

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**Product identifier** Quick Decon™ Mass Effect™ for Actinides - Concentrate

GHS Product Identifier Quick Decon™ Mass Effect™ for Actinides - Concentrate

Chemical Name Not Applicable

Trade name Quick Decon™ Mass Effect™ for Actinides - Concentrate

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

Identified use(s) – Decontamination of selected radioisotopes.

Uses advised against – **Consult with manufacturer concerning all uses.****Details of the supplier of the safety data sheet**Company **Radiation Decontamination Solutions, LLC**

Address 141 Stevens Ave, Ste. 9, Oldsmar, FL 34677

Telephone **(813) 854-5100**E-Mail (competent person) info@raddecon.com**Emergency telephone number – (800) 222-1222 (US Poison Control)****SECTION 2: HAZARDS IDENTIFICATION****Classifications of the substance or mixture****OSHA Hazardous Communication Standard (USA) and UN GHS classification**

Non-hazardous according to the OSHA HCS (29CFR1910.1200) and GHS classifications.

Label elements

GHS Product Identifier

Hazard pictogram(s)	None	Signal word(s)	None
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Hazard statement(s) None

Precautionary statement(s) None

WHMIS Classifications (Canada)

Classifications None – Not hazardous according the WHMIS regulations

Hazard statement(s) None

Precautionary statement(s) None

EU Directives 1272/2008/EC and 1907/2006/EC

Non-hazardous according to EU Directives 1272/2008/EC and 1907/2006/EC

Label elements

CLP Product Identifier

Hazard pictogram(s)	None	Signal word(s)	None
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Hazard statement(s) None

Precautionary statement(s) None

EU Directives 1999/45/EEC and 67/548/EEC

Non-hazardous according to EU Directives 1999/45/EEC and 67/548/EEC

Label elements

Risk Symbols None

Risk Phrases None

Safety Phrases None

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SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Product contains no hazardous ingredients in reportable quantities under the following jurisdictions: USA, Canada, European Union, Australia, New Zealand, Japan, Korea, South Africa, or the UN.

Additional Information - Non-Hazardous ingredients are not listed and considered confidential and proprietary and make up the totality of the product.

SECTION 4: FIRST AID MEASURES**Description of first aid measures**

Note: First aid recommendations are predicated on exposure to product that has not been previously exposed to radioactive isotopes. For ANY EXPOSURE to product that has been used to decontaminate surfaces with measured or suspected radioactivity, medical attention should be sought.

Inhalation	Remove patient from exposure. Keep patient at rest and give oxygen if breathing difficult. If symptoms develop, obtain medical attention.
Skin Contact	Simply wash affected areas with soap and water. In the highly unusual event of persistent irritation, seek medical assistance.
Eye Contact	Remove any contact lenses. Irrigate with eyewash solution or clean water, holding the eyelids apart, for at least 15 minutes. Obtain medical attention for persistent or severe irritation.
Ingestion	Do not induce vomiting. Make victim drink plenty of water. Product may cause gastrointestinal distress. Ingestion of large amounts may result in metabolic disturbances. Severe poisonings may result in cardiac and neurological disturbances.
Most important symptoms and effects, both acute and delayed	Acute: May cause irritation to stomach and esophagus upon ingestion. May cause mild to moderate eye irritation. Delayed and chronic effects: Similar to acute effects. Any delayed and/or chronic effects will generally be due to radioactive materials dissolved in solution post-use.
Indication of the immediate medical attention and special treatment needed	Case management should be based on metabolic results; in severe poisonings, electrolyte imbalances should be assumed and careful monitoring will be necessary. In cases where radiation exposure is suspected, it is critical that exposures be reported and carefully monitored for symptoms consistent with radiation-induced illnesses.

SECTION 5: FIRE-FIGHTING MEASURES**Data Related to Fire**

Flash Point:	Non-Flammable	Autoignition Temperature:	Non-Flammable
Explosive / Flammable Limits (%v/v)		Lower:	NA
Sensitivity to Mechanical Impact:	None	Sensitivity to Static Discharge:	None

Extinguishing media

Suitable Extinguishing Media Choose media for surrounding fire.

Unsuitable Extinguishing Media None known.

Special Hazards

A self contained breathing apparatus and suitable protective clothing should be worn in fire conditions.

Advice for fire-fighters

For fires in which used solution is involved, radiological monitoring is essential. Launder contaminated protective devices.

