

palladium powder, Type 400/2E

## Section 1. Identification

Code: C4052

GHS product identifier: palladium powder, Type 400/2E

Chemical name: palladium

Other means of identification: palladium, unwrought or in powder form; palladium, other

Product type: Powder.

Relevant identified uses of the substance or mixture and uses advised against: Not applicable.

Supplier's details: Johnson Matthey, 2001 Nolte Drive, West Deptford, NJ 08066 USA

Emergency telephone number (with hours of operation): For Hazardous Materials [or Dangerous Goods] Incident, Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night (collect calls accepted).  
Within USA and Canada: 1-800-424-9300. Outside USA and Canada: +1 703-527-3887

## Section 2. Hazards identification

OSHA/HCS status While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.

Classification of the substance or mixture Not classified.

### GHS label elements

Signal word **No signal word.**

Hazard statements No known significant effects or critical hazards.

### Precautionary statements

Prevention Not applicable.

Response Not applicable.

Storage Not applicable.

Disposal Not applicable.

Hazards not otherwise classified Handling and/or processing of this material may generate a dust which can cause mechanical irritation of the eyes, skin, nose and throat.

## Section 3. Composition/information on ingredients

Substance/mixture Substance

Chemical name palladium

Other means of identification palladium, unwrought or in powder form; palladium, other

### CAS number/other identifiers

CAS number 7440-05-3

Product code C4052

Ingredient name	%	CAS number
palladium	100	7440-05-3

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

**There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.**

Occupational exposure limits, if available, are listed in Section 8.

## Section 4. First aid measures

### Description of necessary first aid measures

Eye contact	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
Skin contact	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
Ingestion	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

### Most important symptoms/effects, acute and delayed

#### Potential acute health effects

Eye contact	Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the eyes.
Inhalation	Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs.
Skin contact	No known significant effects or critical hazards.
Ingestion	No known significant effects or critical hazards.

#### Over-exposure signs/symptoms

Eye contact	Adverse symptoms may include the following: irritation redness
Inhalation	Adverse symptoms may include the following: respiratory tract irritation coughing
Skin contact	No specific data.
Ingestion	No specific data.

### Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments	No specific treatment.
Protection of first-aiders	No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

## Section 5. Fire-fighting measures

### Extinguishing media

Suitable extinguishing media	Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media	None known.

Specific hazards arising from the chemical No specific fire or explosion hazard.

Hazardous thermal decomposition products	Decomposition products may include the following materials: metal oxide/oxides
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Special protective actions for fire-fighters Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Remark Not available.

Remark Not available.

## Section 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing dust. Put on appropriate personal protective equipment.
For emergency responders	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
Environmental precautions	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

### Methods and materials for containment and cleaning up

Small spill	Move containers from spill area. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.
Large spill	Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labeled waste container. Avoid creating dusty conditions and prevent wind dispersal. Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

## Section 7. Handling and storage

### Precautions for safe handling

Protective measures	Put on appropriate personal protective equipment (see Section 8). Avoid breathing dust.
Advice on general occupational hygiene	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
Conditions for safe storage, including any incompatibilities	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

## Section 8. Exposure controls/personal protection

### Control parameters

#### Occupational exposure limits

palladium	None.
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Appropriate engineering controls	Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
Environmental exposure controls	Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

### Individual protection measures

Hygiene measures	Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
Eye/face protection	Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields. If operating conditions cause high dust concentrations to be produced, use dust goggles.
Skin protection	
Hand protection	Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

## Section 8. Exposure controls/personal protection

<b>Body protection</b>	Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
<b>Other skin protection</b>	Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
<b>Respiratory protection</b>	Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

