

SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Product name NanoSuit® Solution III (For Cells, Bacteria, viruses, exosomes, and liposomes)
Company name NanoSuit Co., Ltd.
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Recommended use of the product Electron microscope observation

2. HAZARDS IDENTIFICATION

(Description of "Polyol")

GHS Classification of Substance in accordance to Regulation (EC) No. 1272/2008
(CLP/GHS): Not a hazardous substance or mixture.

OSHA Hazard Communication Standard: This product is not a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

GHS Label Elements: None

Other Hazards

Potential Health Effects:

- Can be irritating to the eyes.
- Can be harmful if ingested.
- Can be harmful if inhaled. Avoid breathing mist.
- Can be irritating to the skin.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Substance or Mixture Mixture
Common chemical name or general name

NanoSuit solution III for electron microscope observation

Composition and content

Material name	Content(%)	Notice through official file number	Notice through official file number	CASNo.
Polyol	70.98%			Nondisclosure
Water	28.17%			7732-18-5
Sugars	< 0.57%			Nondisclosure
Inorganic salts	< 0.29%			Nondisclosure
Organic salts	< 0.01%			Nondisclosure

4. FIRST AID MEASURES

Description of first aid measures

General Advice: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible). Take care to self-protect by avoiding becoming contaminated.

Most important symptoms and effects, both acute and delayed

Symptoms/Injuries after inhalation: ON HEATING: Irritation of the respiratory tract. Irritation of the nasal mucous membranes.

Symptoms/Injuries after skin contact: n/a

Symptoms/Injuries after eye contact: Redness of the eye tissue. Lacrimation.

Symptoms/Injuries after ingestion: Nausea. Vomiting. Diarrhea.

AFTER ABSORPTION OF HIGH QUANTITIES: Headache. Dehydration.

Disturbances of heart rate. Change in the aerogramme/blood composition. Decreased renal function.

Description of First Aid Measures

First-aid measures after inhalation: Remove the victim into fresh air. If signs/symptoms continue, get medical attention. Give oxygen or artificial respiration as needed.

First-aid measures after skin contact: Wash immediately with lots of water (15 minutes)/shower. Soap may be used. Remove clothing before washing.

First-aid measures after eye contact: Rinse immediately with plenty of water for 15 minutes. Take victim to an ophthalmologist if irritation persists.

First-aid measures after ingestion: DO NOT induce vomiting. If vomiting does occur,

have victim lean forward to prevent aspiration. Rinse mouth with water. Seek medical attention. Never give anything by mouth to an unconscious individual.

Ingestion of large quantities: immediately to hospital.

Indication of any immediate medical attention and special treatment needed

If medical advice is needed, have product container or label at hand. All treatments should be based on observed signs and symptoms of distress in the patient.

Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

5. FIRE-FIGHTING MEASURES

Extinguishing media

Suitable extinguishing media: Use dry powder, foam, carbon dioxide for extinguishing.

Unsuitable extinguishing media: None

Special hazards arising from the substance or mixture

Fire hazard: DIRECT FIRE HAZARD. Combustible, keep away from open flame, no smoking.

INDIRECT FIRE HAZARD. Temperature above flashpoint: higher fire/explosion hazard.

Explosion hazard: No direct explosion hazard.

Reactivity: Decomposes on exposure to temperature rise: release of toxic/corrosive/combustible gases/vapors. Upon combustion CO and CO₂ are formed. May polymerize on exposure to temperature rise. Reacts violently with (strong) oxidizers: (increased) risk of fire/explosion.

Reacts with (some) acids: (increased) risk of fire/explosion.

Advice for Firefighters

Firefighting instructions: Exercise caution when fighting any chemical fire.

Protection during firefighting: Firefighters should wear full protective gear. Use self-contained breathing equipment if in confined place. Do not enter fire area without proper protective equipment, including respiratory protection.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Mark the danger area. Exposure to heat: have neighborhood close doors and windows.

Exposure to fire/heat: consider evacuation. Wash contaminated clothes. Use gloves, face shield

➤ For Non-emergency Personnel

Protective equipment: Use appropriate personal protection equipment (PPE).

Emergency procedures: Evacuate unnecessary personnel.

➤ For Emergency Responders

Protective equipment: Equip cleanup crew with proper protection. Use appropriate personal protection equipment (PPE).

Emergency procedures: Ventilate area.

Environmental Precautions

Do not allow to flow into drainage system.

Methods and Material for Containment and Cleanup

- For containment: Collect leakage in sealable containers, soak up with sand or other inert absorbent and remove to safe place. Flush away remainder with water.
- Methods for cleaning up: Clear up spills immediately and dispose of waste safely.

