

# Material Safety Data Sheet

Last update: 8 March 2011

Version: 1.0

Products: CSM002-0001A to CSM002-0110A

Please, read carefully this documentation before using. This documentation is also available on [www.natx-ray.com](http://www.natx-ray.com)

## Section 1 - Product and company identification

### Products name and reference number:

Lanthanide phasing kit	Ref.:	CSM002-0001A
Lanthanide phasing compound	Ref.:	CSM002-0002A
“Scale-up” lanthanide phasing compounds	Ref.:	CSM002-0101A
		CSM002-0102A
		CSM002-0103A
		CSM002-0104A
		CSM002-0105A
		CSM002-0106A
		CSM002-0107A
		CSM002-0108A
		CSM002-0109A
		CSM002-0110A

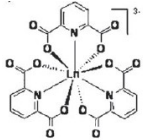
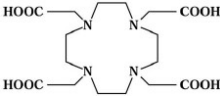
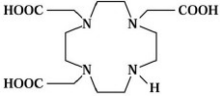
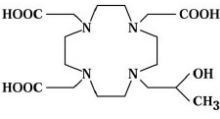
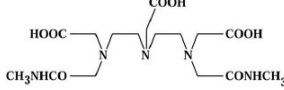
Each reference corresponds to a collection of one or more of the compounds described below.

### Company:

Name:	NatX-ray
Street address	Zone Minatec BHT bâtiment 52 7 parvis Louis Néel
PO box:	BP 50
Zip code/city:	38040 Grenoble cedex 09
Country:	France
Web site:	<a href="http://www.natx-ray.com">www.natx-ray.com</a>
Email address:	<a href="mailto:contact@natx-ray.com">contact@natx-ray.com</a>

## Section 2 - Composition and information on ingredients

The present products are complexes solubilized in water, obtained from five different chelators:

Acronym	Name	Formula
(DPA) <sub>3</sub>	tris(pyridine-2,6-dicarboxylate) or tris(dipicolinate)	
DOTA	1,4,7,10-tetraazacyclododecan-1,4,7,10-tetraacetic acid (CAS # 60239-18-1)	
DO3A	1,4,7,10-tetraazacyclododecan-1,4,7-triacetic acid	
HPDO3A	10-(2-hydroxypropyl)-1,4,7,10-tetraazacyclododecan-1,4,7-triacetic acid	
DTPA-BMA	N,N-bis[2-[(carboxymethyl)][(methylcarbamoyl)methyl]amino]ethyl]glycine	

Each chelator can be complexed with one of the three following atoms:

Europium (Eu)  
Ytterbium (Yb)  
Gadolinium (Gd)

The combinations available in the different product references are as follow:

Eu-(DPA) <sub>3</sub>	Ref.:	CSM002-0001A, CSM002-0101A
Yb-(DPA) <sub>3</sub>	Ref.:	CSM002-0001A, CSM002-0102A
Eu-DOTA	Ref.:	CSM002-0001A, CSM002-0103A
Yb-DOTA	Ref.:	CSM002-0001A, CSM002-0104A
Eu-DO3A	Ref.:	CSM002-0001A, CSM002-0105A
Yb-DO3A	Ref.:	CSM002-0001A, CSM002-0106A
Eu-HPDO3A	Ref.:	CSM002-0001A, CSM002-0107A
Yb-HPDO3A	Ref.:	CSM002-0001A, CSM002-0108A
Eu-DTPABMA	Ref.:	CSM002-0001A, CSM002-0109A
Yb-DTPABMA	Ref.:	CSM002-0001A, CSM002-0110A
Gd-HPDO3A	Ref.:	CSM002-0002A

## Section 3 - Hazard identification

The present compounds are generally considered as harmless. Four of them, usually chelating a Gd atom, are used as contrast agents for medical examination.

The main risk of toxicity arises from the use of these compounds in conditions where the lanthanide atom can be released, which may happen specifically with (DPA)<sub>3</sub> complex, but also with other complexes in severe conditions. As a consequence, the hazards described in this document are related to the lanthanides used in the preparation of complexes, as it is likely that lanthanides significantly and uniquely affect biochemical pathways, thus altering physiological processes in the tissues of humans and animals.

### APPEARANCE AND ODOR

- transparent, yellowish liquid
- no noticeable odor

**ROUTES OF EXPOSURE:** Eye and skin contact, ingestion.

- Eye Contact: May cause eye irritation.
- Skin Contact: May cause mild skin irritation.

### INGESTION

- May cause gastrointestinal irritation with nausea, vomiting and diarrhea.
- Expected to be a low ingestion hazard.

### CARCINOGEN STATUS

- NTP: No
- IARC: No
- OSHA: No

## Section 4 - First aid measure

### ORAL EXPOSURE

- Induce vomiting by sticking finger in throat.
- Lower the head so that the vomit will not reenter the mouth and throat
- Loosen tight clothing such as a collar, tie, belt or waistband.
- If the victim is not breathing, perform mouth-to-mouth resuscitation..
- Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive.
- Call a physician immediately.

