Section 1: Company and Product Identification

Product Name: Iridium (IV) Chloride Hydrate

Product Code: 3016

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

Hazard Pictograms:

Signal Word: Warning

Hazard Category: Acute tox, oral Cat 4
Skin corrosion/irritation Cat 2
Serious eye damage/eye irritation Cat 2
Aspiration hazard Cat 2

Hazard Statements:
H302: Harmful if swallowed
H315: Causes skin irritation
H319: Causes serious eye irritation
H305: May be harmful if swallowed and enters airways

Precautionary Statements:
P202: Do not handle until all safety precautions have been read and understood
P210: Keep away from heat/sparks/open flames/hot surfaces – No smoking
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.

Hazard not otherwise classified: To the best of our knowledge the chemical, physical, and toxicological properties have not been thoroughly investigated. Avoid elevated temperature. Product incompatible with acids, alkalines, alkaline metal salts, coppers, zinc salts, cyanides, and carbon monoxide. Can decompose chlorine vapors.

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>Iridium (IV) Chloride Hydrate</td>
<td>Irritant</td>
<td>10025-97-5</td>
<td>99.5</td>
</tr>
</tbody>
</table>

Chemical Name: Iridium (IV) Chloride Hydrate, Iridium Chloride
Chemical Family: Platinum Group Metal Salts
Chemical Formula: IrCl4*H2O
Section 4: First Aid Measures

General Info: Ensure proper ventilation.
Notable Exposure: Irritation to skin, eyes and areas of contact.

symptoms:
If ingested: Not expected to be a problem in industry. However if swallowed and discomfort occurs, contact a physician.
If inhaled: Remove the victim from the contaminated area while protecting yourself from exposure by wearing an appropriate respirator. Put a similar respirator on the victim if possible. Get medical attention immediately.
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: Take off immediately all contaminated clothing. Rinse with water thoroughly. Get medical advice if irritation develops or persists.

Additional Info: Observe for any symptoms for several hours after exposure. Follow up with medical attention if symptoms develop.

Section 5: Fire Fighting Measures

General Info: Finely divided iridium may be a moderate fire hazard. 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: Constituents associated with burning / combustion are to be considered toxic. Firefighters should wear self-contained breathing apparatus and full protective gear.

Section 6: Accidental Release Measures

Personal precautions, Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Eliminate all protective equipment and procedures: protective equipment (SCBA) and clothing during clean-up. Avoid breathing dust. Ventilate area if easy to do so and wash spill site after clean up is complete. Contact local authorities if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Containment: Sweep up and place in sealed container. Person protected with full face shield and proper respirator.

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 Precautions: Do not handle until all safety precautions have been read and understood. Keep containers tightly closed. Ensure adequate ventilation. Avoid breathing dust. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Wear appropriate personal protective equipment and wash thoroughly after handling.

Recommendations for Storage:
- Store in cool, dry area in a tightly closed product container away from sources of ignition or flame.
- Other Precautions: 0.01 ppm high efficiency particulate respirator/supplied air respirator/self-contained breathing apparatus; 0.2 ppm same as above with full face piece; 1 ppm powdered air purifying respirator with high efficiency filter/type C supplied air respirator operated in pressure demand mode. Store in a sealed container, plastic or plastic liner, in a cool, well ventilated, dry area away from volatile acids.

Section 8: Exposure Control / Personal Protection

General / Engineering Controls:
- Ventilation: Local Exhaust: Yes
- Mechanical: Yes
- Other: Fume Hood

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: Wear safety glasses with side shields or goggles or face shield.

Skin Protection: Wear chemical resistant gloves.

Respiratory Protection: 0.1 mg/m^3 supplied air respirator with a full face piece

Additional Information: Lab coat/apron, flame and chemical resistant protective clothing, eye wash, safety shower, and hygiene facilities for washing.
Section 9: Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>State</td>
<td>Solid</td>
</tr>
<tr>
<td>Melting Point</td>
<td>1405 °F 763 °C</td>
</tr>
<tr>
<td>Freezing Point</td>
<td>N/A</td>
</tr>
<tr>
<td>Color</td>
<td>Black Crystalline Powder</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>352</td>
</tr>
<tr>
<td>Odor</td>
<td>Acrid Odor</td>
</tr>
<tr>
<td>Water Solubility</td>
<td>Very Soluble</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>Specific Gravity</td>
<td>5.3</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:
- Acids, alkalines, alkaline metal salts, copper, zinc salts, cyanides, and carbon monoxide

Decomposition products:
- Chlorine vapors

Section 11: Toxicological Information

General Information: No Data Available

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.

Other considerations: NOTE: Chemical additions, processing, or otherwise altering this material may make the waste management information presented above incomplete, inaccurate, or otherwise inappropriate.

Section 14: Transport Information

DOT: Considered non-hazardous for transport.

Section 15: Regulatory Information

TSCA: All ingredients of this product are listed or are excluded from listing under the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

Section 16: Other Information

<table>
<thead>
<tr>
<th>NFPA Rating</th>
<th>HMIS Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health: 2</td>
<td>Health: 2</td>
</tr>
<tr>
<td>Fire: 0</td>
<td>Fire: 0</td>
</tr>
<tr>
<td>Reactivity: 0</td>
<td>Reactivity: 0</td>
</tr>
<tr>
<td></td>
<td>Personal Protection: J</td>
</tr>
</tbody>
</table>

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.

SDS Author: John Kerchner

Version Date: 9/8/2015