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SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	Ensure full personal protection (including respiratory protection) during removal of spillages. Evacuate if necessary. If used solution is spilled, expert assistance may be needed due to release of radiation.
Environmental Precautions	Radiological monitoring of spill site is essential where used solution has been spilled. Product poses slight chemical hazard to aquatic environments.
Methods and material for containment and cleaning up	Absorb material in inert absorbent and transfer to a lidded container for disposal or recovery. For solutions that may have radioisotopes, storage containers must be appropriately marked and type-accepted for the purpose of storing radiological waste; consult with manufacturer or authorities to ensure compliance.
Reference to other sections Additional Information	See Also Section 7, 8, 13. None

SECTION 7: HANDLING AND STORAGE




Precautions for safe handling	Keep away from strong bases and water-reactive materials. Use only in accordance with manufacturer instructions. Prolonged contact with skin and/or eyes is not recommended..
Conditions for safe storage, including any incompatibilities	Store in a tightly closed container in accordance with manufacturer suggestions. Incompatible with strong bases and water-reactive materials. Storage temperature should stay between 5-60°C (41-140°F). Do not freeze.
Storage Temperature	Ambient. Extreme temperatures are not recommended. Do not freeze.
Storage Life	Not available
Incompatible materials	Oxidizing agents, Can react violently if in contact with acids, strong alkalis, reducing agents and heavy metals.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**Occupational Exposure Limits**


Product contains no hazardous ingredients in reportable quantities under the following jurisdictions: USA, Canada, European Union, Australia, New Zealand, Japan, Korea, South Africa, or the UN. No exposure limits are available for product.

OELs are not available for non-listed components.

Personal protection equipment

	Respirators	Not normally required for handling of solutions in situations where exposure to radiation is not a possibility. For exposures where radiation is involved, seek guidance from manufacturer or authorities.
	Eye Protection	Safety spectacles suggested at all times. This may be combined with a face shield or combination eye protection / respiratory protection as required by each individual exposure scenario to radiation during usage.
	Gloves	Wear protective gloves during use. Gloves should be chosen to fit each individual situation of use; consult with manufacturer.

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	Body protection	Wear suitable protective clothing and gloves during use. Body protection should be individualized to the situation of usage; consult with manufacturer and/or regulatory authorities for appropriate protective equipment.
	Engineering Controls	Consult with regulatory authorities and/or manufacturer; each situation should be carefully evaluated in order to properly select engineering controls.
	Other	Remove contaminated, saturated clothing immediately. Contaminated clothing and equipment should be either decontaminated or discarded as hazardous waste if radiation is present.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Liquid	Color	Deep yellow to Orange
Odor	None	Odor Threshold (ppm)	Not available
Melting Point (°C) / Freezing Point (°C)	-5°C ± 5°C	Boiling point/boiling range (°C):	105°C ± 5°C
Flash Point (°C)	23°F ± 9°F		221°F ± 9°F
Auto Ignition Temperature (°C)	None	Explosive limit ranges	Not available
Explosive properties	Not available	Decomposition Temperature (°C)	Not available
Flammability (solid, gas)	Not Flammable	Oxidizing properties	Not available
Evaporation rate	Equal to water	pH (Value)	5-9 (estimate)
Vapor Density (Air=1)	Not available	Vapor Pressure (mm Hg)	Equal to water
Solubility (Water)	Soluble	Density (g/ml)	1.0 ± 0.1
Partition Coefficient (n-Octanol/water)	Not available	Solubility (Other)	Not available
		Viscosity (mPa.s)	Not Available

Other information Volatile Organic Chemical (VOC) Content – < 10%.

SECTION 10: STABILITY AND REACTIVITY

Reactivity	May react with incompatible materials.
Chemical stability	Stable under normal conditions.
Possibility of hazardous reactions	Can react violently if in contact with strong bases, water-reactive materials.
Conditions to avoid	Avoid contact with heat and ignition sources.
Incompatible materials	Strong bases, Water-Reactive Materials
Hazardous Decomposition Product(s)	Carbon monoxide, Carbon dioxide, Nitrogen Oxides

SECTION 11: TOXICOLOGICAL INFORMATION

SUBSTANCE	CAS No.	LD ₅₀ (Oral, Rat)	LC ₅₀ (Inhalation, Rat)	LD ₅₀ (Dermal, Rat)
Product contains no hazardous ingredients in reportable quantities under the following jurisdictions: USA, Canada, European Union, Australia, New Zealand, Japan, Korea, South Africa, or the UN. No exposure limits are available for product.				

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Information on toxicological effects

Note: Toxicological effects described below are based solely on product that has not been exposed to radioactive isotopes. Where exposures to used and/or radiation-contaminated product have occurred, toxic effects of radiation sickness/poisoning may include: nausea, vomiting, diarrhea, headache, fever, myalgia, fatigue, hypotension, leukopenia, generalized weakness, CNS symptoms, and coma progressing to death. Cutaneous Radiation Exposures may involve itching and redness that may progress to blistering and alopecia in the affected areas; necrosis may occur in severe exposures. The symptoms of radiation illnesses are dependent on the type of radiation, as well as the length and totality of exposures. The data in this section must not be used as a substitute for medical assistance where exposures to radiation have occurred.

