a nanowire technology builder

SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Iron Oxide Nanowires A10, Research Grade

Catalog Number: NovaWire-FeO-10

Formula: Fe_2O_3

Diameter: ~ 10 nm
Length: ~ 150 nm

Supplier: Novarials Corporation
800 W Cummings Park, Suite 4600
Woburn, MA 01801

Telephone: +1 617-276-5642
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2. HAZARDS IDENTIFICATION

Emergency Overview

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335

GHS Label elements, including precautionary statements

Pictogram 

Signal word Warning

Hazard statement(s)

H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.

Precautionary statement(s)

P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P264	Wish skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/eye protection/face protection.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position

	comfortable for breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312	Call a POISON CENTER or doctor/physician if you feel unwell.
P321	Specific treatment.
P332 + P313	If skin irritation occurs: Get medical advice/attention.
P337 + P313	If eye irritation persists: Get medical advice/attention.
P362	Take off contaminated clothing and wash before reused.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/container to an approved waste disposal plant.

NFPA Ratings

Health Hazard:	2
Fire Hazard:	0
Reactivity Hazard:	0

HMIS Ratings

Health Hazard:	2
Chronic Health Hazard:	
Flammability:	0
Physical Hazard:	0

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms:	Ferric oxide
Formula:	Fe_2O_3
Molecular weight:	159.69 g/mol

Component		Concentration
Diiron Trioxide		
CAS-No.	1309-37-1	
EC-No.	215-168-2	

4. FIRST AID MEASURES

General advice
Move out of dangerous area. Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

Hazardous combustion products
Hazardous decomposition products formed under fire conditions – Iron Oxides

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Evacuate personnel to safe areas. Avoid breathing dust.

Environmental precautions
Do not let product enter drains.

Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection. Protect against electrostatic charges.

Conditions for safe storage
Keep container tightly closed in a cool, dry and well-ventilated place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Personal protective equipment

Respiratory protection
For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye/Face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Body protection
Complete suit protecting against chemicals. The type of protective equipment must be selected

according to the concentration and amount of the dangerous substance at the specific workplace.

Control of environmental exposure
Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE	
Form	powder
Color	orange
Safety data	
pH	no data available
Melting point/freezing point	no data available
Boiling point	no data available
Flash point	no data available
Ignition temperature	no data available
Auto ignition temperature	no data available
Lower explosion limit	no data available
Upper explosion limit	no data available
Vapour pressure	no data available
Density	no data available
Water solubility	insoluble
Partition coefficient: n-octanol/water	no data available
Relative vapour density	no data available
Odour	no data available
Odour Threshold	no data available
Evaporation rate	no data available

10. STABILITY AND REACTIVITY

Reactivity
no data available

Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions
no data available

Conditions to avoid
no data available

Materials to avoid
Chloroformates, Peroxides, Strong acid.

Hazardous decomposition products
Other decomposition products -no data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity
no data available

Skin corrosion/irritation
Skin – Human - Result: Skin irritation

Serious eye damage/eye irritation
Eye – Human - Result: Eye irritation

Eye – Human - Result: Moderate eye irritation

Respiratory or skin sensitization
no data available

Germ cell mutagenicity
no data available

Carcinogenicity

Carcinogenicity – rat – Subcutaneous
Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Tumorigenic: Tumors at site or application.

IARC:	3-Group 3: Not classifiable as to its carcinogenicity to humans.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
no data available

Specific target organ toxicity -single exposure (Globally Harmonized System)
Inhalation: may cause respiratory irritation.

Specific target organ toxicity -repeated exposure (Globally Harmonized System)
no data available

Aspiration hazard
no data available

Additional Information
Long term inhalation exposure to iron oxide (fume or dust) can cause siderosis. Siderosis is considered to be a benign pneumoconiosis and does not normally cause significant physiologic impairment. Siderosis can be observed on x-rays with the lungs having a mottle appearance. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

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12. ECOLOGICAL INFORMATION

Toxicity
no data available

Persistence and degradability
no data available

Bioaccumulative potential
no data available

Mobility in soil
no data available

PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

Other adverse effects
no data available

13. DISPOSAL CONSIDERATIONS

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US), IMDG, IATA
Not a dangerous goods.

15. REGULATORY INFORMATION

SARA 302 Components
Not required

SARA 313 Components
Not required

SARA 311/312 Hazards
Acute Health Hazard

Massachusetts Right To Know Components

Diiron trioxide	CAS-No. 1309-37-1

Pennsylvania Right To Know Components

Diiron trioxide	CAS-No. 1309-37-1

New Jersey Right To Know Components

Diiron trioxide	CAS-No. 1309-37-1

California Prop. 65 Components
This product does not contain any chemical known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. DISCLAIMER

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