

Safety Data Sheet
acc. to OSHA HCS

Issued date 05/09/2023

Reviewed on 05/09/2023

1 Identification

- **Product identifier**
- **Trade name:** Bromopentacarbonylrhenium(I)



- **Product Code:** 1017
- **CAS Number:** 14220-21-4
- **Application of the substance / the mixture** Laboratory synthesis/Raw material
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Colonial Metals, Inc.
505 Blue Ball Road
Elkton, MD 21922
- **Department:** Product safety department
- **Emergency telephone number:**
Fax: +1 (410)-398-2918
During normal operating times: +1 (410)-398-7200
Chemtrec: 1-800-424-9300
World wide - Call COLLECT to U.S.: +1 (703)-527-3887

2 Hazard(s) identification

- **Classification of the substance or mixture**

| | |
|----------------------------------------------------|----------------------------------------|
| Acute Toxicity - Oral 3 | H301 Toxic if swallowed. |
| Acute Toxicity - Dermal 3 | H311 Toxic in contact with skin. |
| Acute Toxicity - Inhalation 3 | H331 Toxic if inhaled. |
| Skin Irritation 2 | H315 Causes skin irritation. |
| Eye Irritation 2A | H319 Causes serious eye irritation. |
| Specific Target Organ Toxicity - Single Exposure 3 | H335 May cause respiratory irritation. |

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

| | |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|  |  |
| GHS06 | GHS07 |
- **Signal word** Danger
- **Hazard statements**

| | |
|----------------|---------------------------------------------------------|
| H301+H311+H331 | Toxic if swallowed, in contact with skin or if inhaled. |
| H315 | Causes skin irritation. |
| H319 | Causes serious eye irritation. |
| H335 | May cause respiratory irritation. |
- **Precautionary statements**

| | |
|-----------|----------------------------------------------------------------------------|
| P261 | Avoid breathing dust/fume/gas/mist/vapors/spray |
| P264 | Wash thoroughly after handling. |
| P270 | Do not eat, drink or smoke when using this product. |
| P271 | Use only outdoors or in a well-ventilated area. |
| P280 | Wear protective gloves/protective clothing/eye protection/face protection. |
| P301+P310 | If swallowed: Immediately call a poison center/doctor. |
| P321 | Specific treatment (see on this label). |

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- P330 Rinse mouth.
- P302+P352 If on skin: Wash with plenty of water.
- P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P311 Call a poison center/doctor.
- P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P312 Call a poison center/doctor if you feel unwell.
- P361+P364 Take off immediately all contaminated clothing and wash it before reuse.
- P332+P313 If skin irritation occurs: Get medical advice/attention.
- P337+P313 If eye irritation persists: Get medical advice/attention.
- P403+P233 Store in a well-ventilated place. Keep container tightly closed.
- P405 Store locked up.
- P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



Health = 3
Fire = 0
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**



Health = 2
Fire = 0
Reactivity = 0

· **Other hazards**

· **Results of PBT and vPvB assessment**

- **PBT:** Not applicable.
- **vPvB:** Not applicable.

3 Composition/information on ingredients

· **Chemical characterization: Substances**

· **CAS No. Description**

14220-21-4 Bromopentacarbonylrhenium(I)

4 First-aid measures

· **Description of first aid measures**

· **General information:**

Immediately remove any clothing soiled by the product.
Remove breathing apparatus only after contaminated clothing have been completely removed.
In case of irregular breathing or respiratory arrest provide artificial respiration.

· **After inhalation:**

Supply fresh air or oxygen; call for doctor.
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:** Do not induce vomiting; immediately call for medical help.

· **Information for doctor:**

· **Most important symptoms and effects, both acute and delayed** No further relevant information available.

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- **Indication of any immediate medical attention and special treatment needed** No further relevant information available.