Acute toxicity	Ingestion may cause irritation of the gastrointestinal tract.
Irritation	May be slightly irritating to skin, May be irritating to eyes.
Corrosivity	Unlikely; prolonged eye exposure could cause mild ulceration of the cornea.
Repeated dose toxicity	Expected to be similar to single exposures.
Carcinogenicity	Not expected.
Mutagenicity	No data.
Toxicity for reproduction	No data..
Other information	None

SECTION 12: ECOLOGICAL INFORMATION

Toxicity	Unused product is slightly harmful to aquatic environments in small quantities. Do not discard large quantities into bodies of water.
Persistence and degradability	Biodegradable. Not persistent.
Bioaccumulative potential	Biodegradable. Not persistent.
Mobility in soil	The product has high mobility in soil.

SECTION 13: DISPOSAL CONSIDERATIONS
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Waste treatment methods	Disposal should be in accordance with local, state or national legislation. Consult with authorities, especially when the disposal radiation-contaminated solutions is involved
Additional Information	None

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SECTION 14: TRANSPORT INFORMATION

Land transport (Within USA) (c)(d)

UN number	None
Proper Shipping Name	Not classified as dangerous for transport.
Transport hazard class(es)	None
Packing Group	None
Hazard label(s)	None
Environmental hazards	None
Special precautions for user	None

Sea transport (IMDG) (c)(d)

UN number	None
Proper Shipping Name	Not classified as dangerous for transport.
Transport hazard class(es)	None
Packing Group	None
Marine Pollutant	None
Special precautions for user	None

Land transport (Within Canada)

UN number	None
Proper Shipping Name	Not classified as dangerous for transport.
Transport hazard class(es)	None
Packing Group	None
Hazard label(s)	None
Environmental hazards	None
Special precautions for user	None

Air transport (ICAO/IATA) (c) (d)

UN number	None
Proper Shipping Name	Not classified as dangerous for transport.
Transport hazard class(es)	None
Packing Group	None
Environmental hazards	None
Special precautions for user	None

(c)– Consult with transport provider.

(d)– Check relevant regulations for Special Provisions.

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

SECTION 15: REGULATORY INFORMATION

National regulations**USA**

TSCA (Toxic Substance Control Act)	All chemicals listed under TSCA.
SARA 311/312 - Hazard Categories	None
SARA 302 - Extremely Hazardous Substances	Listed. - None
SARA 313 - Toxic Chemicals	Listed. – None
CERCLA (Comprehensive Environmental Response Compensation and Liability Act)	Listed. – None
CAA (Clean Air Act 1990)	Listed. – None
CWA (Clean Water Act)	Listed. - None
State Right to Know Lists	None
Proposition 65 (California)	None

Canada

WHMIS Classification	None
Canada (DSL/NDL)	Listed. - DSL
Canada Ingredient Disclosure List (CIDL)	Canadian users should contact manufacturer.

Chemical Safety Assessment

Non-hazardous.

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SECTION 16: OTHER INFORMATION

The following sections contain revisions or new statements: 1-16.

LEGEND

ACGIH	American Conference of Governmental Industrial Hygienists	NA	not applicable, not available
AICS	Australian Inventory of Chemical Substances	NIOSH	National Institute for Occupational Safety and Health
ANSI	American National Standards Institute	ND	not determined
atm	atmosphere (pressure unit)	NFPA	National Fire Prevention Association
BOD	biological oxygen demand	NTP	National Toxicology Program
CAS	Chemical Abstracts Service	OC	open cup
CC	closed cup	OSHA	Occupational Safety and Health Administration
CDTA	Chemical Drug and Trafficking Act	Part	partition
COC	Cleveland Open Cup	PEL	permissible exposure limits
COD	chemical oxygen demand	ppb	parts per billion
coeff.	coefficient	PPE	personal protective equipment
CFR	Code of Federal Regulations	ppm	parts per million
CPR	cardio-pulmonary resuscitation	psi	pounds per square inch
DEA	Drug Enforcement Agency	RCRA	Resource Conservation and Recovery Act
DOT	Department of Transportation	RQ	Reportable quantity
DSCL	Dangerous Substances Classification and Labeling	RTK	Right to Know
EEC	European Economic Community	SARA	Superfund Amendments and Reauthorization Act
FDA	Food and Drug Administration	STEL	short-term exposure limit
HMIS	Hazardous Materials Information System	SUSDP	Standard for the Uniform Scheduling of Drugs and Poisons (Australia)
IARC	International Agency for Research on Cancer	TCC	Tagliabue Closed Cup
IDLH	immediate danger to life or health	TDG	Transportation of Dangerous Goods
kg	kilogram	TPQ	threshold planning quantity
L	liter	TQ	threshold quantity
LC50	median lethal concentration	TSCA	Toxic Substances Control Act
LD50	median lethal dose	TWA	time-weighted average
LEL	lower explosive limit	UEL	upper explosive limit
mg	milligram	WES	Workplace Exposure Standard (New Zealand)
mL	milliliter	WHMIS	Workplace Hazardous Material Information System

References: RTECS, CAS Registry, EINECS/ESIS, *Casarett & Doull's Toxicology*, *Goldfrank's Toxicological Emergencies*, Manufacturer Information

Risk Phrases and Safety Phrases

None

Hazard statement(s) and Precautionary statement(s)

None

Additional Information: None

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