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REVISION N <sup>o</sup> : 8	WORK PROCEDURE TASK:	<b>SAFETY DATA SHEET - IRIIDIUM</b>
	SECTION:	VAULTS
	DOCUMENT N <sup>o</sup> :	<b>PMR-MSDS-IRIDIUM</b>

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SAFETY DATA SHEET

PRODUCT NAME: IRIIDIUM POWDER

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION
<p>Identification of the preparation:</p> <p>Product name: Iridium powder      Product code: IR METAL</p> <p>Chemical name: Iridium                      Formula: Ir</p> <p>Recommended uses: Manufacture of Iridium chemicals for use in catalysts, and electrode coatings, as metal or alloys for corrosion and heat resistant applications.</p> <p>Company Identification:</p> <p>Impala Platinum Limited – Refineries</p> <p>Corner East Geduld Road &amp; Cowles Street</p> <p>P O Box 222, Springs 1560, South Africa</p> <p>Tel.: +27 (0)11 360 3111, Fax: +27 (0)11 360 3202</p> <p>www.implats.co.za      *jamie.welman@implats.co.za</p> <p>Emergency telephone no.: Impala Platinum Refineries +27 (0)11 360 3777</p> <p>Poison Centre - Tygerberg Hospital, Belville, Cape +27 (0)21 931 6129</p>
2. HAZARD IDENTIFICATION
<p>Low toxicity</p> <p><b>WARNING</b></p> <p>Harmful - if swallowed, - in contact with skin, - if inhaled</p> <p>The product may cause adverse health effects with high-level dust generation, inhalation or prolonged skin contact. May form Iridium salts on contact with acids.</p> <p>Additional Labeling:</p> <p>Each container should be labeled as follows:</p> <p>Before use read Safety Data Sheet</p> <p>If dissolved, ensure adequate enclosure or ventilation; do not breathe mists and avoid solution contact with eyes, skin and clothing – may cause sensitization or allergic reaction</p> <p>If melted do not breathe furnace fumes</p> 

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**3. COMPOSITION / INFORMATION ON INGREDIENTS**

Major components:	Typical wt %:	CAS #:	7439-88-5
Iridium	99.90-99.99%	EINECS Number:	231-095-9

**4. FIRST AID MEASURES**

Inhalation: If over exposure occurs leave exposure area immediately. If other than minor symptoms are displayed seek immediate medical attention

Ingestion: If poisoning occurs, contact a Doctor or Poisons Information Centre on +27-21-931-6129. Do not induce vomiting. Give a glass of water to drink. Seek urgent medical attention.

Skin: Gently flush affected areas with soap and water. Seek medical attention if irritation develops.

Eyes: Flush gently with running water for at least 15 minutes. Seek medical attention if irritation develops.

**5. FIRE-FIGHTING MEASURES**

Suitable extinguishing media: does not burn

Extinguishing media not be used: not applicable

Special exposure hazards: none

Special protective equipment for fire-fighters: none

NOTE: Unlike some finely divided Iridium powder supplied by other companies, the material supplied by Impala Platinum is non-flammable and therefore DOES NOT present a fire hazard.

**6. ACCIDENTAL RELEASE MEASURES**

Personal precautions: If spilt (bulk) wear goggles and PVC or rubber gloves. Where a dust inhalation hazard exists (i.e. when used in large quantities) wear a Class P1 (particulate) respirator.

Environmental precautions: Prevent this material from entering into surface waters.

Methods for cleaning-up: SOLID – sweep up and place in sealed container. SOLUTION - Absorb with moist sand or similar and place in sealed containers for reprocessing or recovery.

**7. HANDLING AND STORAGE**

Handling: Avoid inhalation of dust or fumes. Avoid contact with skin or eyes. Use local ventilation which is adequate to limit exposure to levels not exceeding occupational exposure limits. Activities generating dust should be avoided.

Storage: Store in tightly sealed containers in a cool, dry and well-ventilated area removed from oxidizing agents, acids and foodstuffs. Ensure containers are adequately labeled, protected from physical damage and sealed when not in use. Check regularly for leaks or spills.



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**11. TOXICOLOGICAL INFORMATION**

**ACUTE TOXICITY**

Ingestion: Iridium powder is non-toxic. May cause irritation of the gastro-intestinal tract.  
Iridium salts may be more toxic e.g. Iridium (IV) chloride Rat, oral LD<sub>50</sub> 1560mg/kg

**SKIN IRRITATION / CORROSION**

Non-irritant: Low irritant. Prolonged and repeated exposure to dust/powder may result in irritation due to mechanical action. Possible sensitizer. Direct contact with Iridium salts may result in irritation and skin sensitization.

