


**1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**

Trade Name: NYACOL® IronMin  
 Chemical Name: Iron hydroxide colloidal dispersion in hydrocarbon liquid.  
 Specific chemical identity withheld as a trade secret.  
 Synonyms: None  
 Product Code: IronMin  
 Use: Proprietary  
 Manufacturer: Nyacol Nano Technologies, Inc.  
 Megunko Road, P.O. Box 349, Ashland, MA 01721 U.S.A.  
 508-881-2220  
 Emergency Telephone: CHEMTREC: 800-424-9300  
 E-mail: info@nyacol.com

**2. HAZARD IDENTIFICATION**

Classification: Harmful.  
 Symbol:   
 Risk Phrases: R65 Harmful: may cause lung damage if swallowed.  
 R66 Repeated exposure may cause skin dryness or cracking.  
 R67 Vapours may cause drowsiness and dizziness.  
 Emergency Overview: Reddish-brown liquid. Slight organic odor. Combustible.  
 Can release vapors that form flammable or explosive mixtures if ignited.  
 May cause irritation to eyes, skin, and respiratory tract.  
 If ingested, material may be aspirated into lungs and cause chemical pneumonitis  
 Inhalation of vapors or mist can cause respiratory irritation headaches, dizziness,  
 anesthesia, nausea, drowsiness or unconsciousness.

**3. COMPOSITION / INFORMATION ON INGREDIENTS**

<u>Component</u>	<u>CAS #</u>	<u>Occupational Exposure Limits</u>	<u>Percent By Weight</u>
Iron Hydroxide:	20344-49-4	OSHA PEL: 15 mg/m <sup>3</sup> ACGIH TLV: 10 mg/m <sup>3</sup>	30
Isoparaffinic Hydrocarbon:	Listed	Not Established.	61
Nonionic Surfactant:	Listed	Not Established.	9
<u>Component</u>	<u>EINECS #</u>	<u>REACH #</u>	Specific chemical identity and composition is withheld as a trade secret pursuant to 29 CFR 1910.1200 (i) and Directives 1999/45/EC and 2001/58/EC.
Iron Hydroxide:	243-746-4	Not registered by NNT.	
Isoparaffinic Hydrocarbon:	Listed	05-2117294564-33-0000	
Nonionic Surfactant:	Listed	N/A	

Potential Health Effects / Health Hazard Identification

Acute Exposure:

Eye: May cause irritation.  
 Ingestion: Material may be aspirated into lungs and cause chemical pneumonitis.  
 Skin: Repeated exposure may cause skin dryness or cracking.  
 Inhalation: Inhalation of vapor or mist may cause respiratory irritation, headaches, dizziness, anesthesia, nausea, drowsiness or unconsciousness.

Chronic Exposure: No ingredient is listed by OSHA, NTP or IARC as a carcinogen.  
 Known Synergists: None known.  
 Explosion Hazard: Flammable or explosive mixtures of vapors and air can occur, particularly if material is heated.  
 Fire Hazard: Combustible.



# MATERIAL SAFETY DATA SHEET

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### 4. FIRST AID MEASURES

**Eye Contact:** Rinse immediately with plenty of water. Seek medical advice.  
**Skin Contact:** Immediately remove all contaminated clothing, and immediately wash with plenty of water and soap.  
**Inhalation:** Remove casualty to fresh air and keep at rest. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.  
**Ingestion:** If swallowed, DO NOT induce vomiting. Get medical attention immediately. Call a physician or poison control center immediately.  
If victim is fully conscious, give a cupful of water. Never give anything by mouth to an unconscious person.

### 5. FIRE-FIGHTING MEASURES

**Combustible:** Hazardous material. Containers can build pressure if exposed to heat or fire.  
**Extinguishing Media:** Use water fog, foam, dry chemical or carbon dioxide (CO<sub>2</sub>) to extinguish flames. Cool containers with water spray.  
**Protective Equipment:** Wear standard full fire-fighter turn-out gear (full bunker gear) and respiratory protection (SCBA).  
**Special Exposure Hazard:** Toxic decomposition gases, including carbon monoxide, may be generated under fire conditions. Prevent runoff from entering into storm sewers and ditches which lead to natural waterways.

### 6. ACCIDENTAL RELEASE MEASURES

**Leaks and Spills:** Small spills: Contain and/or absorb spill with inert material (e.g. sand, vermiculite), then place in suitable container. Do not flush to sewer or allow to enter waterways. Use appropriate personal protective equipment (PPE). Neutralize spill area with sodium bicarbonate.  
Large spills: Keep unnecessary people away; isolate hazard area and deny entry. Do not touch or walk through spilled material. Use appropriate personal protective equipment (PPE). Stop leak, if possible without risk. Isolate, dike and store discharged material, if possible. Use sand or earth to contain spilled material. If containment is impossible, prevent runoff from entering into storm sewers and ditches which lead to natural waterways. In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

### 7. HANDLING AND STORAGE

**Handling:** Keep away from heat, sparks and flame. Keep container closed. Use only with adequate ventilation. Use proper bonding and/or electrical grounding procedures. Use explosion-proof electrical equipment. Do not taste or swallow. Avoid breathing vapor, mist or dust. Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling. Promptly clean up spills.  
**Storage:** Store in cool, dry, well ventilated area away from incompatible materials. Use self-closing valves, pressure-vacuum bungs and flame arresters on drums.