See Section 8 for information on appropriate personal protective equipment.

See Section 13 for additional waste treatment information.

7. HANDLING AND STORAGE

Precautions for Safe Handling

Prevention of user exposure: Put on appropriate personal protective equipment. Use gloves and wear goggles when handling. Avoid breathing mist.

Prevention of fire and explosion: Handling temperature ≥ 10 °C above melting point

Precautions while moving the product: Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use.

Empty containers retain product residue and can be hazardous.

Hygiene Measures: Workers should wash hands and face before eating, drinking and smoking.

Conditions for Safe Storage, Including any Incompatibilities

Storage precautions: Keep in a freezer. Keep separate from oxidants. Avoid extreme heat and cold.

Avoid direct fire. Store in clean, dry, and preferably stainless steel or glass vessels.

In bulk, store at -10 deg C or below.

Temperature higher than necessary degrades quality at rate dependent on time and temperature of exposure. Exposure to ultraviolet light, especially sunlight, must be minimized to prevent quality loss.

Incompatible products: KEEP SUBSTANCE AWAY FROM: heat sources, oxidizing

agents, (strong) acids, (strong) bases.

Packaging materials: Packaging should be closable, dry, clean, correctly labelled, and meet the legal requirements. Secure fragile packaging in solid containers. Suitable storage includes steel, aluminum, iron, synthetic material, glass.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control Parameters

Occupational Exposure Controls: n/a

Technical measures: n/a

Occupational Exposure Limits:

Polyol Components:

Source	Type	Value	Note
US(OSHA)	TWA	15mg/m ³	29 CFR 1910.1000 Table Z-1 Limits for Air Contaminants
US(ACGIH)	TWA	10mg/m ³	ACGIH Threshold Limit Value

Appropriate Engineering Controls

Recommended monitoring procedures:

Ensure adequate ventilation, especially in confined areas. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure all national/local regulations are observed.

Individual Protection Measures

Personal Protective Equipment: Gloves. Safety glasses. Protective clothing.

Mist formation: aerosol mask with filter type P1. On heating: gas mask with filter type A.



Materials for Protective Clothing: GIVE GOOD RESISTANCE: natural rubber, neoprene, PVC, Viton.

GIVE LESS RESISTANCE: styrene-butadiene rubber.

GIVE POOR RESISTANCE: polyurethane.

Eye Protection: Use protective goggles and/or a full face shield where splashing is possible. Use equipment approved by appropriate government standards, such as NIOSH (US) or EN166 (EU). Maintain eye wash fountain and quick-drench facilities in work area.

Hand Protection: suitable protective 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.

Skin and Body Protection: suitable protective clothing.

Respiratory Protection: Mist formation: aerosol mask with filter type P1. On heating: gas mask with filter type A.

Environmental Exposure Controls: If exposure limits are exceeded or irritation is experienced, NIOSH approved respiratory protection should be worn.

Other Information: When using, do not eat, drink or smoke.

9 . PHYSICAL AND CHEMICAL PROPERTIES

Physical state	clear liquid
color	Colorless and transparent
Odor	Slight peculiar odor
pH	6.0~8.0
Melting point/freezing point	No data available
Boiling point, initial boiling point and boiling range	No data available
Flash point	No data available
Ignition point	No data available
Upper/lower flammability or explosive limits	No data available
Vapor pressure	No data available
Vapor density	No data available
Solubility(ies)	Ethanol: Very soluble . water: Very soluble .
Partition coefficient (n-octanol/water)	No data available
Decomposition temperature	No data available
Specific Gravity / Relative density	No data available

1 0 . STABILITY AND REACTIVITY

Reactivity: Vapor mixes readily with air. Decomposes on exposure to temperature rise: release of toxic, corrosive, combustible gases/ vapors. Upon combustion CO and CO₂ are formed. May polymerize on exposure to temperature rise. Reacts violently with (strong) oxidizers: (increased) risk of fire/explosion. Reacts with (some) acids: (increased) risk of fire/explosion.

Chemical stability: Hygroscopic. Able to polymerize above 149 °C. Decomposes when heated above 290 °C.

Possibility of Hazardous Reactions: None known

Conditions to Avoid: None known

Incompatible materials: Reacts violently with strong oxidants

Hazardous Decomposition Products: Low toxicity in original state and not considered hazardous to human beings. On heating/burning: release of toxic/combustible gases/vapors.

1 1 . TOXICOLOGICAL INFORMATION (Description of "Polyol")

Acute toxicity by oral route, inhalation and dermal route: Not Classified

Test	Species	Dose
LD50, Oral	Rat	12,600mg/kg
LC50, Inhalation	Rat	>570mg/m ³ /Hr
LD50, Dermal	Rabbit	>10,000mg/kg

Skin irritation/corrosion: Can be irritating to the skin.

