



SAFETY DATA SHEET

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Nanobubbles

Version 2.0 4/23/2025

Product Uses Used as an imaging and contrasting agent for rodent.

COMPANY IDENTIFICATION: FUS Instruments

4275 Kellway Circle, Suite 146
Addison, Texas 75001
United States of America

SECTION 2: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

Appearance Clear, translucent liquid

Precautionary Measures Avoid ingestion, inhalation, skin and eye contact.
Wash hands after handling to minimize exposure.

Potential Health Effects

Eyes Not irritating to eyes

Skin Possible mild skin irritation

Ingestion Not Available

Inhalation Not Available

Environmental Effects Not Available



SECTION 3: COMPOSITION INFORMATION ON INGREDIENTS

Substance Nanobubbles
Chemical Identity Aqueous Mixture

Hazardous Components

Component	Concentration	CAS
Glycerin	>1%	56-81-5
Lipid Blend SG896	<1%	Not Available

Nonhazardous Components

Water	>50%	7732-18-5
Perfluoropropane	<1%	76-19-7
Sodium Chloride	<1%	7647-14-5
Disodium orthophosphate heptahydrate	<1%	7782-85-6
Sodium phosphate monobasic	<1%	10049-21-5

SECTION 4: FIRST AID MEASURES

Eye contact	Rinse immediately with plenty of water for at least 15 minutes. Keep eye wide open while rinsing. Obtain medical attention.
Skin contact	Wash off immediately with plenty of water for at least 15 minutes. If skin irritation occurs, get medical advice/attention.
Inhalation	Move to fresh air. Oxygen or artificial respiration if needed. Obtain medical attention.
Ingestion	Obtain medical attention. Do NOT induce vomiting. Never give anything by mouth to an unconscious person.



SECTION 5: FIRE-FIGHTING MEASURES

Flammable Properties	Not Available
Extinguishing Media	Suitable extinguishing media: Dry chemical, Water spray, Foam Unsuitable extinguishing media: Do NOT use water jet.
Protection of Firefighters	Specific hazards: Not available. Protective equipment: Use personal protective equipment. In the event of fire, wear self contained breathing apparatus.
Hazardous Combustion Products	Carbon oxides, nitrogen oxides (NO _x)
Other Information	Decontaminate protective clothing and equipment before reuse.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precaution	Refer to protective measures listed in sections 7 and 8. Use personal protective equipment. Examples include tightly fitting safety goggles, lab coat and impervious gloves. Depending on the nature of the spill (quantity and extent of spill) additional protective clothing and equipment such as a self-contained breathing apparatus may be needed.
Environmental Precautions	Prevent release to drains and waterways. Prevent release to the environment.
Containment Methods	Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local/national regulations (see section 13).
Cleanup Methods	Contain and collect spillage and place in container for disposal according to local regulations (see Section 13). Handle waste materials, including gloves, protective clothing, contaminated spill cleanup material, etc., as appropriate for chemically and pharmacologically similar materials.



SECTION 7: HANDLING AND STORAGE

Handling Precautions	Avoid exposure. Avoid inhalation of vapor or mist. Keep away from heat and sources of ignition. Prevent release to drains and waterways. <i>For a complete discussion of Handling and Storage information, please consult the full protocol.</i>
Storage Conditions	Keep refrigerated. (2 - 8 °C)
Container Requirements	Store in original container. Store in glass vials. Keep away from heat, sparks and flames.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limit(s)	Company Guideline	ACGIH	OSHA	NIOSH
Nanobubbles	---	---	---	---
Glycerin	---	---	10mg/m ³ total	---
			5mg/m ³ Respirable	

Exposure Control Banding Not Available

Engineering Controls and Ventilation When handling larger quantities, such as in a manufacturing setting, ensure worker exposure is below the recommended exposure limit. If significant aerosol (mist) is generated, use process enclosures, containment technology, or other engineering controls to keep airborne levels below recommended exposure limit.

