1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Hydrous Ferric Oxide
Use/Size: Catalyst
Manufacturer/Supplier: Molecular Products Inc., a subsidiary of Molecular Products Group
Address: 6837 Winchester Circle, Suite A
        Boulder, CO 80301
Phone Number: (303) 666-4400 (Monday – Friday 7:00 am to 5:00 pm MT)
Revision Date: April 1, 2009
MSDS Date: June 25, 2002

This MSDS has been compiled in accordance with - EC Directive 91/155/EC - OSHA’s Hazcom Standard (29 CFR 1910.1200)

2. COMPOSITION/INFORMATION ON THE COMPONENTS

<table>
<thead>
<tr>
<th>Component Name</th>
<th>CAS#/Codes</th>
<th>Concentration</th>
<th>R Phrases</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrous Ferric Oxide</td>
<td>1309-37-1</td>
<td>100%</td>
<td>R-None</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>215-168-2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. HAZARD IDENTIFICATION

EU Main Hazards
Not classified as hazardous.

Routes of Entry
- Eye contact - Skin contact - Inhalation

Carcinogenic Status
Not considered carcinogenic by NTP, IARC, and OSHA.

Target Organs
- Eye - Skin - Respiratory Tract

Health Effects - Eyes
Contact may cause conjunctival irritation.

Health Effects - Skin
Material may cause irritation.

Health Effects - Ingestion
May cause irritation to gastrointestinal tract.

Health Effects - Inhalation
Exposure to dusts at high concentrations may cause irritation of nose throat and respiratory tract.
4. FIRST AID MEASURES

Eyes
Immediately flood the eye with plenty of water for at least 15 minutes, holding the eye open. Obtain medical attention if soreness or redness persists.

Skin
Wash skin thoroughly with soap and water. Continue washing for at least 15 minutes. Seek medical attention if symptoms occur or redness persists.

Ingestion
Have victim drink 1-3 glasses of water to dilute stomach contents. Never administer anything by mouth if a victim is losing consciousness, is unconscious or is convulsing. Obtain medical attention immediately.

Inhalation
If there is difficulty in breathing, give oxygen. Seek medical attention if symptoms persist.

Advice to Physicians
Treat Symptomatically.

5. FIRE FIGHTING MEASURES

Extinguishing Media
Use water spray, foam, dry chemical or carbon dioxide.

Unusual Fire and Explosion Hazards
This product may give rise to hazardous fumes in a fire.

Protective Equipment for Fire-Fighting
Wear full protective clothing and self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

This product may be collected by carefully scooping into a pan, paper towel or other absorbent material. Clean up spills in a manner that does not disperse dust into the air. Use non-sparking tools and equipment. Reduce airborne dust and prevent scattering by moistening with water. Transfer into suitable containers for recovery or disposal. Wear appropriate protective clothing.

7. HANDLING AND STORAGE

Keep container tightly closed when not in use. Avoid buildup of static charge in handling equipment. Do not get in eyes, on skin or on clothing. Avoid breathing dust. Storage area should be: - cool - dry - well ventilated - away from incompatible materials (see section 10 for materials to avoid)

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational Exposure Standards
Exposure limits are listed below, if they exist.

Hydrous Ferric Oxide (as particles not otherwise specified)
ACGIH TLV: 3 mg/m³ (respirable) 10 mg/m³ (inhalable) OSHA Permissible Exposure Limits (PELs): 5 mg/m³ (respirable), 15 mg/m³ (total) UK TWA: 5 mg/m³, 10 mg/m³ (STEL)

Engineering Control Measures
Good general room ventilation is expected to be adequate to control airborne levels. If conditions are dusty, use local exhaust ventilation.

Respiratory Protection
NIOSH Approved dust respirator if conditions are dusty.

Hand Protection
Rubber gloves

Eye Protection
Chemical goggles or safety glasses with side shields

Body Protection
Normal work wear.
9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical State</td>
<td>Granule</td>
</tr>
<tr>
<td>Color</td>
<td>Black to dark red</td>
</tr>
<tr>
<td>Odor</td>
<td>Odorless</td>
</tr>
<tr>
<td>pH</td>
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</tr>
<tr>
<td>Specific Gravity</td>
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</tr>
<tr>
<td>Boiling Range/Point (°C)</td>
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</tr>
<tr>
<td>Flash Point (PMCC) (°C)</td>
<td>No data</td>
</tr>
<tr>
<td>Explosion Limits (%)</td>
<td>Not flammable</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Density</td>
<td>&gt; 1.0 g/ml</td>
</tr>
<tr>
<td>Solubility in Water</td>
<td>Insoluble</td>
</tr>
<tr>
<td>Vapor Density (Air = 1)</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Melting Point (deg C)</td>
<td>Not Applicable</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

Stability
Stable under normal conditions.

