1. Identification

Product Name
Palladium on activated carbon, unreduced

Cat No. :
AC195030000; AC195030010; AC195030100; AC195030500; AC195032500

Synonyms
None.

Recommended Use
Laboratory chemicals.

Uses advised against
No Information available

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

| Flammable solids | Category 2 |

Label Elements

Signal Word
Warning

Hazard Statements
Flammable solid

Precautionary Statements
Prevention
Wear protective gloves/protective clothing/eye protection/face protection
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting/equipment

Fire
Fight fire with normal precautions from a reasonable distance

Storage
Store locked up

Hazards not otherwise classified (HNOC)
None identified

Other hazards
May cause eye, skin, and respiratory tract irritation.

Unknown Acute Toxicity
3-10 % of the mixture consists of ingredients of unknown toxicity.

### 3. Composition / information on ingredients

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon</td>
<td>7440-44-0</td>
<td>90-97</td>
</tr>
<tr>
<td>Palladium</td>
<td>7440-05-3</td>
<td>3-10</td>
</tr>
</tbody>
</table>

### 4. First-aid measures

**Eye Contact**
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

**Skin Contact**
Wash off immediately with plenty of water for at least 15 minutes. Get medical attention immediately if symptoms occur.

**Inhalation**
Move to fresh air. If breathing is difficult, give oxygen. Get medical attention immediately if symptoms occur.

**Ingestion**
Do not induce vomiting. Obtain medical attention.

**Most important symptoms/effects**
No information available.

**Notes to Physician**
Treat symptomatically

### 5. Fire-fighting measures

**Suitable Extinguishing Media**
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**Unsuitable Extinguishing Media**
No information available

**Flash Point**
No information available

**Method -**
No information available

**Autoignition Temperature**
120 °C / 248 °F

**Explosion Limits**
Upper
No data available

**Lower**
No data available

**Sensitivity to Mechanical Impact**
No information available

**Sensitivity to Static Discharge**
No information available

**Specific Hazards Arising from the Chemical**
Flammable. Risk of ignition. Dust can form an explosive mixture in air. Containers may explode when heated. Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition.

**Hazardous Combustion Products**
Carbon monoxide (CO) Carbon dioxide (CO₂)

Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

**NFPA**

<table>
<thead>
<tr>
<th>Health</th>
<th>Flammability</th>
<th>Instability</th>
<th>Physical hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>0</td>
<td>N/A</td>
</tr>
</tbody>
</table>

### 6. Accidental release measures

**Personal Precautions**
Use personal protective equipment. Remove all sources of ignition. Ensure adequate ventilation. Avoid dust formation. Avoid contact with skin, eyes and clothing.

**Environmental Precautions**
Avoid release to the environment.

**Methods for Containment and Clean Up**
Remove all sources of ignition. Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid dust formation. Use spark-proof tools and explosion-proof equipment.

### 7. Handling and storage

**Handling**
Wear personal protective equipment. Ensure adequate ventilation. Avoid dust formation. Keep away from open flames, hot surfaces and sources of ignition. Use spark-proof tools and explosion-proof equipment. Avoid contact with skin, eyes and clothing. Avoid ingestion and inhalation.

**Storage**
Keep containers tightly closed in a cool, well-ventilated place. Keep away from heat and sources of ignition. Flammables area.

### 8. Exposure controls / personal protection

**Exposure Guidelines**

<table>
<thead>
<tr>
<th>Component</th>
<th>Quebec</th>
<th>Mexico OEL (TWA)</th>
<th>Ontario TWAEV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon</td>
<td></td>
<td>TWA: 2 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

**Engineering Measures**
Ensure adequate ventilation, especially in confined areas. Use explosion-proof electrical/ventilating/lighting/equipment. Ensure that eyewash stations and safety showers are close to the workstation location.

**Personal Protective Equipment**

**Eye/face Protection**
Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA’s eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

**Skin and body protection**
Wear appropriate protective gloves and clothing to prevent skin exposure.

**Respiratory Protection**
Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

**Hygiene Measures**
Handle in accordance with good industrial hygiene and safety practice.

### 9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Physical State</th>
<th>Powder Solid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Black</td>
</tr>
<tr>
<td>Odor</td>
<td>Odorless</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No information available</td>
</tr>
<tr>
<td>pH</td>
<td>No information available</td>
</tr>
</tbody>
</table>
Melting Point/Range: No data available
Boiling Point/Range: No information available
Flash Point: No information available
Evaporation Rate: No information available
Flammability (solid, gas): No information available
Flammability or explosive limits
   Upper: No data available
   Lower: No data available
Vapor Pressure: negligible
Vapor Density: No information available
Relative Density: 12.02
Solubility: No information available
Partition coefficient; n-octanol/water: No data available
Autoignition Temperature: 120 °C / 248 °F
Decomposition Temperature: > 120°C
Viscosity: No information available
Molecular Formula: Pd
Molecular Weight: 106.42

10. Stability and reactivity

Reactive Hazard: None known, based on information available
Stability: Stable under normal conditions.
Conditions to Avoid: Keep away from open flames, hot surfaces and sources of ignition. Incompatible products. Avoid dust formation.
Incompatible Materials: Strong acids, Alcohols, Halogens
Hazardous Decomposition Products: Carbon monoxide (CO), Carbon dioxide (CO₂)
Hazardous Polymerization: Hazardous polymerization does not occur.
Hazardous Reactions: None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information: No acute toxicity information is available for this product
Oral LD50: Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.
Dermal LD50: Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.
Mist LC50: Based on ATE data, the classification criteria are not met. ATE > 5 mg/l.

