/protective clothing/eye protection/face protection. P305+P351+P338 If in eves: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. (Contd. on page 2)

Printing date 07/17/2021

Reviewed on 07/14/2021



3 Composition/information on ingredients

· Chemical characterization: Mixtures

• Description: Mixture of the substances listed below with nonhazardous additions.

· Dangerous components:		
1317-38-0	copper oxide	25.275%
1304-28-5	barium oxide	6.593%

4 First-aid measures

· Description of first aid measures

• General information:

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

• After inhalation:

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.

In case of unconsciousness place patient stably in side position for transportation.

- · After skin contact: Immediately wash with water and soap and rinse thoroughly.
- · After eye contact:

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

- · After swallowing: Immediately call a doctor.
- · Information for doctor:
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- *Indication of any immediate medical attention and special treatment needed No further relevant information available.*

(Contd. on page 3)



HEMICALS, INC

Safety Data Sheet according to OSHA HCS

Printing date 07/17/2021

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Trade name: Copper chromite, barium promoted (62-64% Cr2CuO4, 22-24% CuO, 6% BaO, 0-4% Graphite, 1% CrO3), 1% Cr2O3)

(Contd. of page 2)

5 Fire-fighting measures

- · Extinguishing media
- Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- Special hazards arising from the substance or mixture No further relevant information available.
- · Advice for firefighters
- · Protective equipment: Mouth respiratory protective device.

6 Accidental release measures

- · Personal precautions, protective equipment and emergency procedures Not required.
- · Environmental precautions: No special measures required.

• *Methods and material for containment and cleaning up:* Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

· Reference to other sections

- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.
- See Section 13 for disposal information.

• Protective Action Criteria for Chemicals

· PAC-1:	
1317-38-0 copper oxide	0.75 mg/m3
1304-28-5 barium oxide	1.7 mg/m3
· PAC-2:	
1317-38-0 copper oxide	11 mg/m3
1304-28-5 barium oxide	200 mg/m3
· PAC-3:	
1317-38-0 copper oxide	93 mg/m3
1304-28-5 barium oxide	1,200 mg/m3

7 Handling and storage

· Handling:

· Precautions for safe handling

Thorough dedusting.

Ensure good ventilation/exhaustion at the workplace.

· Information about protection against explosions and fires: No special measures required.

· Conditions for safe storage, including any incompatibilities

· Storage:

- · Requirements to be met by storerooms and receptacles: No special requirements.
- · Information about storage in one common storage facility: Not required.
- Further information about storage conditions: Keep receptacle tightly sealed.
- Specific end use(s) No further relevant information available.

(Contd. on page 4)

CrO3), 1% Cr2O3) 8 Exposure controls/personal protection • Additional information about design of technical systems: No further data; see item 7. · Control parameters · Components with limit values that require monitoring at the workplace: The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit. At this time, the remaining constituent has no known exposure limits. 1304-28-5 barium oxide PEL Long-term value: 0.5 mg/m³ as Ba *REL* Long-term value: 0.5 mg/m³ as Ba TLV Long-term value: 0.5 mg/m³ as Ba • Additional information: The lists that were valid during the creation were used as basis. · Exposure controls · Personal protective equipment: · General protective and hygienic measures:

- *Keep away from foodstuffs, beverages and feed.* Immediately remove all soiled and contaminated clothing. Wash hands before breaks and at the end of work. Avoid contact with the eyes and skin.
- Breathing equipment: A NIOSH approved respirator in accordance with 29 CFR 1910.134.
- · Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

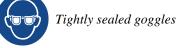
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation · Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

Penetration time of glove material

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· Eye protection:



(Contd. on page 5)



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Trade name: Copper chromite, barium promoted (62-64% Cr2CuO4, 22-24% CuO, 6% BaO, 0-4% Graphite, 1%

(Contd. of page 3)

Printing date 07/17/2021

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CHEMICALS, INC.

Reviewed on 07/14/2021

Trade name: Copper chromite, barium promoted (62-64% Cr2CuO4, 22-24% CuO, 6% BaO, 0-4% Graphite, 1% CrO3), 1% Cr2O3)

(Contd. of page 4)

9 Physical and chemical proper	rties
 Information on basic physical and General Information Appearance: 	chemical properties
· Appearance: Form:	Pellets
Form: Color:	Petiels Black
· Odor:	Diack Odorless
• Odor: • Odor threshold:	Not determined.
· pH-value:	Not applicable.
· Change in condition	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	Undetermined.
· Flash point:	Not applicable.
· Flammability (solid, gaseous):	Not determined.
· Ignition temperature:	
Decomposition temperature:	Not determined.
· Auto igniting:	Product is not selfigniting.
• Danger of explosion:	Product does not present an explosion hazard.
· Explosion limits:	
Lower:	Not determined.
Upper:	Not determined.
· Vapor pressure:	Not applicable.
· Density:	Not determined.
· Relative density	Not determined.
· Vapor density	Not applicable.
• Evaporation rate	Not applicable.
· Solubility in / Miscibility with	
Water:	Insoluble.
· Partition coefficient (n-octanol/wat	(er): Not determined.
· Viscosity:	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
· Solvent content:	
Organic solvents:	0.0 %
VOC content:	$0.0 \ g/l \ / \ 0.00 \ lb/gl$
• Other information	No further relevant information available.

