## CHEMICAL IDENTITY

<table>
<thead>
<tr>
<th>LABEL IDENTITY</th>
<th>PALLADIUM ALLOY</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEMICAL NAME/SYNONYMS</td>
<td>Pd</td>
</tr>
<tr>
<td>FORMULA</td>
<td>Metal</td>
</tr>
<tr>
<td>CAS REGISTRY NUMBER</td>
<td>7440-05-3</td>
</tr>
<tr>
<td>HAZARDOUS INGREDIENTS</td>
<td>Palladium +99 - 35</td>
</tr>
<tr>
<td></td>
<td>TLV: N/A</td>
</tr>
<tr>
<td></td>
<td>OSHA/PEL: N/A</td>
</tr>
</tbody>
</table>

## PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>COLOR, FORM</th>
<th>Silver/gray - Red/brown, Odorless</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYSICAL FORM</td>
<td>Solid metal</td>
</tr>
<tr>
<td>VAPOR DENSITY</td>
<td>Varies</td>
</tr>
<tr>
<td>VAPOR PRESSURE @ 20°C</td>
<td>NA</td>
</tr>
<tr>
<td>VOLATILE BY WEIGHT</td>
<td>Essentially zero</td>
</tr>
<tr>
<td>SOLUBILITY IN WATER</td>
<td>Insoluble</td>
</tr>
<tr>
<td>MELTING POINT</td>
<td>1555°C (100% Pd)</td>
</tr>
<tr>
<td>SPECIFIC GRAVITY</td>
<td>N/A</td>
</tr>
</tbody>
</table>

## FIRE AND EXPLOSION HAZARD DATA

<table>
<thead>
<tr>
<th>FLASH POINT</th>
<th>Non Flammable as a solid</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTOIGNITION TEMPERATURE (°C)</td>
<td>NA</td>
</tr>
<tr>
<td>FLAMMABILITY</td>
<td>Non flammable</td>
</tr>
<tr>
<td>EXTINGUISHING MEDIA</td>
<td>This material is non-combustible. Use appropriate extinguishing agent for surrounding fires. Do not use water to extinguish fires around operations involving molten metal, due to the potential for steam explosion</td>
</tr>
<tr>
<td>SPECIAL FIRE FIGHTING PROCEDURES</td>
<td>Self-contained breathing apparatus should be worn when fighting metal dust fires. High levels of dust or fine particles in the air may ignite or explode</td>
</tr>
<tr>
<td>UNUSUAL FIRE &amp; EXPLOSION HAZARDS</td>
<td>Platinum can catalyze oxidation and ignition of flammable gases and vapors. Can contain occluded hydrogen.</td>
</tr>
</tbody>
</table>
HEALTH HAZARD INFORMATION

EMERGENCY OVERVIEW: The alloys as sold in solid form are generally not considered hazardous. However, if the process involves grinding, melting, cutting or any other process that causes a release of dust or fumes, hazardous levels of airborne particulates could be generated.

PRIMARY ROUTES OF ENTRY
- INHALATION
- SKIN CONTACT

CARCINOGENICITY: no  NTP: no  IARC MONOGRAPHS: no  OSHA REGULATE: no

EFFECTS OF OVEREXPOSURE: (acute and chronic)
- INHALATION: no specific hazard.
- DERMAL/EYE CONTACT: May cause contact dermatitis
- OTHER: none

TARGET ORGANS: Respiratory tract; Skin

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: Individuals who may have had allergic reactions to metals or sensitivity, may encounter skin rash or dermatitis, if skin contact with this product occurs. Persons with impaired pulmonary functions, may incur further impairment if dust or fumes are inhaled.

EMERGENCY FIRST AID PROCEDURES:
- INGESTION: Obtain medical assistance at once.
- INHALATION: Breathing difficulty, caused by inhalation of dust or fumes requires removal to fresh air. If breathing has stopped perform artificial respiration and seek medical assistance at once.
- SKIN CONTACT: Skin cuts and abrasions can be treated by standard first aid. Skin contamination with dust or powder can be removed with soap and water. If irritation persists obtain medical assistance.
- EYE CONTACT: Dust or powder should be flushed from the eyes with running water for 15 minutes. If irritation persists obtain medical assistance.

REACTIVITY DATA

STABILITY
Stable

CONDITIONS CONTRIBUTING TO UNSTABILITY
None known

INCOMPATIBLE MATERIALS TO AVOID
Acetylene, Ammonia and Strong Oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS
None under proper usage conditions
PALLADIUM
MATERIAL SAFETY DATA SHEET

HAZARDOUS POLYMERIZATION
Will Not Occur

CONDITIONS TO AVOID
Conditions which create dust or fumes.

SAFE HANDLING AND USE

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:
In solid form this material poses no special clean-up problems. Use normal clean up procedures; wet sweeping or HEPA vacuum, for clean up of dust or powder. Do not use compressed air for cleaning.

WASTE DISPOSAL METHOD:
Because of its high intrinsic value this material should be reclaimed. Dispose of in accordance with local, state and federal regulations.

SPECIAL PROTECTIVE INFORMATION

RESPIRATORY PROTECTION
Use an appropriate NIOSH approved respirator if airborne dust concentration exceed the PEL or TLV

LOCAL EXHAUST
Recommended, when cutting, grinding or melting or any other operation where dust or fumes are created.

PROTECTIVE GLOVES
Protective gloves are recommended, to prevent mechanical irritation.

EYE PROTECTION
Safety glasses are recommended

GENERAL
Recommended

OTHER PROTECTIVE EQUIPMENT
Eye wash fountain should be readily available in areas of use or handling.

EXPOSURE LIMITS
Not established for product as whole.

ENVIRONMENTAL SURVEILLANCE
If the operation generates dust or fumes, exposure to airborne materials should be determined by having air samples taken in the employees breathing zone and work area.

SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING/STORAGE:
In solid form this material poses no special problems. Store metal in a dry area. Do not store adjacent to acids.

TRANSPORTATION REQUIREMENTS:
No specific D. O. T. requirements.

DOT SHIPPING NAME:
Not Regulated

TECHNICAL SHIPPING NAME:
Metal Alloy

DOT CLASS:
Not Classified

UN NUMBER:
None
PALLADIUM
MATERIAL SAFETY DATA SHEET

PRECAUTIONARY LABELING
NONE

OTHER PRECAUTIONS
NONE

THE ABOVE INFORMATION IS ACCURATE TO THE BEST OF OUR KNOWLEDGE. HOWEVER, SINCE DATA, SAFETY STANDARDS AND GOVERNMENT REGULATIONS ARE SUBJECT TO CHANGE THE CONDITIONS OF HANDLING AND USE, OR MISUSE ARE BEYOND OUR CONTROL. ANGSTROM SCIENCES MAKE NO WARRANTY, EITHER EXPRESSED OR IMPLIED, WITH RESPECT TO THE COMPLETENESS OR CONTINUING ACCURACY OF THE INFORMATION CONTAINED HEREIN AND DISCLAIMS ALL LIABILITY FOR THE RELIANCE THEREON. USER SHOULD SATISFY HIMSELF THAT HE HAS ALL CURRENT DATA RELEVANT TO HIS PARTICULAR USE.

NA= NOT APPLICABLE  ND= NO DATA FOUND