

Safety Data Sheet

acc. to OSHA HCS

Printing date 12/05/2015

Version 2

Reviewed on 12/05/2015

1 Identification

Product identifier

Sheet Code: 269

Trade name: MultiHance

Chemical Name:

(4RS)-[4-carboxy-5,8,11-tris(carboxymethyl)-1-phenyl-2-oxa-5,8,11-triazatridecan-13-oato(5-)] gadolinate(2-)
dihydrogen compound with 1-deoxy-1-(methylamino)-D-glucitol (1:2).

Synonyms: Gadobenate dimeglumine injection.

How Supplied:

Each single/multi dose glass vial is elastomeric stoppered (latex free) with an aluminum seal. MultiHance is supplied in boxes of five with different fill volumes (5, 10, 15, 20, 50 or 100 mL) and vial sizes.

Relevant identified uses of the substance or mixture and uses advised against

We recommend that you use this product in a manner consistent with the listed use. If your intended use is not consistent with the stated use, please contact your sales or technical service representative.

Chemical Family: Paramagnetic agent.

Molecular Formula: $C_{22}H_{28}GdN_3O_{11} \cdot 2(C_7H_{17}NO_5)$ (gadobenate dimeglumine)

CAS Number: 127000-20-8 (gadobenate dimeglumine).

Details of the supplier of the safety data sheet

Manufacturer/Supplier:

Bracco Diagnostics Inc.

P.O. Box 5225

Princeton, NJ 08543

Further Information Obtainable from:

B-Lands Consulting

WTC, 5 Place Robert Schuman, BP 1516

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Emergency telephone number:

EMERGENCY CONTACT:

Health: 1-800-257-5181

U.S. Transport - Chemtrec: 1-800-424-9300

International Transport - Chemtrec: 1-703-527-3887

Emergency Overview:

MultiHance is a clear, colorless solution.

See Health Effects and Toxicology sections for additional information.

2 Hazard(s) identification

Classification of the substance or mixture

The product is not classified according to the Globally Harmonized System (GHS).

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Label elements

GHS label elements Void

Hazard pictograms Void

Signal word Void

Hazard statements Void

Effects of Overexposure - Routes of Entry:

Inhalation:

Under normal conditions, this material is handled in closed vials and exposure by inhalation is not expected to occur. However, in a situation where the liquid would be aerosolized, there may be potential for inhalation. The extent of systemic absorption of the material after inhalation is not known.

Skin Contact:

Exposure may occur via skin contact if gloves and protective clothing are not worn. The extent of systemic absorption of the material after skin contact is not known.

Ingestion:

Ingestion of large quantities of this material in an occupational setting would not be expected to occur. Ingestion of trace amounts of the material might occur if the material contacts hands and hands are not washed prior to eating, drinking or smoking. The extent of systemic absorption of the material after ingestion is not known.

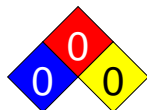
Additional Information:

Information pertaining to particular dangers for man and environment:

Negative Effects on the Health: See also Sections 11

Negative Effects on the Environment: See also Section 12

NFPA ratings (scale 0 - 4)



Health = 0
Fire = 0
Reactivity = 0

HMIS-ratings (scale 0 - 4)



HEALTH 0 Health = 0
FIRE 0 Fire = 0
REACTIVITY 0 Reactivity = 0

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

3 Composition/information on ingredients

Chemical characterization: Substances

Active Ingredient:

CAS: 127000-20-8	(4 R,S)-[(4-carboxy-5,8,11-tris(carboxymethyl)-1-phenyl-2-oxa-5,8,11-triazatridecan-13-oato(5-)) Gadolinate (2-)], dihydrogen, compound with 1-deoxy-1-(methylamino)-D-glucitol (1:2)
RTECS: LZ4306000	

Chemical characterization: Mixtures

Description: Mixture: consisting of the following components.