### DERMAL EXPOSURE

- In case of contact, immediately wash skin with soap and copious amounts of water for at least 15 minutes.
- Remove contaminated clothing and shoes.
- Wash clothing and thoroughly clean shoes before reuse.
- Call a physician.

### EYE EXPOSURE

- Check for and remove any contact lenses.
- In case of contact with eyes, flush with copious amounts of water for at least 15 minutes.
- Assure adequate flushing by separating the eyelids with fingers.
- Call a physician.

## Section 5 - Hazard identification

### FLASH POINT

- not flammable

### AUTOIGNITION TEMPERATURE

- not flammable

### EXPLOSION LIMITS

- not flammable

### FLAMMABILITY

- not flammable

### EXTINGUISHING MEDIA

- not flammable

### FIREFIGHTING

- Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
- Specific Hazard(s): Dried product under fire conditions may be in suspension in the air. Vent thoroughly after fire extinction.

## Section 6 - Accidental Release Measures

### PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL

- N/A

### PROCEDURE(S) OF PERSONAL PRECAUTIONS

- N/A

### METHODS FOR CLEANING UP

- Cover with dry lime or soda ash, pick up, keep in a closed container, and hold for waste disposal.
- Wash spill site after material pickup is complete.
- Consult federal, state, and/or local authorities for assistance on disposal.

## Section 7 - Handling and storage

### HANDLING

- Keep away from heat.
- Do not get into eyes, on skin, on clothing.
- Avoid excessive heat and light.
- Avoid prolonged or repeated exposure.
- Use appropriate personal protective equipment (see “Exposure Controls”).

### STORAGE

- Keep tightly closed.
- Store at room temperature.

## Section 8 - Exposure Controls and personal protection

### ENGINEERING CONTROLS

- Safety shower and eye bath must be available nearby.

### PERSONAL PROTECTIVE EQUIPMENT

- Respiratory: N/A
- Hand: Compatible chemical-resistant gloves.
- Eye: Chemical safety goggles (Splash goggles).

### GENERAL HYGIENE MEASURES

- Wash thoroughly after handling.

## Section 9 - Physical and chemical properties

**APPEARANCE PHYSICAL STATE:** water solution

### PROPERTY VALUE AT TEMPERATURE OR PRESSURE

• Molecular Weight	N/A
• pH	neutral
• BP / BP Range	N/A
• MP / MP Range	N/A
• Freezing Point	N/A
• Vapor Pressure	N/A
• Vapor Density	N/A
• Saturated Vapor Concentration	N/A
• SG / Density	N/A
• Bulk Density	1gr/mL
• Odor Threshold	N/A
• Volatile %	N/A
• VOC Content	N/A
• Water Content	from 0.1 to 1.0 mL per tube
• Solvent Content	none
• Evaporation Rate	N/A
• Viscosity	N/A
• Surface Tension	N/A
• Partition Coefficient	N/A
• Decomposition Temperature	N/A
• Flash Point	not flammable
• Explosion Limits	not flammable
• Flammability	not flammable
• Autoignition Temperature	not flammable
• Refractive Index	N/A
• Optical Rotation	N/A
• Miscellaneous Data	N/A
• Solubility	already packaged as water solution

## Section 10 - Stability and reactivity

### STABILITY

- Stable: This chemical is stable if stored under proper conditions.
- Conditions of Instability: Light. Heat.
- Materials to Avoid: Strong oxidizing reagents.

### HAZARDOUS DECOMPOSITION PRODUCTS

- Carbon monoxide
- Carbon dioxide
- Nitrogen oxides
- Lanthanide oxides

**HAZARDOUS POLYMERIZATION:** Will not occur.

## Section 11 - Toxicological information

### ROUTE OF EXPOSURE (MULTIPLE ROUTES)

- Harmful if swallowed, or absorbed through the skin.
- High concentrations are EXTREMELY destructive to tissues of the mucous membranes and upper respiratory tract, eyes, and skin.

### SENSITIZATION

- May cause allergic response and skin reactions.

### SIGNS & SYMPTOMS OF EXPOSURE

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

## Section 12 – Ecological information

### ECOTOXICITY

- No data available

### BIODEGRADABILITY

- Lanthanide ion, when released from its chelator, is not expected to be readily biodegradable

## Section 13 – Disposal considerations

### APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

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

## Section 14 – Transport information

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

### DOT

- not regulated as a hazardous material for transportation under 49CFR

### IMO/IMDG

- not regulated as dangerous goods for transport under the IMDG code

### ICAO/IATA

- not regulated as dangerous goods for transport under ICAO

## Section 15 – Regulatory information

### US CLASSIFICATION & LABEL TEXT

- Indication of Danger: Harmful
- Risk Statements: May cause sensitization by skin contact.
- Safety Statements: Wear suitable protective clothing. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

### UNITED STATES REGULATORY INFORMATION

- SARA LISTED: No

### CANADA REGULATORY INFORMATION

- WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.
- DSL: No
- NDSL: No

This MSDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

## Section 16 – Other information

**The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his/her own determination of the suitability of the material for his/her particular purpose.**