**EYE DAMAGE / IRRITATION**

Irritant: Exposure may result in eye irritation, lachrymation, burning sensation and conjunctivitis and possible corneal burns with prolonged contact.

**RESPIRATORY OR SKIN SENSITIZATION**

Non-irritant: Iridium metal is unlikely to cause irritation except as a dust. Iridium salts are irritating to eyes, skin and mucous membranes and may cause sensitization.

**REPRODUCTIVE CELL MUTAGENICITY**

The effects of Iridium salts have not been fully investigated.

**CARCINOGENICITY**

Non-carcinogenic: Iridium salts are listed as a non-carcinogenic in (all U.S.):  
i) in the National Toxicity Program (NTP) Report on Carcinogens  
ii) in the International Agency for Research on Cancer (IARC) monographs  
iii) by the Occupational Safety and Health Administration (OSHA)  
Water-soluble Iridium compounds have caused tumours in laboratory animals.

**REPRODUCTIVE TOXICITY**

Iridium chloride has caused mutations in bacteria and tumours in laboratory animals. However, the effects have not been fully investigated. Pregnant women should avoid contact with Iridium salts.

**SPECIFIC TARGET ORGAN TOXICITY – Single exposure**

Iridium salts may cause possible damage to the respiratory tract, GI tract, skin, eyes, teeth and immune system. However, the effects have not been fully investigated.

**SPECIFIC TARGET ORGAN TOXICITY – Repeated exposure**

Rhodium salts may cause possible damage to the respiratory tract, GI tract, skin, eyes, teeth and immune system. However, the effects have not been fully investigated.

**ASPIRATION HAZARD**

Inhalation : Low irritant. Inhalation of dusts may result in upper respiratory tract irritation. Iridium metal poses a low hazard but Iridium salts are potential irritants and sensitizers.

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**12. ECOLOGICAL INFORMATION**

Due to the very low solubility of Iridium powder it does not directly pose any ecological threat. However, if converted to soluble Iridium salts it may have the following effects:

Accumulation:

- Persistence: hazard of iridium persistency in the environment
- Bioaccumulative potential: hazard of iridium accumulation
- Biomagnification: potential hazard of iridium magnification
- Biodegradability: no information available

Ecotoxicity:

- Aquatic organisms: Potentially toxic to aquatic organisms. May cause long term adverse effects in the aquatic environment.
- Soil organisms: unknown; no information available
- Plants and terrestrial animals: unknown; no information available

Other adverse effects:

- Ozone depletion potential: does not contain ozone depleting substances
- Photochemical ozone creation potential: not applicable
- Global warming potential: not applicable
- Effects on waste water treatment plants: unknown; no information available

The environmental effects of Iridium and its compounds have not been fully evaluated.

**13. DISPOSAL CONSIDERATIONS**

Disposer must comply with state and local laws. This material can be metallurgically recycled by Impala Platinum, South Africa, which is a pre-authorized facility for the environmentally sound recovery of metals.

**14. TRANSPORT INFORMATION**

NOT REGULATED FOR TRANSPORT PURPOSES

Packing : in plastic bottles sealed in tins which in turn are sealed in boxes

UN-Nr.: not applicable

IMDG-Code: not applicable

ICAO / IATA : not applicable

RID / ADR : not applicable

**15. REGULATORY INFORMATION**

United States: CERCLA Sections 102a/103 (40 CFR 302.4): Not regulated

Canada: WHMIS Classification: D2B (toxic material)

EU/EC Classification: X<sub>n</sub> (Harmful); not classified in Annex I of Directive 67/548/EEC (will change with implementation of GHS/REACH)

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16. OTHER INFORMATION :
<p>Hazard Information References :</p> <p>RTECS : Registry of toxic effects of Chemical Substances, NIOSH, edition January 1999</p> <p>Sax's Dangerous Properties of Industrial Materials (8th edition), R J Lewis Sr.</p> <p>Screening of Platinum Group Metals; Pt, Rh, Pd SWECO VIAK Screening Report 2007:2 (For Swedish Environmental Protection Agency)</p> <p>ECOTOX database; <a href="http://cfpub.epa.gov/ecotox">http://cfpub.epa.gov/ecotox</a></p> <p>The buyer assumes all risks with the use and handling of the material.</p> <p>The seller assumes no responsibility or liability in connection with the information supplied in this sheet or for any damage or injury caused by the material; reasonable safety procedures should be followed.</p> <p>The seller assumes no responsibility for injury or damage caused by use of the material even if reasonable safety procedures are followed. The information contained in this sheet is developed from what is believed to be accurate and reliable sources but the seller makes no warranties, either expressed or implied, and assumes no responsibility for the accuracy or completeness of the data contained herein.</p>