Hazardous Components: Void

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Non-Hazardous Components:

CAS: 127000-20-8 RTECS: LZ4306000	(4 R,S)-[(4-carboxy-5,8,11-tris(carboxymethyl)-1-phenyl-2-oxa-5,8,11-triazatridecan-13-oato(5-)) Gadolinate (2-)], dihydrogen, compound with 1-deoxy-1-(methylamino)-D-glucitol (1:2)	52.9%
CAS: 7732-18-5 EINECS: 231-791-2 RTECS: ZC0110000	Water USP	47.1%

4 First-aid measures

Description of first aid measures

General information: No special measures required.

After Inhalation: Supply fresh air. If required, provide artificial respiration.

After Skin Contact:

Remove contaminated clothing.

Wash skin with plenty of water for 5 minutes.

Seek medical attention if irritation (redness, itching or swelling) develops or persists.

After Eye Contact:

Wash with running water for several minutes holding the eyelids open.

If any symptoms of irritation develop and / or persist, consult your doctor.

After Swallowing:

Get medical attention immediately.

Vomiting may be induced only if a person is conscious and if ingestion has occurred within the past three hours.

Never induce vomiting in a person who is unconscious or experiencing convulsions.

Most important symptoms and effects, both acute and delayed See also Section 2 and 11.

Indication of any immediate medical attention and special treatment needed

No further relevant information available.

Means of Specific and Immediate Treatment to Keep at the Workplace: No special measures required.

Note to physicians: None.

5 Fire-fighting measures

Extinguishing media

Suitable extinguishing agents: In case of fire, flood with Water

For safety reasons unsuitable extinguishing agents: Unknown.

Special hazards arising from the substance or mixture See also Section 10.

Hazardous Combustion Products:

Carbon Dioxide (CO₂)

In the absence of Oxygen: Carbon Monoxide (CO)

Nitrogen Oxides (N_xO_y)

Gadolinium Oxide (Gd₂O₃)

Additional Information: Not Available

Advice for Firefighters

Evacuate personnel to an upwind direction, remove unneeded material and cool container(s) with water from a maximum distance.

Move container from fire area if you can do it without risk.

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Protective Equipment:

Firefighters should wear adequate personal protective equipment with protection of respiratory tract (self-contained breathing apparatus) (SCBA).

Wear flame and chemicals resistant clothing, boots and gloves (see Section 8).

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures

²Wear protective equipment appropriate to the circumstances (see Section 8)

Environmental precautions: No special measures required.

Methods and material for containment and cleaning up:

Absorb with liquid-binding material (sand, diatomite, vermiculite) or other non combustible absorbent material.

Place spilt material in an appropriate container for disposal.

The spill area should be ventilated and decontaminated after material is collected.

Reference to other sections

See Section 7 for information on Safe Handling.

See Section 8 for information on Personal Protection Equipment.

See Section 13 for Disposal Information.

See Section 12 for Ecological Information.

7 Handling and storage

Precautions for Safe Handling

Avoid splashing of liquid product.

Avoid skin and eye contact.

Conditions for Safe Storage, including any Incompatibilities

Requirements to be met by Storerooms and Receptacles:

Store in a cool, dry place in tightly closed receptacles.

Container Requirements:

Single dose glass vial is elastomeric stoppered (latex free) with an aluminum seal. MultiHance is supplied in boxes of five with different volumes (5, 10, 15, 20, 50 or 100 mLs) and vial sizes.

Storage Conditions: Store at 15-30 °C (59 to 86 °F). Do not freeze.

Information about Storage in one Common Storage Facility: Not required.

Further information about storage conditions:

Store in cool place. Keep container tightly closed in a dry and well-ventilated place.

Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

Additional information about design of technical systems: No further data; see item 7.

Control parameters

Components with limit values that require monitoring at the workplace:

The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

Additional information: The lists that were valid during the creation were used as basis.

Exposure controls

Appropriate Technical Controls: Provide adequate aspiration / ventilation in the workplace

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Additional information about Design of Technical Facilities: No further data (see Section 7).

Personal protective equipment

General Protective and Hygienic Measures:

The usual precautionary measures for handling chemicals should be followed.

Wash hands before breaks and at the end of work.

Wear protective equipment (PPE) appropriate to the circumstances.



Do not eat, drink, smoke while working.

Provide appropriate ventilation.