Component Information

<table>
<thead>
<tr>
<th>Component</th>
<th>LD50 Oral</th>
<th>LD50 Dermal</th>
<th>LC50 Inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon</td>
<td>10000 mg/kg ( Rat )</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

Toxicologically Synergistic Products: No information available
Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation: No information available
Sensitization: No information available
Carcinogenicity: The table below indicates whether each agency has listed any ingredient as a carcinogen.

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>IARC</th>
<th>NTP</th>
<th>ACGIH</th>
<th>OSHA</th>
<th>Mexico</th>
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<tbody>
<tr>
<td>Carbon</td>
<td>7440-44-0</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
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<tr>
<td>Palladium</td>
<td>7440-05-3</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

Mutagenic Effects: No information available
Reproductive Effects
No information available.

Developmental Effects
No information available.

Teratogenicity
No information available.

STOT - single exposure
None known

STOT - repeated exposure
None known

Aspiration hazard
No information available

Symptoms / effects, both acute and delayed
No information available

Endocrine Disruptor Information
No information available

Other Adverse Effects
The toxicological properties have not been fully investigated. See actual entry in RTECS for complete information.

12. Ecological information

Ecotoxicity
Do not empty into drains.

Persistence and Degradability
No information available

Bioaccumulation/ Accumulation
No information available.

Mobility
No information available.

13. Disposal considerations

Waste Disposal Methods
Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

<table>
<thead>
<tr>
<th>UN-No</th>
<th>UN3178</th>
</tr>
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<tbody>
<tr>
<td>Proper Shipping Name</td>
<td>FLAMMABLE SOLID, INORGANIC, N.O.S.</td>
</tr>
<tr>
<td>Proper technical name</td>
<td>(PALLADIUM ON ACTIVATED CARBON)</td>
</tr>
<tr>
<td>Hazard Class</td>
<td>4.1</td>
</tr>
<tr>
<td>Packing Group</td>
<td>III</td>
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</table>

TDG

<table>
<thead>
<tr>
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<th>UN3178</th>
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<tbody>
<tr>
<td>Proper Shipping Name</td>
<td>FLAMMABLE SOLID, INORGANIC, N.O.S.</td>
</tr>
<tr>
<td>Hazard Class</td>
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<td>Packing Group</td>
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IATA

<table>
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<tr>
<th>UN-No</th>
<th>UN3178</th>
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<tbody>
<tr>
<td>Proper Shipping Name</td>
<td>FLAMMABLE SOLID, INORGANIC, N.O.S.*</td>
</tr>
<tr>
<td>Hazard Class</td>
<td>4.1</td>
</tr>
<tr>
<td>Packing Group</td>
<td>III</td>
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</table>

IMDG/IMO

<table>
<thead>
<tr>
<th>UN-No</th>
<th>UN3178</th>
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</thead>
<tbody>
<tr>
<td>Proper Shipping Name</td>
<td>FLAMMABLE SOLID, INORGANIC, N.O.S.</td>
</tr>
<tr>
<td>Hazard Class</td>
<td>4.1</td>
</tr>
<tr>
<td>Packing Group</td>
<td>III</td>
</tr>
</tbody>
</table>

15. Regulatory information

International Inventories
<table>
<thead>
<tr>
<th>Component</th>
<th>TSCA</th>
<th>DSL</th>
<th>NDSL</th>
<th>EINECS</th>
<th>ELINCS</th>
<th>NLP</th>
<th>PICCS</th>
<th>ENCS</th>
<th>AICS</th>
<th>IECSC</th>
<th>KECL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>231-153-3</td>
<td>-</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>X</td>
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<td>X</td>
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<tr>
<td>Palladium</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>231-115-6</td>
<td>-</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Legend:

- X - Listed
- E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
- F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
- N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
- P - Indicates a commenced PMN substance
- R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
- S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
- T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
- XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
- Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
- Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable
SARA 313 Not applicable

SARA 311/312 Hazardous Categorization

Acute Health Hazard No
Chronic Health Hazard No
Fire Hazard Yes
Sudden Release of Pressure Hazard No
Reactive Hazard No

Clean Water Act Not applicable
Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA
Not applicable

California Proposition 65 This product does not contain any Proposition 65 chemicals

State Right-to-Know

<table>
<thead>
<tr>
<th>Component</th>
<th>Massachusetts</th>
<th>New Jersey</th>
<th>Pennsylvania</th>
<th>Illinois</th>
<th>Rhode Island</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>X</td>
</tr>
</tbody>
</table>

U.S. Department of Transportation

Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available
Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and
the MSDS contains all the information required by the CPR

WHMIS Hazard Class   B4  Flammable solid

16. Other information

Prepared By          Regulatory Affairs
                     Thermo Fisher Scientific
                     Email: EMSDS.RA@thermofisher.com

Creation Date       26-Sep-2009
Revision Date       30-Apr-2015
Print Date          30-Apr-2015
Revision Summary    This document has been updated to comply with the US OSHA HazCom 2012 Standard
                     replacing the current legislation under 29 CFR 1910.1200 to align with the Globally
                     Harmonized System of Classification and Labeling of Chemicals (GHS)

Disclaimer
The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the
date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage,
transportation, disposal and release and is not to be considered as a warranty or quality specification. The information
relates only to the specific material designated and may not be valid for such material used in combination with any other
material or in any process, unless specified in the text.

End of SDS