## Section 9. Physical and chemical properties

<b>Physical state</b>	Solid. [Powder.]	<b>Melting point</b>	1555°C (2831°F)
<b>Color</b>	Black.	<b>Boiling point</b>	2963°C (5365.4°F)
<b>Odor</b>	Not available.	<b>Flash point</b>	Not available.
<b>Odor threshold</b>	Not available.	<b>Burning time</b>	Not available.
<b>Vapor pressure</b>	Not available.	<b>Burning rate</b>	Not available.
<b>Vapor density</b>	Not available.	<b>Flammability (solid, gas)</b>	Not available.
<b>Evaporation rate</b>	Not available.	<b>Lower and upper explosive (flammable) limits</b>	Not available.
<b>Relative density</b>	Not available.	<b>Auto-ignition temperature</b>	Not available.
<b>pH</b>	Not available.	<b>Decomposition temperature</b>	Not available.
<b>Partition coefficient: n-octanol/water</b>	Not available.	<b>SADT</b>	Not available.
<b>Solubility in water</b>	Not available.	<b>Viscosity</b>	Not available.
<b>Solubility</b>	Insoluble in the following materials: cold water.		

## Section 10. Stability and reactivity

<b>Reactivity</b>	No specific test data related to reactivity available for this product or its ingredients.
<b>Chemical stability</b>	The product is stable.
<b>Possibility of hazardous reactions</b>	Under normal conditions of storage and use, hazardous reactions will not occur.
<b>Conditions to avoid</b>	No specific data.
<b>Incompatible materials</b>	No specific data.
<b>Hazardous decomposition products</b>	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## Section 11. Toxicological information

### Information on toxicological effects

#### Acute toxicity

Not available.

**Conclusion/Summary** Not available.

#### Irritation/Corrosion

Not available.

**Skin** Not available.

**Eyes** Not available.

**Respiratory** Not available.

#### Sensitization

Not available.

**Skin** Not available.

**Respiratory** Not available.

#### Mutagenicity

Not available.

**Conclusion/Summary** Not available.

#### Carcinogenicity

## Section 11. Toxicological information

Not available.

Conclusion/Summary Not available.

### Reproductive toxicity

Not available.

Conclusion/Summary Not available.

### Teratogenicity

Not available.

Conclusion/Summary Not available.

### Specific target organ toxicity (single exposure)

Not available.

### Specific target organ toxicity (repeated exposure)

Not available.

### Aspiration hazard

Not available.

**Information on the likely routes of exposure** Routes of entry anticipated: Dermal, Inhalation.  
Routes of entry not anticipated: Oral.

### Potential acute health effects

**Eye contact** Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the eyes.

**Inhalation** Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs.

**Skin contact** No known significant effects or critical hazards.

**Ingestion** No known significant effects or critical hazards.

### Symptoms related to the physical, chemical and toxicological characteristics

**Eye contact** Adverse symptoms may include the following:  
irritation  
redness

**Inhalation** Adverse symptoms may include the following:  
respiratory tract irritation  
coughing

**Skin contact** No specific data.

**Ingestion** No specific data.

### Delayed and immediate effects and also chronic effects from short and long term exposure

#### Short term exposure

Potential immediate effects Not available.

Potential delayed effects Not available.

#### Long term exposure

Potential immediate effects Not available.

Potential delayed effects Not available.

### Potential chronic health effects

Not available.

Conclusion/Summary Not available.

General Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation.

Carcinogenicity No known significant effects or critical hazards.

Mutagenicity No known significant effects or critical hazards.

Teratogenicity No known significant effects or critical hazards.

Developmental effects No known significant effects or critical hazards.

Fertility effects No known significant effects or critical hazards.

### Numerical measures of toxicity

## Section 11. Toxicological information

### Acute toxicity estimates

Not available.

Interactive effects Not available.

Other information Not available.

## Section 12. Ecological information

### Toxicity

Not available.

Conclusion/Summary Not available.

### Persistence and degradability

Not available.

Conclusion/Summary Not available.

### Bioaccumulative potential

Not available.

### Mobility in soil

Soil/water partition coefficient ( $K_{oc}$ ) Not available.

Mobility Not available.

Other adverse effects No known significant effects or critical hazards.

