

# MATERIAL SAFETY DATA SHEET

**ERA** A Waters Company

## SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

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Golden, CO, 80403 U.S.A. **CHEMICAL EMERGENCY PHONE:** 352-535-5053 (INFOTRAC)


**Product Name(s):** MRaD™ Soil Radionuclides  
**Catalog / Part Number(s):** 608, 802, 802AL1-4

**MSDS Creation Date:** March 23, 2007  
**Revision Date:** July 19, 2012 **MSDS Reference Number:** 802-608

## SECTION 2: HAZARDS IDENTIFICATION

Not hazardous according to Directive 199/45/EC or 67/548/EEC. Use only as directed and in accordance with good lab practices. Components listed below are for informational purposes. All components listed are well below limits designated as hazardous.

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL INGREDIENT NAME	CAS NUMBER	EC NUMBER	% BY WT.	EXPOSURE LIMITS		EU LABEL
				OSHA	ACGIH	HAZARD LABEL
Actinium-228	14331-83-0	NA	<0.0001	NA	NA	NA
Americium-241	10043-66-0	NA	<0.0001	NA	NA	NA
Bismuth-212	14913-49-6	NA	<0.0001	NA	NA	NA
Bismuth-214	14733-03-0	NA	<0.0001	NA	NA	NA
Cesium-134	13967-70-9	NA	<0.0001	NA	NA	NA
Cesium-137	10045-97-3	NA	<0.0001	NA	NA	NA
Cobalt-60	10198-40-0	NA	<0.0001	NA	NA	NA
Lead-212	15092-94-1	NA	<0.0001	NA	NA	NA
Lead-214	15067-28-4	NA	<0.0001	NA	NA	NA
Manganese-54	13966-31-9	NA	<0.0001	NA	NA	NA
Plutonium-238	13981-16-3	NA	<0.0001	NA	NA	NA
Plutonium-239	15117-48-3	NA	<0.0001	NA	NA	NA
Potassium-40	13966-00-2	NA	<0.0001	NA	NA	NA
Strontium-90	10098-97-2	NA	<0.0001	NA	NA	NA
Thorium-234	15065-10-8	NA	<0.0001	NA	NA	NA
Uranium, natural	7440-61-1	231-170-6	<0.0001	0.25 mg/m <sup>3</sup>	0.20 mg/m <sup>3</sup>	
Zinc-65	13982-39-3	NA	<0.0001	NA	NA	NA

Notes: Standard is manufactured in an inert soil/sand matrix. These standards contain small (trace) quantities of radioactive material. These materials do not present a significant hazard due to direct toxic effects, but do present a small hazard due to radioactivity, especially if taken into the body. These samples are designed for use only in a radiochemistry facility experienced in the handling of radioactive materials. All appropriate precautions for the handling of radioactive materials should be in place at all times. Decay products for some of the radionuclides listed are also radioactive. These decay products are present in different stages of equilibrium with their parent nuclide and are not accounted for in the component listing.

Although not all of these radioisotopes are classified by official agencies (OSHA, NTP, IARC), all radioactive materials may increase the risk of cancer if improperly handled. Considered Non-Hazardous under OSHA 1910.1200 (HazCom) as product contains no known or potential carcinogens in excess of 0.1% of the composition nor any other hazardous chemical in excess of 1% of the composition.

Material Use: Analytical reagent or certified reference material used in laboratories. Uses also include research and development.

## SECTION 4: FIRST-AID MEASURES

**Inhalation:** Remove to fresh air. **Skin Contact:** Flush with water.  
**Eye Contact:** Immediately flush with water for a minimum of 15 minutes. **Ingestion:** Get medical attention.  
After following first aid measures, seek medical attention.

## SECTION 5: FIRE-FIGHTING MEASURES

**Flammable Properties:** Not flammable. **Extinguishing Media:** Dry chemical, carbon dioxide or appropriate foam.  
**Unique Aspects Contributing To a Fire:** None. **Special Fire Fighting Procedures:** None.  
**Note:** As in any fire, wear self-contained breathing apparatus, and full protective gear.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

Neutralize and flush with water or neutralize and absorb. Follow appropriate radioactive contamination control and cleanup procedures.

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## SECTION 7: HANDLING AND STORAGE

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Handle in accordance with good laboratory practices. Store in a dry well-ventilated place. This product is intended for use only by people trained in the safety and handling of chemicals and laboratory preparations.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

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Handle in accordance with good laboratory practices. Wash thoroughly after handling.

Respiratory Protection: Not normally needed. If exposure limits are exceeded, use approved respirator.

Eye Protection: Safety glasses with side shields or safety goggles

Skin Protection: Neoprene or other chemical resistant gloves.

Engineering Controls: Not normally needed. If exposure limits are exceeded, work in a fume hood.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

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### DATA FOR MATRIX:

Appearance:	soil/sand	Specific Gravity:	NA	Melting Point:	NA	Physical State:	solid
Flash Point:	NA	Vapor Pressure:	NA	Odor:	NA	Explosion Limits:	NA
Vapor Density (air=1):	NA	pH:	NA	Boiling Point:	NA	Solubility in Water:	NA

## SECTION 10: STABILITY AND REACTIVITY

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Hazardous Polymerization Will Not Occur  X  May Occur   Stability: Stable  X  Unstable

Hazardous Decomposition/Combustion Products: May generate hydrogen on exposure to metals.

Conditions and Materials to Avoid: Heavy metals.

## SECTION 11: TOXICOLOGICAL INFORMATION

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Primary Route(s) of Exposure Under Normal Use: Eyes, skin, mucous membranes or lungs.

Target Organ(s): NA

Acute Effects: May burn any tissue and cause blindness, GI tract perforation cough, or pulmonary edema, or methemoglobinemia. The above health hazard is based on the acid content of this product. This standard contains small quantities of radioactive material. These materials do not present a hazard due to direct toxic effects, but do present a small hazard due to radioactivity, especially if taken into the body. This sample is designed for use only in a radiochemistry facility experienced in the handling of radioactive materials. All appropriate precautions for the handling of radioactive materials should be in place at all times.

Chronic Effects: Asthma

Other Information: Chemical Ingredient(s) not classified as carcinogen(s) by OSHA, IARC, NTP, ACGIH, or California.

## SECTION 12: ECOLOGICAL INFORMATION

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No information available on this preparation or mixture. By complying with sections 6 & 7 there will be no release into the environment.

## SECTION 13: DISPOSAL CONSIDERATIONS

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To determine proper disposal, consult applicable federal, state and local environmental control regulations.

## SECTION 14: TRANSPORT INFORMATION

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Shipment Name/Type: Non-hazardous for transport.

UN Number: NA Shipping/Hazardous Class: NA Packing Group: NA

Shipping regulations are based on combinations of criteria such as quantity, class and packaging according to DOT, IATA and (49) CFR.

## SECTION 15: REGULATORY INFORMATION

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EU Symbol of Danger: Toxic (T)

EU Risk Phrases: Well below regulated amount. Listed are Phrases for Uranium: Very toxic by inhalation & if swallowed [R 26/28]; Danger of cumulative effects [R 33]; May cause long-term adverse effects in the aquatic environment.

U.S. TSCA: Listed

Canada: This product has been classified according to the hazard criteria of the CPR and this MSDS contains all the information required by the CPR.

## SECTION 16: OTHER INFORMATION

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United States EPA Regulatory Information:	NFPA Rating:	Health: NA	Flammability: NA	Reactivity: NA
SARA 313: NA	HMIS Rating:	Health: NA	Flammability: NA	Physical Hazard: NA
CERCLA RQ: NA				

NOTE: NA = Data not available, not established, determined or not pertinent. DISCLAIMER: The information contained herein has been compiled from data presented in various technical sources believed to be accurate. This information is intended to be used only as a guide and does not purport to be complete. ERA makes no warranties and assumes no liability in connection with the use of this information. It is the user's responsibility to determine the suitability of this information and to assure the adoption of necessary precautions.