Section 1: Company and Product Identification

Product Name: Chlorocarbonyl bis(triphenylphosphine) Iridium (I)

Company: Colonial Metals, Inc.
Building 20
505 Blue Ball Road
Elkton, MD 21921 United States
Company Contact: EHS Director
Telephone Number: 410-398-7200
FAX Number: 410-398-2918
E-Mail: info@colonialmetals.com
Web Site: www.colonialmetals.com

Emergency Response: Supplier Emergency Contacts & Phone Number
Chemtrec: 800-424-9300
World Wide - Call COLLECT to U.S: 703-527-3887

Section 2: Hazards Identification

Signal Word: Not Applicable

Hazard Category: Non-classified

Hazard Statements: Not Applicable

Precautionary Statements: P202: Do not handle until all safety precautions have been read and understood
P261: Avoid breathing dust/fume/gas/mist/vapours/spray
P264: Wash thoroughly after handling
P280: Wear protective gloves/protective clothing/eye protection/face protection
P308+313: IF exposed or concerned: Get medical advice/attention
P402+404: Store in a dry place. Store in a closed container
P501: Dispose of contents/container in accordance with local/national/international rules.

Hazards not otherwise classified: To the best of our knowledge the chemical, physical, and toxicological properties have not been thoroughly investigated.

Section 3: Composition / Information on Ingredients

<table>
<thead>
<tr>
<th>Hazardous substance (name)</th>
<th>Hazard Category</th>
<th>CAS#</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlorocarbonyl bis(triphenylphosphine) Iridium (I)</td>
<td>Irritant</td>
<td>14871-41-1</td>
<td>99.99</td>
</tr>
</tbody>
</table>

Product Name: Chlorocarbonyl bis(triphenylphosphine) Iridium (I)
Chemical Formula: IrCl(CO)(P(C6H5)3)2
Synonyms: Chlorocarbonyl bis(triphenylphosphine) iridium (I)
Iridium(I) bis(triphenylphosphine) carbonyl chlorid

No ingredients are hazardous according to OSHA criteria.
No components need to be disclosed according to the applicable regulations.
Section 4: First Aid Measures

General Info: Ensure proper ventilation.
Notable Exposure Irritation to skin, eyes and areas of contact.
symptoms:
If ingested: Never give anything by mouth to an unconscious person. Rinse mouth with water.
If inhaled: If breathed in, move person into fresh air. If not breathing, give artificial respiration
Eye contact: Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses if present and easy to do. Get medical attention if irritation develops or persists.
Skin contact: Rinse with water thoroughly. Get medical advice if irritation develops or persists.
Additional Info: The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

Section 5: Fire Fighting Measures

General Info: Wear self contained breathing apparatus for fire fighting if necessary. As with any metal, upon heating may melt and with continued heating produce hazardous vapors. Emits toxic fumes under fire conditions.
Extinguishing Method / Equipment: Water spray, alcohol-resistant foam, dry chemical or carbon dioxide
Hazardous Decomposition Info: Carbon oxides, Oxides of phosphorus, Hydrogen chloride gas, Iridium oxides

Section 6: Accidental Release Measures

Personal precautions, Avoid dust formation. Avoid breathing vapours, mist or gas.
protective equipment For personal protection see section 8.
and procedures:
Containment Do not let product enter drains. Sweep up and shovel. Keep in suitable, closed containers for disposal.
Equipment and Procedures:
Cleanup Procedures: Collect all contaminated media, or other cleanup materials into a waste receptacle. If cleaning surface is necessary, utilize vacuum cleaner, provided adequate ventilation is available.

Section 7: Handling and Storage

Safe Handling Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for Precautions: Preventive fire protection. For precautions see section 2.2
Recommendations Store in cool, dry area in a tightly closed product container away from sources of ignition or flame.
for Storage:

Section 8: Exposure Control / Personal Protection

General / Engineering Controls:
Appropriate engineering controls
General industrial hygiene practice.

Work Clothing: Protective work clothing which covers skin and prevents exposures. Lab coat/apron, flame and chemical resistant protective clothing, eye wash, safety shower, and hygiene facilities for washing.

Eye/face protection: Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU)

Skin Protection: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands

Respiratory Protection: Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Additional Information: Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace

Control of environmental exposure: Do not let product enter drains

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Section 9: Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>State</td>
<td>Solids</td>
</tr>
<tr>
<td>Melting Point</td>
<td>N/A</td>
</tr>
<tr>
<td>Freezing Point</td>
<td>N/A</td>
</tr>
<tr>
<td>Color</td>
<td>Light Yellow Crystals</td>
</tr>
<tr>
<td>Boiling Point/Range</td>
<td>N/A</td>
</tr>
<tr>
<td>pH</td>
<td>N/A</td>
</tr>
<tr>
<td>Molecular Wt.</td>
<td>780.25</td>
</tr>
<tr>
<td>Odor</td>
<td>N/A</td>
</tr>
<tr>
<td>Water Solubility</td>
<td>N/A</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>N/A</td>
</tr>
<tr>
<td>Flash Point</td>
<td>N/A</td>
</tr>
<tr>
<td>Part. Coeff (n-octanol/water)</td>
<td>N/A</td>
</tr>
<tr>
<td>Upper Flam Limits</td>
<td>N/A</td>
</tr>
<tr>
<td>Lower Flam Limits</td>
<td>N/A</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>N/A</td>
</tr>
<tr>
<td>VOC Content (lbs/gal)</td>
<td>N/A</td>
</tr>
<tr>
<td>Viscosity</td>
<td>N/A</td>
</tr>
<tr>
<td>Autoignition Temp</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Section 10: Stability and Reactivity

General: This product is stable and non-reactive under normal conditions of use. Product is not subject to hazardous polymerization. Avoid open flame and ignition sources. Conditions To Avoid (Stability)
Elevated temperature.

Incompatible materials: Strong Oxidizing agents

Decomposition: Carbon monoxide, carbon dioxide, hydrogen chloride gas, thermal decomposition may produce toxic products: Fumes of phosphorous oxides and/or phosphine.

Section 11: Toxicological Information

General Information: No data Available

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

Carcinogenicity or mutagenicity: 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, OSHA

Sensitization: Product is not expected to be a sensitizer.

Section 12: Ecological Information

General information: No data available

Section 13: Disposal Information

Product disposal: Consult Federal EPA, State and local regulations for proper disposal/recycle/reclamation

Container disposal: Treat empty containers with extra care. Consult waste contractor.

Section 14: Transport Information

DOT: Not dangerous goods

IMO/IMDG: Not dangerous goods

IATA: Not dangerous goods

Section 15: Regulatory Information

U.S. Regulatory SARA 302 Components

Information: SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

No SARA Hazards

Right to Know Massachusetts Right To Know Components

Components: No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

Bis(triphenylphosphine)iridium(I) carbonyl chloride CAS-No.14871-41-1 Revision Date

New Jersey Right To Know Components

Bis(triphenylphosphine)iridium(I) carbonyl chloride CAS-No.14871-41-1 Revision Date

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.
### NFPA Rating
- Health: 0
- Fire: 0
- Reactivity: 0

### HMIS Rating
- Health: 0
- Fire: 0
- Reactivity: 0

**Personal Protection:** -

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**Disclaimer:** In compliance with the OSHA Hazard communication Standard, 29 C.F.R 1910.1200, we are providing you with a Materials Safety Data Sheet (MSDS) 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.

Colonial Metals, Inc. makes no presentation as to the accuracy of the information in the MSDS. 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 MSDS to your customer.

Colonial Metals, Inc.

**Version Date:** 9/1/2016