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**
Carbon oxides
Hydrogen bromide gas
rhenium oxides
Combustible.
- **Advice for firefighters**
- **Protective equipment:**
Wear self-contained respiratory protective device.
Mouth respiratory protective device.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Avoid formation of dust.
Ensure adequate ventilation
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **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:** Substance is not listed.
- **PAC-2:** Substance is not listed.
- **PAC-3:** Substance is not listed.

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
Thorough dedusting.
Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.
- **Information about protection against explosions and fires:** Keep respiratory protective device available.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:**
Store in dry , cool area with sufficient packing to avoid accidental spill
- **Information about storage in one common storage facility:** Air and moisture sensitive. Keep in a dry place.
- **Further information about storage conditions:** Keep receptacle tightly sealed.

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· **Specific end use(s)** No further relevant information available.

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:** Not required.
- **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.
 Store protective clothing separately.
 Avoid contact with the eyes and skin.
- **Breathing equipment:**
 In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
- **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.
- **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:**



Tightly sealed goggles

9 Physical and chemical properties

- **Information on basic physical and chemical properties**
- **General Information**
- **Appearance:**

| | |
|---------------|----------------|
| Form: | Powder |
| Color: | White |
| Odor: | Characteristic |

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| | |
|---------------------------------------------------------------------|-----------------------------------------------|
| · 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): | Product is not flammable. |
| · Decomposition temperature: | Not determined. |
| · Auto igniting: | Not determined. |
| · 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: | Not determined. |
| · Partition coefficient (n-octanol/water): | Not determined. |
| · Viscosity: Dynamic: | Not applicable. |
| Kinematic: | Not applicable. |
| · 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.
- **Conditions to avoid** Air sensitive.
- **Incompatible materials:** Strong oxidizing agents
- **Hazardous decomposition products:** No dangerous decomposition products known.

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11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**

| | | |
|------------|----------|-----------------|
| Dermal | LD50 | 300 mg/kg (rat) |
| Inhalative | LC50/4 h | 0.51 mg/l (rat) |

- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**
- **Carcinogenic categories**
- **IARC (International Agency for Research on Cancer)** Substance is not listed.
- **NTP (National Toxicology Program)** Substance is not listed.
- **OSHA-Ca (Occupational Safety & Health Administration)** Substance is not 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:**
Water hazard class 1 (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- **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.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

- **UN-Number**
- **DOT, IMDG, IATA** UN3288

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| | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> · UN proper shipping name · DOT, IATA · IMDG | <p>Toxic solid, inorganic, n.o.s. (Bromopentacarbonylrhenium(I)) TOXIC SOLID, INORGANIC, N.O.S. (Bromopentacarbonylrhenium(I))</p> |
| <ul style="list-style-type: none"> · Transport hazard class(es) · DOT | |
|  <ul style="list-style-type: none"> · Class · Label | <p>6.1 Toxic substances 6.1</p> |
| <ul style="list-style-type: none"> · IMDG, IATA | |
|  <ul style="list-style-type: none"> · Class · Label | <p>6.1 Toxic substances 6.1</p> |
| <ul style="list-style-type: none"> · Packing group · DOT, IMDG, IATA | <p>III</p> |
| <ul style="list-style-type: none"> · Environmental hazards: | <p>Not applicable.</p> |
| <ul style="list-style-type: none"> · Special precautions for user · Hazard identification number (Kemler code): · EMS Number: · Stowage Category | <p>Warning: Toxic substances 60 F-A,S-A B</p> |
| <ul style="list-style-type: none"> · Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code | <p>Not applicable.</p> |
| <ul style="list-style-type: none"> · Transport/Additional information: · DOT · Quantity limitations | |
| <ul style="list-style-type: none"> · IMDG · Limited quantities (LQ) · Excepted quantities (EQ) | <p>On passenger aircraft/rail: 100 kg On cargo aircraft only: 200 kg</p> <p>5 kg Code: E1 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 1000 g</p> |
| <ul style="list-style-type: none"> · UN "Model Regulation": | <p>UN 3288 TOXIC SOLID, INORGANIC, N.O.S. (BROMOPENTACARBONYLRHENIUM(I)), 6.1, III</p> |