Respiratory Protection Respiratory protection is not required for normal use of this material. If the occupational exposure control limit (ECL) is exceeded, wear an appropriate respirator with a protection factor sufficient to control exposures to below the ECL.

Eye Protection Follow good chemical hygiene practices when using clinical or consumer presentations. Safety glasses or goggles are recommended if eye contact is possible.

**Hand Protection**

Follow good chemical hygiene practices when using clinical or consumer presentations. Wear protective gloves when working with large quantities.

Skin and Body Protection

Follow good chemical hygiene practices when using clinical or consumer presentations. It is recommended that a laboratory coat or other chemical protective Garment is worn when this handling product.

Hygiene

Wash hands and face before breaking and immediately after handling the product.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance**Physical State**

Liquid

Color

Clear, translucent

Odor

Odorless

Physical and Chemical Properties**Molecular Weight**

Not Available

Solubility

Soluble

Flashpoint

>200F

Density

Not Available

pH

6.2-8

Boiling Point

Not Available

Freezing Point

Not Available

Melting Point

Not Available

Vapor Density

Not Available

Vapor Pressure

Not Available



SECTION 10: STABILITY AND REACTIVITY

Chemical Stability	Stable under normal conditions.
Conditions to Avoid	Not Available
Incompatible Products	Not available
Hazardous Decomposition Products	Hazardous decomposition products formed under fire conditions: Carbon oxides, nitrogen oxides (NOx).
Hazardous Reactions	None known. Stable under normal conditions. Hazardous polymerization does not occur.

SECTION 11: TOXICOLOGICAL INFORMATION

Routes of Entry “<i>Preclinically</i>”	Ingestion, Inhalation, Eye Contact, Skin Contact
Eye Irritation	Not Irritating to Eyes.
Skin Irritation	Possible Mild skin irritant
Respiratory Irritation	Not Available
Sensitization	Not Available
Repeated Dose Toxicity	2 weeks intravenous (daily) mouse study with recovery period (2 weeks): NOAEL = 50 $\mu\text{L}/\text{min}$ for 4 mins “Infusion” or 200 μL “Bolus-Slowly” microscopic changes were observed in the following organs: lungs. After recovery, all parameters returned to normal.
Other Toxicity Information	Not Available

Section 12 ECOLOGICAL INFORMATION

Environmental Fate:	Not available
Environmental Toxicity:	Ecotoxicological Information (Aquatic) Not available Ecotoxicological Information (Terrestrial) Not available



SECTION 13: Disposal Considerations

Advice on Disposal and Packaging

Disposal should be in accordance with applicable regional, national, and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

SECTION 14: TRANSPORT INFORMATION

US DOT Transportation Classification & IATA for All Modes

Proper shipping name N/A

This material is not a dangerous good for the purpose of transportation.

Hazard Class N/A

UN No. N/A

Packing Group N/A

Label Codes N/A

Marine Pollutant: No

Special Precautions NA

SECTION 15: REGULATORY INFORMATION

United States of America

OSHA Hazard Classification Hazardous, Target Organs

313 Toxic Release Inventory. No components listed on the SARA 313 inventory.

Listed Chemicals/Compounds

TSCA Inventory Yes

International

Canada

WHMIS Product is not according to Control Products Regulations.

DSL/NDSL Yes



Mexico

Mexico Classification Health classification - Minimal hazard -
0 - Substances that do not pose a hazard under emergency
conditions other than that of ordinary combustible materials.

Europe

EINECS/ELINCS Number

Perfluoropropane: 200-941-9

Water: 231-791-2

Glycerin: 200-289-5

Sodium Chloride: 231-598-3

R-phrases(s)

Product is not classified as dangerous according to Directives
1999/45/EC and 67/548/EEC

The information contained in this MSDS is believed to be accurate and represents the best information reasonably available at the time of preparation. However, we make no warranty, express or implied, with respect to such information. and we assume no liability from its use.