Section 1: Company and Product Identification

Product Name: Sodium tetrachloropalladium(II) anhydrous
Product Code: 5024

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
Response: Chemtrec: 800-424-9300
World Wide - Call COLLECT to U.S. 703-527-3887

Section 2: Hazards Identification

Signal Word: Warning

Hazard Category: Serious eye damage/eye irritation Cat 3
Skin corrosion/irritation Cat 3
Acute tox, oral Cat 5
Acute tox, inh. Cat 5
Specific target organ tox, single exp. Cat 3 (resp irrit)

Hazard Statements:
H320: Causes eye irritation
H316: Causes mild skin irritation
H303: May be harmful if swallowed
H333: May be harmful if inhaled
H335: May cause respiratory irritation

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.

Hazards not otherwise classified:
To the best of our knowledge the chemical, physical, and toxicological properties of this compound 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>Sodium tetrachloropalladium(II)</td>
<td>Irritant</td>
<td>13820-53-6</td>
<td>100</td>
</tr>
</tbody>
</table>

Chemical Name: Sodium tetrachloropalladium(II) hydrate. Sodium chloropalladite
Chemical Family: Platinum Group Metal Salts
Chemical Formula: Na2PdCl4*3H2O
Section 4: First Aid Measures

General Info: Ensure proper ventilation.

Notable Exposure symptoms:
- **If ingested:** Rinse mouth. Seek immediate medical attention. Clear the airway and administer artificial respiration if not breathing. If swallowed, do not induce vomiting unless directed to do so by medical personnel.
- **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 immediate medical attention.
- **Skin contact:** Take off immediately all contaminated clothing. Rinse with water thoroughly. Get immediate medical advice.

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: Use proper safety equipment. Emits toxic fumes under fire conditions.

Extinguishing Method / Equipment:
- For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide.
- For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

Hazardous Decomposition Info:
- Hazardous decomposition products formed under fire conditions. Constituents associated with burning / combustion are to be considered toxic. Firefighters should wear self-contained breathing apparatus and full protective gear.

For small (incipient) fires, use "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water. For personal protection, see section 8 of the SDS.

Section 6: Accidental Release Measures

Personal precautions, protective equipment and procedures:
- Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Avoid breathing dust. Ventilate area if easy to do so. Contact local authorities if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Containment Large Spills: Contain actively spilling material if safe and easy to do so, avoid generating dust. Collect material and dispose of with inert material (e.g. sand, vermiculite).

Cleanup Procedures:
- Small Spills: Wash and collect to waste receptacles.
- 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/vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Wear appropriate personal protective equipment and wash thoroughly after handling.

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.

Recommendations for Storage:
- Store in cool, dry area in a tightly closed product container away from sources of ignition or flame.
- Do not store directly on ground.

Incompatibilities:
- Strong oxidizing agents
Section 8: Exposure Control / Personal Protection

General / Local Exhaust: Required in handling area
Engineering / Mechanical: Desirable to insure concentration of material below TLV/TWA levels
Controls: Other: Closed Ventilation system – (Laboratory Fume Hood)

Work Clothing: Protective work clothing which covers skin and prevents exposures.
Eye/face protection: Wear safety glasses with side shields or goggles or face shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
Skin Protection: Wear chemical resistant gloves. impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
Respiratory Protection: Utilize organic vapor respirator if airborne levels are not maintained or if ventilation is inadequate.

Additional Information: Observe good chemical hygiene practices. Do not smoke or eat while using this product. Wash hands or exposed skin after using the product.

Section 9: Physical and Chemical Properties

<table>
<thead>
<tr>
<th>State: Solid</th>
<th>Melting Point: N/A</th>
<th>Freezing Point: N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color: Red brown crystals/powder</td>
<td>Boiling Point/Range: N/A</td>
<td>pH N/A</td>
</tr>
<tr>
<td>Molecular Wt: 294.21</td>
<td>Odor: None</td>
<td>Water Solubility: N/A</td>
</tr>
<tr>
<td>Evaporation rate: N/A</td>
<td>Flash Point: N/A</td>
<td>Part. Coeff (n-octanol/water): N/A</td>
</tr>
<tr>
<td>Upper Flam Limits: N/A</td>
<td>Lower Flam Limits: N/A</td>
<td>Vapor Pressure: N/A</td>
</tr>
<tr>
<td>VOC Content N/A (lbs/gal):</td>
<td>Viscosity: N/A</td>
<td>Autoignition Temp: N/A</td>
</tr>
</tbody>
</table>

Section 10: Stability and Reactivity

General: Conditions To Avoid (Stability):
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): Moisture.
Incompatible materials: Strong oxidizing agents

Section 11: Toxicological Information

General Information: No data available
Toxicological Information (product):
Product has not been tested. Prolonged inhalation may be harmful to human health. Irritating in case of skin or eye contact. May be harmful if swallowed or in contact with skin.
Likely Routes of Exposure:
Eye Contact
Skin Contact
Inhalation
Ingestion - possible, but considered unlikely.

Toxicological Information (contained substances)
Carcinogenicity or mutagenicity: To the best of our knowledge the chemical, physical, and toxicological effects of this compound have not been thoroughly investigated.
Sensitization: Product is not expected to be a sensitizer.
Section 12: Ecological Information

General information: Product not tested.
Aquatic toxicity: No specific data available. Do not allow large quantities of product to reach water, ground water, water courses or sewer systems.
Degradation / Mobility info: No specific data available.
Bioaccumulative potential: No specific data available.

Section 13: Disposal Information

Product disposal: Dispose of product in accordance with local, regional, and national regulations. Consult with waste contractor.
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: Not dangerous goods, None, considered non-hazardous for transport
IMO/IMDG: Not dangerous goods, Non-Hazardous
IATA: Not dangerous goods, See regulation for information
OTHER: Inquire for further transport information.

Section 15: Regulatory Information

TSCA: This compound is listed in the TSCA inventory.
SARA 313: This product does not contain any ingredients regulated under Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 or 40 CFR 372
Canadian DSL: All ingredients of this product comply with New Substances Notification requirements of the Canadian Environmental Protection Act (CEPA).
European Union (EU) S: 22-24/25
Regulatory Information: Safety Statements: Do not breathe dust. Avoid contact with skin and eyes

Section 16: Other Information

NFPA Rating
Health: 1
Fire: 0
Reactivity: 0
Other: FL

HMIS Rating
Health: 1
Fire: 0
Reactivity: 0
Personal Protection: C

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: 6/15/2015