Eye irritation: Can be irritating to the eyes.

Skin sensitization: Can be harmful if absorbed through skin.

Respiratory irritation: Can be harmful if inhaled. Can be irritating to the respiratory tract. Avoid exposure to mist.

CMR Effects

Mutagenicity: Not mutagenic (Ames test)

Carcinogenicity: n/a

Reproductive toxicity: n/a

Developmental toxicity: n/a

Repeated dose toxicity - Oral route: n/a

Toxicokinetics: n/a

Chronic/Other Effects: n/a

1 2 . ECOLOGICAL INFORMATION (Description of "Polyol")

Ecotoxicity (aquatic and terrestrial, where available)

Ecology - General: No supplementary information available.

Ecology - Air: TA-Luft Klasse 5.2.5.

Ecology - Water:

Mild water pollutant (surface water)

Not harmful to fishes (LC50 (96h) >1,000 mg/l)

Not harmful to aquatic organisms (EC50 >1,000 mg/l)

Not harmful to algae

Not harmful to bacteria

Bioaccumulation: not applicable

Sludge digestion is inhibited at >1,000 mg/l 50%

Readily biodegradable in water (OECD 301D: 82%; 20 days)

Organism/Biotic Test	Toxicity
LC50 fishes 1	54,000 mg/l (96 h, SALMO GAIRDNERI/ ONCORHYNCHUS MYKISS)
LC50 other aquatic organisms 1	> 1,000 mg/l (96 h)
LC50 other aquatic organisms 1	> 1,000 mg/l (BACTERIA, ACTIVATED SLUDGE)
LC50 fish 2	> 1,000 mg/l (96 h, PISCES)
EC50 Daphnia 2	> 10,000 mg/l (24 h, DAPHNIA MAGNA, LOCOMOTOR EFFECT)
TLM fish 1	> 1,000 ppm (96 h, PISCES)
TLM other aquatic organisms 1	> 1,000 ppm (96 h)
Threshold limit other aquatic organisms 1	2,900 mg/l (192 h, MICROCYSTIS AERUGINOSA, TOXICITY TEST)
Threshold limit other aquatic organisms 2	> 10,000 mg/l (16 h, PSEUDOMONAS PUTIDA, TOXICITY TEST)
Threshold limit algae 1	> 10,000 mg/l (168 h, SCENEDESMUS QUADRICAUDA, TOXICITY TEST)

Persistence and Degradability: Readily biodegradable, OECD 301

Biochemical oxygen demand (BOD): 0.87 g O₂/g substance

Chemical oxygen demand (COD): 1.16 g O₂/g substance (ISO 15705)

ThOD: 1.217 g O₂/g substance

BOD: (% of ThOD) 71 % ThOD

Bioaccumulative Potential: Log P octanol /water = -1.76/2.6

Mobility in the Soil

Surface tension 0,063 N/m (20°C)

Ecology - biodegradability in soil: no data available.

Other Adverse Effects: None available.

1 3 . DISPOSAL CONSIDERATIONS

Methods of Disposal of Waste Residue: Take up liquid spill into absorbent material, e.g.: sand, earth, vermiculite, or powdered limestone. Scoop absorbed substance into closing containers. See "Material-handling" for suitable container materials. Wash down leftovers with plenty of water. Wash clothing and equipment after handling. Do not discharge into surface water.

Disposal of Contaminated Packaging: Waste incineration with the approval of the responsible local authority.

1 4 . TRANSPORT INFORMATION

UN number: not regulated as a hazardous material.

UN proper shipping name: n/a

Transport hazard class(es): Not hazardous according to RID/ADR, GGVS/GGVE, ADN, IMDG, ICAO-TI/IATA-DGR.

Packing group: n/a

Environmental hazards (e.g.: Marine pollutant (Yes/No)): No

Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code): n/a

Special precautions: n/a

1 5 . REGULATORY INFORMATION (Description of "Polyol")

Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Regulations

No REACH Annex XVII restrictions

EU Regulation 10/2011 (Annex I): FCM 103 - (CAS 0000056-81-5) glycerol

National Regulations

Chemical inventories: Listed on AICS, DSL, ECL, ECST, ENCS, IECSC, NZIoC, PICCS, SWISS, TSCA, EC inventories

Swiss Ordinance (RS 817.023.21) Annex 6: List of additives (part A), List of binders (part A), List of solvents (part A)

WGK class: 1 (weak water endangering)

Chemical safety assessment

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

Chronic Health Hazard

1 6 . OTHER INFORMATION

This information only concerns the above-mentioned product and does not need to be valid if used with others or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution.