1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	PEGylated DOTA Liposomes for Remote Loading Radioactive Divalent Cations
Product Number	:	DTAG-201
Brand	:	Loadosome™
Company Address	:	ENCAPSULA NANOSCIENCES LLC 5409 MARYLAND WAY, SUITE 360 BRENTWOOD, TN, 37027
Technical Phone	:	615-884-4442
Fax	:	615-250-8747
Emergency Phone	:	615-438-8553

2. COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT NAME	CAS#	PERCENT
WATER	7732-18-5	>90
SODIUM CHLORIDE	7647-14-5	<5
4-(2-Hydroxyethyl)piperazin-1-ylethanesulphonic acid	7365-45-9	<5
1,2-dipalmitoyl-sn-glycero-3-phosphocholine	63-89-8	<5
Cholesterol	57-88-5	<5
1,2-distearoyl-sn-glycero-3-phosphoethanolamine-N-[methoxy(polyethylene glycol)-2000] (ammonium salt)	474922-77-5	<5
1,4,7,10-Tetraazacyclododecane-1,4,7,10-tetraacetic acid (DOTA)	60239-18-1	<5

3. HAZARDS IDENTIFICATION

OSHA

No known OSHA hazards.

GHS LABEL ELEMENTS, INCLUDING PRECAUTIONARY STATEMENTS

Not a hazardous mixture of substance

HMIS RATING	
HEALTH HAZARDS:	0
FLAMMABILITY:	0
CHRONIC HEALTH HAZARDS:	0
PHYSICAL HAZARDS:	0

NFPA RATING	
HEALTH HAZARD:	0
FLAMMABILITY:	0
REACTIVITY:	0

POTENTIAL HEALTH EFFECTS	
Inhalation	May be harmful if inhaled. May cause respiratory tract irritation.
Skin	May be harmful if absorbed through skin. May cause skin irritation.
Eyes	May cause eye irritation.
Ingestion	May be harmful if swallowed.

4. FIRST AID MEASURES

ORAL EXPOSURE

Do not induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

INHALATION EXPOSURE

If inhaled, move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Consult a physician.

DERMAL EXPOSURE

In case of contact, immediately wash skin with soap and copious amounts of water. Contact a physician.

EYE EXPOSURE

In case of contact, immediately flush eyes with copious amounts of water for at least 15 minutes. Contact a physician.

5. FIRE FIGHTING MEASURES

FLAMMABILITY

Not flammable or combustible.

EXTINGUISHING MEDIA

It is suitable to 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.

HAZARDOUS COMBUSTION PRODUCTS

Hazardous decomposition products formed under fire conditions, carbon oxides, nitrogen oxides and sulfur oxides.

6. ACCIDENTAL RELEASE MEASURES

METHODS FOR CLEANING UP

Absorb any spilled material quickly using absorbent pads. Wipe area to remove as much of the liquid as possible. Apply bleach to the affected area and let sit for several hours. Clean the affected area thoroughly with soap and water to remove the bleach. Collect all cleanup materials and dispose of them in accordance with local, state and federal waste disposal laws.

ENVIRONMENTAL PRECAUTIONS

Do not let product enter drains. If safe to do so prevent further leakages or spills.

PERSONAL PRECAUTIONS

Use personal protective equipment. Avoid breathing in vapors, mist or gas. Ensure adequate ventilation. Prepare evacuation sites.

7. HANDLING AND STORAGE

HANDLING

User Exposure: Do not breathe vapor. Do not get in eyes, on skin, on clothing. Wash hands thoroughly after handling.

STORAGE

Suitable: Keep in tightly closed container. Store in temperature between approximately 2-8 °C. Do not freeze.

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

ENGINEERING CONTROLS

Appropriate industrial hygiene.

PERSONAL PROTECTIVE EQUIPMENT

Respiratory: Where protection is desired, use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand: Compatible chemical-resistant gloves

Eye: Where protection is desired, use chemical safety goggles with side shades conforming to EN166.

Skin and Body: Wear a complete suit protecting against chemicals, if desired.

GENERAL HYGIENE MEASURES

Wash hands thoroughly after handling. Wash contaminated clothing before reuse.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	White
Safety data	N/A
Melting point	N/A
Boiling point	N/A
Flash point	N/A
Ignition Temperature	N/A
Lower explosion limit	N/A
Upper Explosion limit	N/A
Water Solubility	N/A
Density	N/A

10.STABILITY AND REACTIVITY

STORAGE STABILITY

Store under recommended conditions.

MATERIALS TO AVOID

Strong oxidizing agents

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous decomposition products formed under fire conditions- Carbon oxides, nitrogen oxides, sulfur oxides.

11.TOXICOLOGICAL INFORMATION

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 the IARC.
OHSA:	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 the OHSA.
ACGIH:	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 the ACGIH.
EPA:	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 the EPA.

ACUTE TOXICITY

No data available

Irritation and Corrosion

No data available

ROUTE OF EXPOSURE

Skin Contact:	May cause skin irritation
Skin Absorption:	May be harmful if absorbed through the skin
Eye Contact:	May cause eye irritation
Inhalation:	Materials may be irritating to mucous membranes and upper respiratory tract.
Ingestion:	May be harmful if swallowed

SIGNS AND SYMPTOMS OF EXPOSURE

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12.ECOLOGICAL INFORMATION

Elimination information (persistence and degradability)	N/A
Ecotoxicity effects	N/A
Further information on ecology	N/A

13.DISPOSAL CONSIDERATIONS

PRODUCT

Observe all federal, state, and local environment regulations. Contact a licensed professional waste disposal service to remove 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

No known OSHA hazards

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 threshold (De Minimis) reporting levels established by SARA Title III, Section 313

SARA 311/312 HAZARDS

No SARA hazards

MASSACHUSETTS RIGHT TO KNOW COMPONENTS

	CAS-No.	Revision Date
No components are subject to the Massachusetts Right to Know Act.		

PENNSYLVANIA RIGHT TO KNOW COMPONENTS

	CAS-No.	Revision Date
4-(2-Hydroxyethyl)piperazin-1-ylethanesulphonic acid	7365-45-9	
1,2-dipalmitoyl-sn-glycero-3-phosphocholine	63-89-8	
Cholesterol	57-88-5	
1,2-distearoyl-sn-glycero-3-phosphoethanolamine-N-[methoxy(polyethylene glycol)-2000] (ammonium salt)	474922-77-5	
1,4,7,10-Tetraazacyclododecane-1,4,7,10-tetraacetic acid (DOTA)	60239-18-1	

NEW JERSEY RIGHT TO KNOW COMPONENTS

	CAS-No.	Revision Date
4-(2-Hydroxyethyl)piperazin-1-ylethanesulphonic acid	7365-45-9	
1,2-dipalmitoyl-sn-glycero-3-phosphocholine	63-89-8	
Cholesterol	57-88-5	
1,2-distearoyl-sn-glycero-3-phosphoethanolamine-N-[methoxy(polyethylene glycol)-2000] (ammonium salt)	474922-77-5	
1,4,7,10-Tetraazacyclododecane-1,4,7,10-tetraacetic acid (DOTA)	60239-18-1	

CALIFORNIA PROP. 65 COMPONENTS

This product does not contain any chemicals known to the state of CA to cause cancer, birth, or other reproductive defects.

16. OTHER INFORMATION

The above information is believed to be correct but does not support to be all inclusive and shall be used only as a guide.

The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions.

It does not represent any guarantee of the properties of the product. Encapsula NanoSciences LLC shall not be held liable for any damage resulting from handling or from contact with the above product.