



MATERIAL SAFETY DATA SHEET  
NYACOL® IRON SOL

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### 1. Chemical Product and Company Identification

Trade Name: NYACOL Iron Sol  
Chemical Name: Iron(III) Hydroxide and Water  
Synonyms: Colloidal Iron (III) Hydroxide Dispersion in Water  
Product Code: NyaFe  
Use: Ceramics, Textiles, Papermaking  
Manufacturer: Nyacol Nano Technologies, Inc.  
Megunko Road, P.O.Box 349, Ashland, MA 01721 U.S.A.  
Emergency Telephone: 508-881-2220  
Internet: www.nyacol.com  
E-mail Contact: info@nyacol.com

### 2. Hazard Identification

Emergency Overview Brown liquid. No odor. Keep spills out of surface waters.  
Classification Not harmful.  
Symbol: Not applicable.  
Risk Phrases: None.  
Safety Phrases: None.

#### Potential Health Effects / Health Hazard Identification

##### Acute Exposure:

Eye: Irritant.  
Skin: Irritation, drying or cracking of skin due to drying effects.  
Ingestion: Not available.  
Inhalation: Not available.  
Chronic Exposure: Not available.

##### Other Hazards

Known Synergists: None known.  
Explosion Hazard: None known.  
Fire Hazard: None known.  
Corrosion Hazard: Not available.

### 3. Composition / Information on Ingredients

<u>Component</u>	<u>CAS #</u>	<u>Exposure Limits</u>	<u>Percent By Weight</u>
Iron(III) Hydroxide:	20344-49-4	Not applicable	20 - 30%
Nitric Acid:	7697-37-2	5 mg/M <sup>3</sup>	<1%
Water:	7732-18-5	None	70 - 80%

  

<u>Component</u>	<u>EINECS #</u>	<u>RTECS #</u>	<u>REACH #</u>
Iron(III) Hydroxide:	243-746-4	Not listed	Not listed by NNT
Nitric Acid:	231-714-2	QU5775000	05-2117294593-32-0000
Water:	231-791-2	ZC0110000	Not applicable

### 4. First Aid Measures

Eye Contact: Flush eyes with large quantities of water. If irritation persists get medical attention.  
Skin Contact: Wash with soap and water.  
Ingestion: Give water. Do not induce vomiting. Seek medical professional. Never give anything by mouth to an unconscious person.  
Inhalation: Remove person from exposure. Consult medical professional.  
First Aid Facilities: Eye wash station.  
Advice to Physicians: Not available.

## 5. Firefighting Measures

Flammability:	Material will not burn in a fire. Containers can build pressure if exposed to heat or fire.
Extinguishing Media:	All are acceptable. Cool container with water spray.
Protective Equipment:	Wear standard full firefighting turn-out gear (full bunker gear) and respiratory protection (SCBA).
Special Exposure Hazard:	None known.

## 6. Accidental Release Measures

Leaks and Spills:	Contain spill or leak with sand, clay or absorbents. Recover liquid for recycle or disposal. Do not allow spills into sewers or surface waters. Place absorbents, waste products and contaminated soil into containers for disposal.
Personal Protection:	Eye protection and impervious gloves. An approved air-purifying respirator should be worn if dust or mist is present.

## 7. Handling and Storage

Handling:	Avoid generating mist or dust during use.
Storage:	Store in cool dry area. Do not freeze.

## 8. Exposure Controls / Personal Protection

Engineering Control:	Use exhaust ventilation to keep airborne concentrations below exposure limits.
Respiratory Protection:	When respiratory protection is required or concentrations are unknown, use approved an air-purifying respirator with dust cartridge.
Skin Protection:	Clean body-covering clothing; impervious gloves such as neoprene.
Eye Protection:	Wear approved safety glasses.