### 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**Engineering Control:** Use exhaust ventilation to keep airborne concentrations below exposure limits. Keep containers tightly closed. Safety shower-eyewash should be within direct access.  
**Exposure Limits** See Section 2.  
**Respiratory Protection:** When engineering controls are insufficient, use approved air-purifying respirator with organic vapor cartridge.  
For high airborne concentrations, use approved supplied-air respirator, operated in positive pressure mode.  
**Skin Protection:** Clean body-covering clothing; impervious gloves e.g., neoprene.  
**Eye Protection:** Wear safety glasses with side shields or chemical goggles.



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### 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Reddish-brown liquid
Odor:	Slight organic odor
Physical State:	Liquid
pH:	Not applicable.
Boiling Range:	Approximately 185°C (365°F) – 211°C (412°F)
Flash Point:	86.4°C (186.9°F) Open cup
Vapor Pressure:	Approximately .06 kPs (0.4 mm Hg) at 20°C
Autoignition Temperature:	335°C (635°F)
Flammable Limits:	LEL 0.7 UEL 5.3 (volume % in air)
Solubility in Water:	Slight
Specific Gravity:	1.18
Volatile by Weight:	61 %
Partition Coefficient:	Not available.
Evaporation Rate:	<0.1 (Butyl Acetate = 1)

### 10. STABILITY AND REACTIVITY

Chemical Stability:	Stable.
Conditions To Avoid:	Avoid contact with incompatible materials. Do not concentrate.
Incompatibility With Other Materials:	Incompatible with strong oxidizers.
Hazardous Decomposition Products:	Smoke, oxides of carbon.
Hazardous Polymerization:	Will not occur.

### 11. TOXICOLOGICAL INFORMATION

<u>Material</u>	<u>LD<sub>50</sub>, Rat, Oral</u>
Iron Hydroxide:	15 g/kg
Isoparaffinic Hydrocarbon:	>10000 mg/kg
Nonionic Surfactant:	Not available.
Acute Toxicity:	This material has not been tested. Based on data for its ingredients, it may cause irritation to eyes, skin, and respiratory tract. If ingested, material may be aspirated into lungs and cause chemical pneumonitis. Inhalation of vapors or mist can cause respiratory irritation headaches, dizziness, anesthesia, nausea drowsiness or unconsciousness.
Chronic Toxicity:	Repeated skin contact can cause skin dryness or cracking. No ingredient of this product is listed by NTP, IARC or OSHA as a carcinogen.

### 12. ECOLOGICAL INFORMATION

Ecotoxicity:	No information available.
Persistence:	The organic constituents of this material will biodegrade and oxidize in the atmosphere.

### 13. DISPOSAL CONSIDERATIONS

Disposal Considerations:	Dispose in accordance with local, state and federal regulations and permits.
US RCRA Status:	This material, if disposed of, is not a RCRA hazardous material.

### 14. TRANSPORT INFORMATION

DOT Classification:	Combustible liquid n.o.s., (Isoparaffinic hydrocarbon), NA1993, III
DOT Reportable Quantity:	Not applicable.
Marine Pollutant:	Not applicable.
Additional DOT Information:	This material is not regulated by DOT if transported in a packaging <=119 gallons. This material is not regulated by TDG or IMO.
Emergency Response Guide Number:	128

**15. REGULATORY INFORMATION**

U.S. Federal Regulations

EPA TSCA Inventory: All ingredients listed.  
CERCLA RQ – CFR 302.4(a): Not listed.  
SARA 311/312: Reportable Hazard Categories: Acute, Fire  
SARA Section 313: This product contains no toxic chemicals subject to reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 and 40 CFR 372.  
D.O.T. Regulations: See Section 14.


U.S. State Regulations

California Proposition 65: No ingredients listed.  
State Right-to-Know Laws: Section 2 of this MSDS lists all components of NYACOL IronMin.

Canadian Regulations

Domestic Substance List: All ingredients listed.  
WHMIS: Iron (III) Hydroxide: Not controlled.  
Isoparaffinic Hydrocarbon: Class B3 – Combustible liquid.

EC Regulations

Symbol:  Xn Harmful  
Risk Phrases: R65 Harmful: may cause lung damage if swallowed.  
R66 Repeated exposure may cause skin dryness or cracking.  
R67 Vapours may cause drowsiness and dizziness.

Inventory Status

Compliance: All Components Listed: USA, EU, Australia, China, Korea, Philippines

**16. OTHER INFORMATION**

NFPA 704 Hazard Rating: Health – 1, Flammability – 2, Reactivity – 0, Special – None  
Work Alert: Workers using IronMin should read and understand this MSDS and be trained in the proper use of this material.  
MSDS Prepared By: Robert J. Nehring, Jr.  
Nyacol Nano Technologies, Inc.  
Telephone: 508-881-2220 U.S.A.  
Revision Date: August 30, 2011  
Supersedes: None

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