Conditions to Avoid
- Heat - High temperatures.

Materials to Avoid
- Hydrazine - calcium hypochlorite - performic acid.

Hazardous Polymerization
Will not occur.

Hazardous Decomposition Products
- acid smoke and irritating fumes.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity
Low order of acute toxicity predicted.

Chronic Toxicity/Carcinogenicity
This product is not expected to cause long-term adverse health effects.

Genotoxicity
This product is not expected to cause any mutagenic effects.

Reproductive/Developmental Toxicity
This product is not expected to cause reproductive or developmental health effects.

12. ECOLOGICAL INFORMATION

Mobility
No relevant studies identified.

Persistence/Degradability
No relevant studies identified.

Bio-accumulation
No relevant studies identified.

Ecotoxicity
No relevant studies identified.

13. DISPOSAL

Dispose of in accordance with all applicable local and national regulations.
14. TRANSPORT INFORMATION

<table>
<thead>
<tr>
<th>DOT CFR 172.101 Data</th>
<th>Not Regulated</th>
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</thead>
<tbody>
<tr>
<td>UN Proper Shipping Name</td>
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<tr>
<td>UN Class</td>
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<tr>
<td>UN Number</td>
<td>None</td>
</tr>
<tr>
<td>UN Packaging Group</td>
<td>None</td>
</tr>
<tr>
<td>Classification for AIR Transportation (IATA)</td>
<td>Consult current IATA Regulations prior to shipping by air.</td>
</tr>
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</table>

15. REGULATORY INFORMATION

**EU Label Information**
Classification and labelling have been performed according to EU directives 67/548/EEC and 99/45/EC including amendments.

**EU Hazard Symbol and Indication of Danger**

**R phrases**
None.

**S phrases**
None.

**US REGULATIONS (Federal, State) and INTERNATIONAL CHEMICAL REGISTRATION LAWS**

**TSCA Listing**
All ingredients have been verified for inclusion on the EPA Toxic Substance Control Act Chemical Substance Inventory.

**EINECS Listing**
All ingredients in this product are listed on the European Inventory of Existing Commercial Chemical Substances (EINECS) or are exempt from listing.

**DSL/NDSL (Canadian) Listing**
All ingredients have been verified for inclusion on either the Domestic Substance List (DSL) or the Non-Domestic Substance List (NDSL).

**WHMIS Classification**
D.2.B
This product was classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations and the MSDS contains all the information required by these regulations.

**California Proposition 65**
This product does not contain materials which the State of California has found to cause cancer, birth defects or other reproductive harm.

**SARA Title III Sect. 302 (EHS)**
This product does not contain any chemicals subject to SARA Title III Section 302.

**SARA Title III Sect. 304**
This product does not contain any chemicals subject to SARA Title III Section 304.

**SARA Title III Sect. 311/312 Categorization**
This product meets the following SARA Title III Section 311/312 categorizations: Acute Hazard

**SARA Title III Sect. 313**
This product does not contain a chemical that is listed in Section 313 at or above de minimis concentrations.
16. OTHER INFORMATION

NFPA Ratings
NFPA Code for Flammability - 0
NFPA Code for Health - 1
NFPA Code for Reactivity - 0
NFPA Code for Special Hazards - 0

HMIS Ratings
HMIS Code for Flammability - 0
HMIS Code for Health - 1
HMIS Code for Reactivity - 0
HMIS Code for Personal Protection - See Section 8

Abbreviations
N/A: Denotes no applicable information found or available
CAS#: Chemical Abstracts Service Number
ACGIH: American Conference of Governmental Industrial Hygienists
OSHA: Occupational Safety and Health Administration
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
STEL: Short Term Exposure Limit
NTP: National Toxicology Program
IARC: International Agency for Research on Cancer
R: Risk
S: Safety
LC50: Lethal Concentration 50%
LD50: Lethal Dose 50%
BOD: Biological Oxygen Demand
KoC: Soil Organic Carbon Partition Coefficient

The information in this safety data sheet is based on the best knowledge and legislation available at the time. It provides guidance on health, safety and environmental aspects of the product and should not be construed as any guarantee of technical performance or suitability for particular application. As the specific conditions of use are outside the control of the supplier, the user is responsible for ensuring that the product is used in a safe way and in compliance with the relevant requirements of legislation.