## 9. Physical and Chemical Properties

Appearance:	Brown liquid
Odor:	None
Physical State:	Liquid. NYACOL Iron Sol is a water-based material.
pH:	2 – 4
Boiling Point:	100°C (212°F) water
Freezing Point:	0°C (32°F) water
Flash Point:	None.
Vapor Pressure:	2260 kPs (17 mm Hg) at 20°C water
Oxidizing Properties:	Not an oxidizer
Solubility in Water:	Soluble in all proportions
Density:	1030 Kg/M <sup>3</sup>
Specific Gravity:	1.1 (water = 1)
Volatile by Weight:	80%
Viscosity:	<100 cP
Explosion Limits:	Not applicable
Partition Coefficient:	Not applicable
Evaporation Rate:	Slow (Butyl Acetate = 1)

## 10. Stability and Reactivity

Chemical Stability:	Stable under normal ambient/anticipated storage/handling conditions.
Conditions To Avoid:	No recommendation.
Incompatibility With Other Materials:	Not available.
Hazardous Decomposition Products:	Oxides of nitrogen.
Hazardous Polymerization:	Will not occur.

**11. Toxicological Information**

<u>Material</u>	<u>LD<sub>50</sub>, Rat, Oral</u>
Iron(III) Hydroxide:	None reported.
Nitric Acid:	>90 mL/kg
Water:	None reported.
<u>Effects</u>	
Eye Effects:	No published data available. Should be irritating based on pH.
Skin Effects:	No published data available. Dry skin has been reported.
Inhalation Effects:	Not available.
Ingestion Effects:	Not available.

**12. Ecological Information**

Ecotoxicity:	Not available.
Persistence:	Not available.

**13. Disposal Considerations**

Disposal Considerations:	Evaporate water from sol and dispose of the solids in a landfill.
United States:	Not a RCRA-regulated waste.

**14. Transport Information**

<u>Regulations</u>	<u>Shipping Name</u>	<u>Hazard Class</u>	<u>Packing Group</u>	<u>U.N. Number</u>
U.S. D.O.T.:	Not applicable	Not applicable	Not applicable	Not applicable
ICAO/IATA:	Not applicable	Not applicable	Not applicable	Not applicable
IMO/IMDG:	Not applicable	Not applicable	Not applicable	Not applicable
ADR:	Not applicable	Not applicable	Not applicable	Not applicable

**15. Regulatory Information**

<u>U.S. Federal Regulations</u>	
EPA TSCA Inventory:	All ingredients listed.
SARA Section 313:	Does not contain any Section 313 materials above the 1% level.
D.O.T. Regulations:	See Section 14.
<u>U.S. State Regulations</u>	
California Proposition 65:	No ingredients listed.
State Right-to-Know Laws:	Section 2 of this MSDS lists all components of NYACOL Iron Sol.
<u>Canadian Regulations</u>	
Domestic Substance List:	All ingredients listed.
WHMIS:	Iron(III) Hydroxide: Not controlled. Nitric Acid: Disclose at 1%.
Transportation of Dangerous Goods:	Not applicable. NYACOL Iron Sol does not meet dangerous goods criteria.
Controlled Products Regulations:	This MSDS contains all the information items specified in Schedule 1, Column 3 of the Controlled Products Regulations in a 16-heading format.
<u>EC Regulations</u>	
Classification:	Not hazardous according to Directive 67/548/EEC.
Symbol:	None.
Risk Phrases:	None.
Safety Phrases:	None.



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16. Other Information

NFPA 704 Hazard Rating: Health – 0, Flammability – 0, Reactivity – 0, Special – None  
HMIS® Hazard Rating: Health – 1, Flammability – 0, Reactivity – 0  
Protective Equipment – E: safety glasses, gloves, dust respirator  
Recommended Use: NYACOL Iron Sol is recommended for use in ceramics, catalysts and inks. Other uses have not been investigated and may have other hazards. For industrial use only, not for food, drug or home use.  
Work Alert: Workers using NYACOL Iron Sol should read and understand this MSDS and be trained in the proper use of this material.  
MSDS Prepared By: Dr. David L. Catone  
Technical Service and Product Development Manager  
R&D Department  
Nyacol Nano Technologies, Inc.  
Telephone: 508-881-2220 U.S.A.  
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This MSDS has been prepared with data from Nyacol Nano Technologies, Inc.'s laboratories, raw material suppliers and government publications.

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