

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Nanoshuttle™-PL
 Product numbers : 657841 / 657843 / 657846 / 657852 / 657847

2. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : Nanoshuttle™-PL Solution
 Formula 1st Ingredient : Fe₂O₃
 Formula 2nd Ingredient : Water Soluble Gold Nanoparticles [AuNP: <100 nm (Citrate)]
 Formula 3rd Ingredient : (C₆H₁₂N₂O)_n
 Molecular Weight 1st In. : 159.69 g/mol
 Molecular Weight 2nd In. : none
 Molecular Weight 3rd In. : 150,000-300,000

CAS	No. EC	No. Index	No. Concentration
Diiron trioxide			
1309-37-1	215-168-2	-	-
Water Soluble Gold Nanoparticles			
N/A	-	-	-
Poly-L-Lysine Solution			
25988	-	-	-
Water			
7732-18-5	-	-	-

3. HAZARDS IDENTIFICATION**Emergency Overview****OSHA Hazards**

Irritant

HMIS Classification**Health Hazard: 2****Flammability: 0****Physical Hazards: 0****NFPA Rating****Health Hazard: 2****Fire: 0****Reactivity Hazard: 0**

**Your Power for Health****Potential Health Effects**

Inhalation	May be harmful if inhaled. Causes respiratory tract irritation.
Skin	May be harmful if absorbed through skin. Causes skin irritation.
Eyes	Causes eye irritation.
Ingestion	May be harmful if swallowed.

For additional information on toxicity, please refer to Section 11.

4. FIRST AID MEASURES**General advice**

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

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. FIRE-FIGHTING MEASURES**Flammable properties**

Flash point no data available

Ignition temperature no data available

Suitable extinguishing media

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

Special protective equipment for fire-fighters

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes for fire-fighting if necessary.

Specific Hazard(s): Emits toxic fumes under fire conditions.



6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Use personal protective equipment. Avoid dust formation. Avoid breathing dust. Ensure adequate ventilation.

Environmental precautions

Do not let product enter drains.

Methods for cleaning up

Absorb on sand or vermiculite and place in closed containers for disposal. Ventilate area and wash spill site after material pickup is complete.

7. HANDLING AND STORAGE

Handling

Avoid contact with skin, eyes, and clothing. Avoid inhalation. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection. Avoid prolonged or repeated exposure.

Storage

Keep container tightly closed. Store at 4-40 °C

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Contains no substances with occupational exposure limit values.

Engineering Controls

Safety shower and eye bath. Mechanical exhaust required.

Personal protective equipment

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a dust mask type N95 (US) or type P1 (EN 143) respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection

Handle with gloves.

Eye protection

Safety glasses

Skin and body protection

Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash thoroughly after handling. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form Liquid Suspension

Safety data

pH	no data available
Melting point	no data available
Boiling point	no data available
Flash point	not applicable
Ignition temperature	no data available
Lower explosion limit	no data available
Upper explosion limit	no data available
Density	no data available
Water solubility	no data available

10. STABILITY AND REACTIVITY

Storage stability

Stable under recommended storage conditions.

Materials to avoid

Strong acids, Peroxides, Chloroformates, Strong oxidizing agents.

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Iron oxides
Nature of other decomposition products not known.

Hazardous Polymerization

Will not occur.

11. TOXICOLOGICAL INFORMATION

Acute toxicity

no data available

Irritation and corrosion

no data available

Sensitization

no data available

Chronic exposure

IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
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.

**Your Power for Health****Signs and Symptoms of Exposure**

Exposure may affect cell growth rate and morphology. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Potential Health Effects

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12. ECOLOGICAL INFORMATION**Elimination information (persistence and degradability)**

no data available

Ecotoxicity effects

no data available

Further information on ecology

no data available

13. DISPOSAL CONSIDERATIONS**Product**

Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION**DOT (US)**

Not dangerous goods

IMDG

Not dangerous goods

IATA

Not dangerous goods

15. REGULATORY INFORMATION**OSHA Hazards**

Irritant

DSL Status

All components of this product are on the Canadian DSL list.

**Your Power for Health****SARA 302 Components**

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Acute Health Hazard

Massachusetts Right To Know Components

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Diiron trioxide	1309-37-1	

New Jersey Right To Know Components

	CAS-No.	Revision Date
Diiron trioxide	1309-37-1	

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth, or any other reproductive defects.

16. OTHER INFORMATION**Disclaimer**

For R&D use only. Not for drug, household or other uses.

Further information

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