SECTION 1 — CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Identifier
Iron Platinum bimetallic nanoparticles in hexane

Product Use
Magnetic device research

Manufacturer’s Name
Richard Farrell, Chemistry

Supplier’s Name
UCLA

Street Address
607 Charles E. Young Drive, Westwood

City
Los Angeles

Province
CA

Postal Code
90095

Emergency Telephone
310-910-2510

Date MSDS Prepared
February 4th, 2010

MSDS Prepared By
Richard Farrell

Phone Number
310-794-6618

SECTION 2 — COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Ingredients (specific) % CAS Number LD$_{50}$ of Ingredient (specify species and route) LC$_{50}$ of Ingredient (specify species)

Iron-Platinum alloy 3% Not available < 10 mg kg-1

Hexane 95% 110-54-3 118 mg kg-1

Oleic acid 1% 112-80-1 28700 mg kg-1

Olelyamine 1% 112-90-3 888 mg kg-1

SECTION 3 — HAZARDS IDENTIFICATION

[Emergency Overview]
The health hazards of this product have not been fully tested and should be used with caution.
Not all potential health effects are listed here.

[WHMIS Symbols]

Potential Health Effects:
Inhalation: Possible irritation to respiratory tract and symptoms of nausea. Headaches, drowsiness, dizziness, disorientation, sleep disturbances, loss of coordination, dilated pupils, kidney damage and liver damage.
Skin Contact: Possible irritation
Eye Contact: Possible irritation
Ingestion: Possible stomach pain and symptoms of nausea. Headache, drowsiness, dizziness, disorientation, sleep disturbances, loss of coordination, dilated pupils. Damage to kidney or liver.

SECTION 4 — FIRST AID MEASURES

Skin Contact: Wash the skin thoroughly with soap and water and seek medical advice.

Eye Contact: If eye contact occurs, rinse eye thoroughly and seek medical advice

Inhalation: If inhaled, supply fresh air or respirator and seek medical advice

Ingestion: If swallowed, seek medical attention immediately (If Victim is CONSCIOUS have the victim drink water or milk, DO NOT INDUCE VOMITING)

Sample format provided by The Workers’ Compensation Board of British Columbia
SECTION 5 — FIRE FIGHTING MEASURES

<table>
<thead>
<tr>
<th>Flammable</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>If yes, under which conditions?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Above flash point, vapor-air mixtures are explosive within flammable limits note. Vapors can flow along surfaces to distant ignition source and flash back. Severe explosion hazard when exposed to heat or flame.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Means of Extinction:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dry chemical or foam extinguisher</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Flashpoint (°C) and Method</th>
<th>Upper Flammable Limit (% by volume)</th>
<th>Lower Flammable Limit (% by volume)</th>
</tr>
</thead>
<tbody>
<tr>
<td>−22.5°C (-8.5°F)</td>
<td>7.5 %</td>
<td>1.2 %</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Autoignition Temperature (°C)</th>
<th>Explosion Data — Sensitivity to Impact</th>
<th>Explosion Data — Sensitivity to Static Discharge</th>
</tr>
</thead>
<tbody>
<tr>
<td>225°C (437°F)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hazardous Combustion Products:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hexane</td>
</tr>
</tbody>
</table>

[NFPA]
In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode.

SECTION 6 — ACCIDENTAL RELEASE MEASURES

Leak and Spill Procedures

Personal Precautions: Always use proper protective equipment.
Environmental Precautions: Do not allow material to reach drains or ground water.
Cleanup of small spills: Use appropriate material to absorb liquid.
Disposal: Collect and dispose of all waste in an appropriate container.

SECTION 7 — HANDLING AND STORAGE

Handling: Follow safe laboratory practices. The product should only be used by or closely supervised by an individual trained to handle potentially hazardous materials.

Store at 4-24°C in a tightly sealed container. Store in same type of container (glass/plastic) as shipped. Do not freeze.

SECTION 8 — EXPOSURE CONTROL / PERSONAL PROTECTION

Exposure Limits

<table>
<thead>
<tr>
<th></th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>Other (specify)</th>
</tr>
</thead>
</table>

Specific Engineering Controls (such as ventilation, enclosed process)
Use fume hood with proper ventilation. Only a properly trained lab technician should handle this product.

Proper laboratory safety procedures should be implemented.

Personal Protective Equipment:

<table>
<thead>
<tr>
<th>Gloves</th>
<th>Respirator</th>
<th>Eye</th>
<th>Footwear</th>
<th>Clothing</th>
<th>Other</th>
</tr>
</thead>
</table>

Goggles

X

Lab coat

X
SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

Physical State
Liquid. Possible settling could occur based on storage methods.

Odor and Appearance
Color: Green to dark red
Odor: Not disclosed

Odour Threshold (ppm)
Not disclosed

Specific Gravity
Not disclosed

Vapour Density (air = 1)
Not disclosed

Vapour Pressure (mmHg)
Not disclosed

Evaporation Rate
Not disclosed

Boiling Point (°C)
Not disclosed

Freezing Point (°C)
Not disclosed

pH
Not disclosed

Coefficient of Water/Oil Distribution
Not disclosed

[Solubility in Water]
Not soluble

SECTION 10 — STABILITY AND REACTIVITY

Chemical Stability
☐ Yes ☐ No

If no, under which conditions?
Not determined

Incompatibility with Other Substances
☐ Yes ☐ No

If yes, which ones?
Not fully determined. Reactive or incompatible with oxidizing materials and acids

Conditions to avoid:
Not fully determined. Avoid heat/ flames

Thermal decomposition:
Not determined. May produce toxins.

Reactivity, and under what conditions?:

Hazardous Decomposition
Products

SECTION 11 — TOXICOLOGICAL INFORMATION

Effects of Acute Exposure: Not disclosed

Effects of chronic exposure: Not disclosed

Irritancy of Product: Not disclosed

Skin sensitization: Not disclosed

Respiratory sensitization: Not disclosed

Carcinogenicity-IARC: Not disclosed

Carcinogenicity - ACGIH: No information is available

Reproductive toxicity: Not disclosed

Teratogenicity: Not disclosed

Embotoxicity: Not disclosed

Mutagenicity: Not disclosed

Name of synergistic products/effects

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Please continue on reverse side
Product Identifier- 4-

SECTION 12 — ECOLOGICAL INFORMATION

[Aquatic Toxicity]
No data available. See section 6 for environmental precautions

SECTION 13 — DISPOSAL CONSIDERATIONS

Waste Disposal

Dispose of in accordance with local, state, or national regulations.

SECTION 14 — TRANSPORT INFORMATION

Special Shipping Information

Exceptions: 49 CFR 173.4 for small quantities of hazardous materials less than 30 ml (Hexane)

Packing Group: II

Identification Number: UN1208

TDG [DOT] Class 3

[IMO] [ICAO]

SECTION 15 — REGULATORY INFORMATION

[WHMIS Classification] [OSHA]

[SERA] [TSCA]

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by CPR.

SECTION 16 — OTHER INFORMATION

Disclaimer: For R&D only. Not intended for food, drug, household, agricultural or cosmetic use.

The above information is believed to be correct. UCLA shall not be held liable for any damage resulting from handling or contact with the above product.