



Material Safety Data Sheet [OSHA 29 CFR 1910.1200]

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SECTION I: PRODUCT IDENTIFICATION

MRT™ Product Name

Bottom Ash

SECTION II - HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

Bottom ash composition is variable depending on coal source and power plant characteristics.
Bottom ash has a respirable particle size distribution.

Hazardous Components	CAS No.	PEL (OSHA) mg/M ³	TLV (ACGIH) mg/M ³	Typical% (Varies)
Silica –crystalline, as quartz	14808-60-7	<u>0.2 mg/m³</u> %SiO ₂ + 2	0.025 mg/m ³ ---	1 - 5
Total Dust Fraction		<u>10 mg/m³</u> %SiO ₂ + 2		3 - 9
Silica (Amorphous) Total Dust Fraction	60676-86-0	<u>80 Mg/m³</u> %SiO ₂	10 mg/m ³	
Alumina (Respirable)		5mg/m ³	5mg/m ³	10-35
Aluminum Oxide	1344-28-1	None	10 mg/m ³	19
Calcium Oxide	1305-78-8	5 mg/m ³	2 mg/m ³	0.5-32
Iron Oxide	1307-37-1	10 mg/m ³	5 mg/m ³	3-24
Magnesium Oxide	1309-48-5	15 mg/m ³	10 mg/m ³	0.5-8

Materials present at less than 12% and greater than 0.5%, and not listed in OSHA of ACGIH include Potassium Oxide, Sodium Oxide, Sulfur Trioxide, and Carbon.

Product Type: MRT[®] Bottom Ash

SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling Point F: > 1400° CpH: N/ASolubility in Water: N/ASpecific Gravity: 2.3 to 2.7Appearance and Odor: Grayish granular material; indistinctive odor.

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Flash Point (Test Method): N/AFlammable Limits in Air Percent by Volume: Lower: N/A Upper: N/AExtinguishing Media: N/ASpecial Fire Fighting: N/AUnusual and Explosion Hazards: None

SECTION V - REACTIVITY DATA

Stability: StableIncompatibility (Materials to Avoid): None known.Hazardous Decomposition or Byproducts: None known.Hazardous Polymerization: Will Not OccurConditions to Avoid: None known.

SECTION VI - HEALTH HAZARD DATA

Effects of Overexposure: Acute - Irritation of eyes, skin and mucous membranes.
Chronic - Fibrotic diseases of the lungs and potential carcinogenicity.Emergency and First Aid Procedures: Skin: Wash with mild soap and water.
Ingestion: Keep warm, at rest, and drink large amounts of water.
See Physician.
Eyes: Flush with flowing water for 15 minutes.
See Physician.
Inhalation: Move to fresh air.Medical Conditions Aggravated by Exposure: Persons with history of respiratory illness and reduced pulmonary function should avoid work places with high dust levels. Persons with skin disorders may experience aggravation of the condition.**Chronic Exposure:** Dust can cause inflammation of the lining tissue of the interior of the nose and inflammation of the cornea. Hypersensitive individuals may develop an allergic dermatitis. Bottom ash contains a small percentage of respirable crystalline silica. Respirable crystalline silica (quartz) can cause silicosis, a fibrosis (scarring) of the lungs and possibly cancer. There is evidence that exposure to respirable silica or the disease silicosis is associated with an increased incidence of Scleroderma, tuberculosis and kidney disorders.**Carcinogenicity Listings:**

NTP:

Probable carcinogen

OSHA:

Not listed as a carcinogen

Product Type: MRT[®] Bottom Ash

IARC Monographs:	Group 1 Carcinogen
California Proposition 65:	Known carcinogen

NTP: The national Toxicology Program, in its sixth Annual Report on Carcinogens concluded that “silica, crystalline (respirable)” may reasonably be anticipated to be a carcinogen, based on sufficient evidence in experimental animals and limited evidence in humans.

IARC: The International Agency for Research on Cancer (“IARC”) concluded that there was “*sufficient evidence* in humans for the carcinogenicity of crystalline silica in the forms of quartz or cristobalite from occupational sources”, and that there is “*sufficient evidence* in experimental animals for the carcinogenicity of quartz or cristobalite.” The overall IARC evaluation was that “crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is *carcinogenic to humans* (Group 1).” The IARC evaluation noted that “carcinogenicity was not detected in all industrial circumstances or studies. Carcinogenicity may be dependent on inherent characteristics of the crystalline silica or on external factors affecting its biological activity or distribution of its polymorphs.” For further information on the IARC evaluation, see IARC Monographs on the Evaluation of carcinogenic Risks to Humans, Volume 68, “Silica, Some Silicates...” (1997)

SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be Taken if Materials Released or Spilled: Clean up material for use or disposal. Dampen with a water mist to control dust (airborne dust) before removal. Do not use compressed air. If loaded on trucks, wet down ash to prevent dusting during transport.

Waste Disposal Method: The packaging and material may be land filled; however, material should be covered to minimize generation of airborne dust. This product is not classified as a hazardous waste under RCRA or CERCLA.

SECTION VIII - CONTROL MEASURES

DO NOT BREATHE DUST. In dusty environments, the use of an OSHA, MSHA or NIOSH approved respirator and tight fitting goggles is recommended. Local exhaust can be used, if necessary, to control airborne dust levels.

Ventilation: Local Exhaust: When feasible, use dust collector.

Protective Gloves: Normal work gloves.

Eye Protection: Safety goggles in dusty operations.

Other Protective Equipment: Recommended coveralls in high concentration conditions.

SECTION IX - SPECIAL PRECAUTIONS

Handling and Storage: Store in dry conditions.

Other Precautions: Avoid creating dust and practice good hygiene; wash hands and face prior to eating and drinking.

WARN EMPLOYEES AND/OR CUSTOMERS OF THE HAZARDS AND REQUIRED OSHA PRECAUTIONS ASSOCIATED WITH THE USE OF THIS PRODUCT.

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