Breathing Equipment:

Not anticipated for normal clinical environment.

In non-routine exposure conditions, where risk assessment shows air-purifying respirators are appropriate, use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Self-contained breathing apparatus should be available for emergency use.

Protection of Hands:



Wear impervious gloves if the potential exists for dermal contact.

Material of Gloves:

Latex, Latex / Nitrile or Nitrile Gloves.

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation.

The glove material has to be impermeable and resistant to the product/ the substance/ the mixture.

Penetration Time of Glove Material:

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

Eye Protection:



Wear safety glasses (ANSI Z87.1)

Body Protection: Normal working clothes.

Limitation and Supervision of Exposure into the Environment: See also Section 7.

Additional Information about Design of Technical Systems: No further data; see Section 7.

9 Physical and chemical properties

Information on basic physical and chemical properties

General Information

Appearance:

Form:	Liquid
Color:	Colorless

Odor:	Undistinguishable
Odour threshold:	Not determined.

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pH-value:	6.5 - 7.5
Flash point:	Not applicable.
Flammability (solid, gaseous):	Not applicable.
Ignition temperature:	
Decomposition temperature:	Not determined.
Auto igniting:	Product is not selfigniting.
Danger of explosion:	Product does not present an explosion hazard.
Flammability Limits:	
Lower:	Not Determined.
Upper:	Not Determined.
Density at 20 °C:	1.22 g/cm ³
Relative density	Not determined.
Vapour density	> 1.0 (Greater than Air)
Solubility in / Miscibility with Water:	Fully miscible.
Partition coefficient (n-octanol/water):	Not determined.
Viscosity:	
Dynamic:	T = 20 °C, η = 9.2 mPas T = 37 °C, η = 5.3 mPas
Kinematic:	Not determined.
Water:	40.0 %
Other information	No further relevant information available.

10 Stability and reactivity

Reactivity: There are not particular dangerous reactions with other substances in normal conditions of use.

Chemical stability: Stable under normal conditions.

Possibility of hazardous reactions: No dangerous reactions known.

Conditions to avoid: No further relevant information available.

Incompatible materials: No further relevant information available.

Hazardous decomposition products: No further relevant information available (See Section 5)

11 Toxicological information

Information on toxicological effects

Acute toxicity:

Toxicological Information for Active Ingredients:

LD/LC50 values that are relevant for classification:

127000-20-8 (4 R,S)-[(4-carboxy-5,8,11-tris(carboxymethyl)-1-phenyl-2-oxa-5,8,11-triazatridecan-13-oato(5-)) Gadolinate (2-)], dihydrogen, compound with 1-deoxy-1-(methylamino)-D-glucitol (1:2)

Oral	LD50	> 26400 mg/kg (Mouse)
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	LD50 ivn	> 15800 mg/kg (rat) 8.3 g/kg (Mouse) 9.7 g/kg (rat)
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Primary irritant effect:

By Inhalation: Inhaling small doses of aerosolized material would not be expected to result in symptoms.

By Ingestion:

Inadvertent ingestion of trace amounts of this material would not be expected to result in symptoms.

on the skin:

Material contains low concentration of components that are mild irritants or possible irritants. It may have potential to cause mild irritation, however, moderate or severe irritation is not expected.

on the eyes: No irritation effects reported. However, the product should be considered as a potential irritant.

CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction):

Sensitization: The product can cause inflammation in people allergic to gadolinium and its compounds.

Germ Cell Mutagenicity:

A number of in vitro studies including the Ames test and in vivo mutagenicity studies including the rat micronucleus study did not show mutagenicity for MultiHance.

Carcinogenicity: Not Available.

Reproductive Toxicity:

Reproduction studies on rats with daily doses of MultiHance 20 times the daily human dose showed no evidence of effects on fertility or harm to the fetus. No teratogenic events were evident on intravenous administration of MultiHance to pregnant rabbits and rats.