10 Stability and reactivity

· **Reactivity** No further relevant information available.

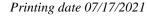
· Chemical stability

• Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.

· Possibility of hazardous reactions No dangerous reactions known.

(Contd. on page 6)

US



Reviewed on 07/14/2021

Trade name: Copper chromite, barium promoted (62-64% Cr2CuO4, 22-24% CuO, 6% BaO, 0-4% Graphite, 1% CrO3), 1% Cr2O3)

(Contd. of page 5)

- · Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- · Information on toxicological effects
- Acute toxicity:
- Primary irritant effect:
- \cdot on the skin: Irritant to skin and mucous membranes.
- on the eye: Irritating effect.
- Sensitization: No sensitizing effects known.
- \cdot Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations: Harmful

Irritant

· Carcinogenic categories

· IARC (International Agency for Research on Cancer)

None of the ingredients is listed.

· NTP (National Toxicology Program)

None of the ingredients is listed.

· OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

12 Ecological information

- · Toxicity
- · Aquatic toxicity: No further relevant information available.
- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- *Bioaccumulative potential* No further relevant information available.
- · Mobility in soil No further relevant information available.
- · Additional ecological information:
- · General notes: Not known to be hazardous to water.
- · Results of PBT and vPvB assessment
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- · Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- · Recommendation:

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

(Contd. on page 7)

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(Contd. of page 6)

· Uncleaned packagings:

• Recommendation: Disposal must be made according to official regulations.

UN-Number	
DOT, ADN, IMDG, IATA	not regulated
UN proper shipping name DOT, ADN, IMDG, IATA	not regulated
Transport hazard class(es)	
DOT, ADN, IMDG, IATA Class	not regulated
Packing group DOT, IMDG, IATA	not regulated
Environmental hazards: Marine pollutant:	No
Special precautions for user	Not applicable.
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
UN ''Model Regulation'':	not regulated

15 Regulatory information

 \cdot Safety, health and environmental regulations/legislation specific for the substance or mixture \cdot Sara

· Section 355 (extremely hazardous substances):

None of the ingredients is listed.

· Section 313 (Specific toxic chemical listings):

All ingredients are listed.

· TSCA (Toxic Substances Control Act):

All ingredients are listed.

· Proposition 65

· Chemicals known to cause cancer:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

· Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

(Contd. on page 8)



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Safety Data Sheet according to OSHA HCS

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Trade name: Copper chromite, barium promoted (62-64% Cr2CuO4, 22-24% CuO, 6% BaO, 0-4% Graphite, 1% CrO3), 1% Cr2O3)

(Contd. of page 7) · Carcinogenic categories · EPA (Environmental Protection Agency) D, CBD(inh), NL(oral) 1304-28-5 barium oxide • TLV (Threshold Limit Value established by ACGIH) 1304-28-5 barium oxide · NIOSH-Ca (National Institute for Occupational Safety and Health) None of the ingredients is listed. • GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS). · Hazard pictograms GHS07 · Signal word Warning · Hazard-determining components of labeling: copper oxide barium oxide · Hazard statements H302+H332 Harmful if swallowed or if inhaled. H315 Causes skin irritation. H319 Causes serious eye irritation. H335 May cause respiratory irritation. · Precautionary statements P262 Do not get in eyes, on skin, or on clothing. Wear protective gloves/protective clothing/eye protection/face protection.

- P280 P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P403+P233 Store in a well-ventilated place. Keep container tightly closed.
- P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- · Department issuing SDS: Technical Department.
- · Contact: Technical Director
- · Date of preparation / last revision 07/17/2021 / -
- · Abbreviations and acronyms: ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road) IMDG: International Maritime Code for Dangerous Goods DOT: US Department of Transportation IATA: International Air Transport Association ACGIH: American Conference of Governmental Industrial Hygienists EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

(Contd. on page 9)

US

CHEMICALS, INC.

Safety Data Sheet according to OSHA HCS

Printing date 07/17/2021

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(Contd. of page 8)

US

Trade name: Copper chromite, barium promoted (62-64% Cr2CuO4, 22-24% CuO, 6% BaO, 0-4% Graphite, 1% CrO3), 1% Cr2O3)

CAS: Chemical Abstracts Service (division of the American Chemical Society) NFPA: National Fire Protection Association (USA) HMIS: Hazardous Materials Identification System (USA) VOC: Volatile Organic Compounds (USA, EU) PBT: Persistent, Bioaccumulative and Toxic vPvB: very Persistent and very Bioaccumulative NIOSH: National Institute for Occupational Safety OSHA: Occupational Safety & Health TLV: Threshold Limit Value PEL: Permissible Exposure Limit REL: Recommended Exposure Limit Acute Tox. 4: Acute toxicity – Category 4 Skin Irrit. 2: Skin corrosion/irritation – Category 2 Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A STOT SE 3: Specific target organ toxicity (single exposure) – Category 3