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15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
 No further relevant information available.
- **Sara**
- **Section 355 (extremely hazardous substances):** Substance is not listed.
- **Section 313 (Specific toxic chemical listings):** Substance is not listed.
- **TSCA (Toxic Substances Control Act):** Substance is not listed.
- **Hazardous Air Pollutants** Substance is not listed.
- **Proposition 65**
- **Chemicals known to cause cancer:** Substance is not listed.
- **Chemicals known to cause reproductive toxicity for females:** Substance is not listed.
- **Chemicals known to cause reproductive toxicity for males:** Substance is not listed.
- **Chemicals known to cause developmental toxicity:** Substance is not listed.
- **Carcinogenic categories**
- **EPA (Environmental Protection Agency)** Substance is not listed.
- **TLV (Threshold Limit Value)** Substance is not listed.
- **NIOSH-Ca (National Institute for Occupational Safety and Health)** Substance is not listed.
- **GHS label elements** The substance is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**



GHS06 GHS07

- **Signal word** Danger
- **Hazard statements**
 - H301+H311+H331 Toxic if swallowed, in contact with skin or if inhaled.
 - H315 Causes skin irritation.
 - H319 Causes serious eye irritation.
 - H335 May cause respiratory irritation.
- **Precautionary statements**
 - P261 Avoid breathing dust/fume/gas/mist/vapors/spray
 - P264 Wash thoroughly after handling.
 - P270 Do not eat, drink or smoke when using this product.
 - P271 Use only outdoors or in a well-ventilated area.
 - P280 Wear protective gloves/protective clothing/eye protection/face protection.
 - P301+P310 If swallowed: Immediately call a poison center/doctor.
 - P321 Specific treatment (see on this label).
 - P330 Rinse mouth.
 - P302+P352 If on skin: Wash with plenty of water.
 - P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 - P311 Call a poison center/doctor.
 - P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 - P312 Call a poison center/doctor if you feel unwell.
 - P361+P364 Take off immediately all contaminated clothing and wash it before reuse.
 - P332+P313 If skin irritation occurs: Get medical advice/attention.
 - P337+P313 If eye irritation persists: Get medical advice/attention.
 - P403+P233 Store in a well-ventilated place. Keep container tightly closed.

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- P405 Store locked up.
- 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

Disclaimer: In compliance with the OSHA Hazard communication Standard, 29 C.F.R 1910.1200, we are providing you with a Safety Data Sheet (SDS) for the hazardous material you are purchasing.

It is your responsibility to educate your employees on the safe use of the hazardous material. With this in mind, a copy should be forwarded to the supervisor of the user or to the user themselves, and copy should be retained in your files for future reference.

Our company makes no presentation as to the accuracy of the information in the SDS. The information is believe to be correct; however, you (the customer), should perform your own investigation and independent verification. If you resell the product, you are responsible to forward the information in the SDS to your customer.

- **Department issuing SDS:** EHS Department of Colonial Metals, Inc.
- **Contact:** EHS Dept at +1 (410)-398-7200
- **Date of preparation / last revision** 05/09/2023
- **Abbreviations and acronyms:**
 - IMDG: International Maritime Code for Dangerous Goods
 - DOT: US Department of Transportation
 - IATA: International Air Transport Association
 - CAS: Chemical Abstracts Service (division of the American Chemical Society)
 - NFPA: National Fire Protection Association (USA)
 - HMIS: Hazardous Materials Identification System (USA)
 - LC50: Lethal concentration, 50 percent
 - LD50: Lethal dose, 50 percent
 - 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 Toxicity - Oral 3: Acute toxicity – Category 3
 - Skin Irritation 2: Skin corrosion/irritation – Category 2
 - Eye Irritation 2A: Serious eye damage/eye irritation – Category 2A
 - Specific Target Organ Toxicity - Single Exposure 3: Specific target organ toxicity (single exposure) – Category 3
- Data compared to the previous version altered.