## Section 13. Disposal considerations

**Disposal methods** The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

**Waste stream** Not available.

**RCRA classification** Not available.

## Section 14. Transport information

	DOT Classification	IMDG	IATA
<b>UN number</b>	Not regulated.	Not regulated.	Not regulated.
<b>UN proper shipping name</b>	-	-	-
<b>Transport hazard class(es) and Packing group</b>	--	--	--
<b>Environmental hazards</b>	No.	No.	No.
<b>Additional information</b>	-	-	-

**Special precautions for user** **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

## Section 14. Transport information

Transport in bulk according to Annex II of MARPOL and the IBC Code Not available.

Proper shipping name Not available.

Ship type Not available.

Pollution category Not available.

## Section 15. Regulatory information

**U.S. Federal regulations** TSCA 8(a) CDR Exempt/Partial exemption: Not determined  
 United States inventory (TSCA 8b): This material is listed or exempted.

Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs) Not listed

Clean Air Act Section 602 Class I Substances Not listed

Clean Air Act Section 602 Class II Substances Not listed

DEA List I Chemicals (Precursor Chemicals) Not listed

DEA List II Chemicals (Essential Chemicals) Not listed

### SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ Not applicable.

### SARA 311/312

Classification Not applicable.

**Composition/information on ingredients**

No products were found.

### State regulations

Massachusetts This material is not listed.

New York This material is not listed.

New Jersey This material is not listed.

Pennsylvania This material is not listed.

Not available.

### International regulations

**Chemical Weapon Convention List Schedules I, II & III Chemicals**

Not listed.

**Montreal Protocol (Annexes A, B, C, E)**

Not listed.

**Stockholm Convention on Persistent Organic Pollutants**

Not listed.

**Rotterdam Convention on Prior Inform Consent (PIC)**

Not listed.

**UNECE Aarhus Protocol on POPs and Heavy Metals**

Not listed.

### International lists

#### National inventory

Australia This material is listed or exempted.

Canada This material is listed or exempted.

China This material is listed or exempted.

Europe This material is listed or exempted.

## Section 15. Regulatory information

Japan	Japan inventory (ENCS): Not determined. Japan inventory (ISHL): Not determined.
Malaysia	Not determined.
New Zealand	This material is listed or exempted.
Philippines	This material is listed or exempted.
Republic of Korea	This material is listed or exempted.
Taiwan	This material is listed or exempted.
Turkey	Not determined.

## Section 16. Other information

### Procedure used to derive the classification

Classification	Justification
Not classified.	

### History

Date of printing	10/01/2017
Date of issue/Date of revision	10/01/2017
Date of previous issue	29/11/2016
Version	3
Prepared by	Not available.
Key to abbreviations	ATE = Acute Toxicity Estimate BCF = Bioconcentration Factor GHS = Globally Harmonized System of Classification and Labelling of Chemicals IATA = International Air Transport Association IBC = Intermediate Bulk Container IMDG = International Maritime Dangerous Goods LogPow = logarithm of the octanol/water partition coefficient MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution) UN = United Nations
References	Not available.

Indicates information that has changed from previously issued version.

US Label (29 CFR 1910.1200(f)(1))

<p><b>palladium powder, Type 400/2E</b></p> <p>CAS: 7440-05-3      Code: C4052</p> <p>This material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).</p> <p>Johnson Matthey 2001 Nolte Drive, West Deptford, NJ 08066 USA    non-emergencies: +1 856 384 7050; emergencies +1 800 424 9300</p>
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### Notice to reader



## **Section 16. Other information**

**This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is given in good faith, being based on the latest information available to Johnson Matthey PLC and is to the best of Johnson Matthey PLC's knowledge and belief, accurate and reliable at the time of preparation. However, no representation, warranty or guarantee is made as to the accuracy, liability or completeness and Johnson Matthey PLC assumes no responsibility therefore, and disclaims any liability for any loss, damage or injury howsoever arising (including in respect of any claim brought by any third party) incurred using this information. The product is supplied on the condition that the user accepts responsibility to satisfy himself as to the suitability and completeness of such information for his own particular use. Freedom from patent or any other proprietary rights of any third party must not be assumed.**