Specific Target Organ Toxicity

Single Exposure (STOT - SE): No further relevant information available

Repeated Exposure (STOT - RE): No further relevant information available

Aspiration Hazard: No further relevant information available

Subacute to Chronic Toxicity:

No harmful effects are expected from MultiHance under normal use conditions. Repeated and prolonged exposure to skin may cause skin irritation. MultiHance is not intended for chronic use and there is no information on the possible adverse effects associated with chronic exposure.

Carcinogenic categories

IARC (International Agency for Research on Cancer)

None of the ingredients is listed.

NTP (National Toxicology Program)

None of the ingredients is listed.

OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

Additional toxicological information:

Contact with small quantities of material for short periods is not expected to result in pharmacologic or toxic effects.

Co-administration of isosorbide, epirubicin, diazepam, clonazepam, prednisolone and promethazine did not change the acute toxicity of MultiHance after injection in rats.

MULTIHANCE is contraindicated in patients with known allergic or hypersensitivity reactions to Gadolinium or any other ingredients including Benzyl Alcohol. MULTIHANCE may possibly potentiate sickle erythrocyte alignment in patients with sickle cell anemia.

Any Eventual Delayed Effect after Prolonged Exposure: No evidence reported in working practice.

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12 Ecological information

Toxicity

Aquatic toxicity:

127000-20-8 (4 R,S)-[(4-carboxy-5,8,11-tris(carboxymethyl)-1-phenyl-2-oxa-5,8,11-triazatridecan-13-oato(5-)) Gadolinate (2-)], dihydrogen, compound with 1-deoxy-1-(methylamino)-D-glucitol (1:2)

EC50	> 961 mg/l (Daphnia)
EC50/72 h	> 110 mg/l (Selenastrum Capricornutum)
IC50	> 1000 mg/l (Activated Sludge)
LC50	> 875 mg/l (Rainbow Trout)

Persistence and degradability No further relevant information available.

Bioaccumulative potential No further relevant information available.

Mobility in soil: No further relevant information available.

General notes:

Water hazard class 1 (Self-assessment): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system. Avoid transfer into the environment.

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

Other adverse effects No further relevant information available.

Additional Information: Use according to good working practice.

13 Disposal considerations

Waste treatment methods:

Recommendation:

Must not be disposed of together with household garbage. Do not allow product to reach sewage system. Reutilise if possible or contact a waste processors for recycling or safe disposal.

Uncleaned packagings:

Recommendation: Dispose in accordance with national, state, local or applicable country regulations.

Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information

UN-Number

DOT, ADR, ADN, IMDG, IATA Void

UN proper shipping name

DOT, ADR, ADN, IMDG, IATA Void

Transport hazard class(es)

ADR, ADN, IMDG, IATA
Class Void

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Packing group <i>DOT, ADR, IMDG, IATA</i>	Void
Environmental hazards: <i>Marine pollutant:</i>	No
Special precautions for user	Not applicable.
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
UN "Model Regulation":	-

15 Regulatory information

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

Section 355 (extremely hazardous substances):

None of the ingredients is listed.

Section 313 (Specific toxic chemical listings):

None of the ingredients is listed.

TSCA (Toxic Substances Control Act):

7732-18-5 | Water USP

Proposition 65

Chemicals known to cause cancer:

None of the ingredients is listed.

Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

Carcinogenic categories

EPA (Environmental Protection Agency)

None of the ingredients is listed.

TLV (Threshold Limit Value established by ACGIH)

None of the ingredients is listed.

NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

GHS label elements Void

Hazard pictograms Void

Signal word Void

Hazard statements Void

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

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Significant Dangers:

Training Hints:

All persons handling this product should be informed on the existence of the hazard, on any possible risk they might be subjected to and about all required protective measures to prevent such a damage or to reduce the exposition.

WARNINGS:

Diagnostic agents are intended for use under direction of a physician and/or under the conditions of use described on the label and in the product's package insert. As a general precaution, personnel who handle drug substances should avoid contact (ingestion, inhalation, skin and eye contact) with these substances.

Department issuing SDS:

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Date of preparation / last revision 10/13/2014 / -

Abbreviations and acronyms:

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organisation

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

*** Data compared to the previous version altered.**

- data updating on the basis of the latest amendments.
- adaptation of the form according to Regulation 1907/2006/CE.