

MATERIAL SAFETY DATA SHEET

SECTION 1 – CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MANUFACTURER: Maxam North America, Inc.
6975 South Union Park Center, Suite 525
Salt Lake City, Utah 84047

EMERGENCY CONTACT: (801) 233-6000 (Maxam North America, Inc.) or
(800) 424-9300 (CHEMTREC) or
(304) 836-5646 (Maxam North America, Inc. Plant)

TRADE NAME: ANFO, HD ANFO or Ammonium Nitrate & Fuel Oil Mixture,
RIOFRAG™, RIOXAM™, RIOXAM™ HD

CAS NUMBER: N/A

SECTION 2 – COMPOSITION/INFORMATION ON INGREDIENTS

Exposure Limits (mg/m³ unless noted)

Component	CAS No.	ACGIH TLV	OSHA PEL	% w/w Typical
Ammonium Nitrate	6484-52-2	N/A	N/A	93 – 94
Fuel Oil	68476-34-6	N/A	N/A	7-6

SECTION 3 – HAZARDS IDENTIFICATION

US OSHA HAZARD COMMUNICATION STANDARD: Product assessed in accordance with OSHA 29 CFR 1910.1200 and determined to be hazardous.

EFFECTS OF OVEREXPOSURE: Respiratory irritation, dizziness, nausea, vomiting, tachycardia. Prolonged, repeated skin contact may result in skin irritation or more serious skin disorders. Toxic effects are unlikely to occur if good personal hygiene is practiced.

EMERGENCY RESPONSE DATA: Free flowing granular material, off-white or pink in color in a multilayer paper or plastic bag. Fuel oil odor.

DOT EMERGENCY RESPONSE GUIDE NO.: 112

SECTION 4 – FIRST AID AND MEASURES

EFFECTS OF OVEREXPOSURE: Unknown

EMERGENCY AND FIRST AID PROCEDURES:

INHALATION -Remove to a well ventilated area. If breathing difficulties persist seek medical help.

MATERIAL SAFETY DATA SHEET

INGESTION -Do not induce vomiting. Drink large amounts of water or milk. Give liquid activated charcoal and seek medical attention.

SKIN -Wash effected area with soap and rinse with large amounts of water. Launder contaminated clothing before reuse.

EYES -Flush with copious amounts of clean or buffered water for at least 15 minutes. Seek medical attention immediately.

X SECTION 5 – FIRE-FIGHTING MEASURES

FLASH POINT: Greater than 125 °F

LEL: Not Available

EXTINGUISHING MEDIA: Water -Deluge with water to cause a mass cooling.

UNUSUAL FIRE & EXPLOSION HAZARDS: System contains its own oxygen and fuel. May explode when subject to extreme heat or shock. Will release NOx .

SPECIAL FIRE FIGHTING PROCEDURES: DO NOT FIGHT AN ESTABLISHED FIRE. Clear area and allow it to burn out.

X SECTION 6 – ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Gather up spilled material and wash any contaminated area with water.

WASTE DISPOSAL METHOD: Place down a blast hole prior to detonation; to be utilized as part of the blast. May be burned in a shallow layer on barren ground in accordance with federal, state and local regulations.

X SECTION 7 – HANDLING AND STORAGE

DURING HANDLING AND STORAGE: Comply with regulations and precautions for "Explosive, Blasting, Type B, 1.5D" classification by regulatory agencies. Wear chemical resistant gloves and boots.

OTHER PRECAUTIONS: May cause shrinkage of leather shoes and gloves, avoid contact; slightly corrosive to ferrous metals. Comply with "Warnings and Instructions" (Safety Library Publication No. 4) of Institute of Makers of Explosives when handling, transporting and storing explosives.

X SECTION 8 – EXPOSURE CONTROL / PERSONAL PROTECTION

RESPIRATORY: Not required. If sensitive to fuel oil, wear appropriate respiratory protection.

VENTILATION: Ambient

MATERIAL SAFETY DATA SHEET

GLOVES: Chemical resistant

EYE: Safety Glasses or Goggles

OTHER PROTECTIVE EQUIPMENT: None required.

THRESHOLD LIMIT VALUE: Nitrogen dioxide = 3 ppm, Nitrous oxides = 25 ppm

X SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT: Estimated, 446 °F (230 °C)

MELTING POINT: 337 °F (169.6 °C)

VAPOR DENSITY: N/A

DENSITY: 0.78 -0.95 g/cc

DECOMPOSITION TEMP: >338 °F (>170 °C)

PERCENT VOLATILE BY VOLUME: N/A

SOLUBILITY IN WATER: Very soluble

APPEARANCE AND ODOR: Free flowing granular material, off-white or pink in color. Fuel oil odor.

X SECTION 10 – STABILITY AND REACTIVITY

STABILITY: Stable under normal conditions

CONDITIONS TO AVOID: High heat open flames, ignition sources and strong shock

HAZARDOUS DECOMPOSITION PRODUCTS: NO₂, NO_x, CO₂, Ammonia

HAZARDOUS POLYMERIZATION: Will not occur

X SECTION 11 – TOXICOLOGICAL DATA

ACUTE TOXICITY: Not Established

X SECTION 12 – ECOLOGICAL INFORMATION

ENVIRONMENTAL FATE AND EFFECTS: Not established

X SECTION 13 – DISPOSAL CONSIDERATIONS

WASTE DISPOSAL: The contaminated material is to be placed down a borehole to be utilized as part of

MATERIAL SAFETY DATA SHEET

the blast. If local regulations allow, it may be burned in a shallow layer on barren ground.

RCRA INFORMATION: Any other form of disposal of this product may be subject to RCRA regulations (40 CFR 261) due to the characteristic(s)/chemical(s) listed in section 2.

X SECTION 14 – DISPOSAL CONSIDERATIONS

REGULATORY CLASSIFICATIONS:

USA DOT: Blasting Explosive

OSHA: Blasting Explosive

MSHA: Blasting Explosive

USA DOT:

<i>SHIPPING NAME:</i>	Explosive, Blasting, Type B or Agent Blasting
<i>HAZARD CLASS AND DIV.:</i>	1.5D
<i>ID NUMBER:</i>	UN0331
<i>APPROVAL No.:</i>	EX2004080229
<i>PACKING GROUP:</i>	II
<i>DANGEROUS WHEN WET:</i>	No
<i>POISON:</i>	No
<i>LABEL(S):</i>	Explosive, Blasting, Type B
<i>PLACARD(S):</i>	Explosives 1.5
<i>PRODUCT RQ:</i>	N/A
<i>ERG NUMBER:</i>	112

CANADA: Class 2. Explosive, Blasting, Type B UN0331, 1.5D, PI 116

INTERNATIONAL: Explosive, Blasting, Type B, UN0331, 1.5D, PG II

X SECTION 15 – REGULATORY INFORMATION

GOVERNMENTAL INVENTORY STATUS: All components comply with TSCA, and EINECS/ELINCS.

US SUPERFUND AMENDMENTS AND REAUTHORIZAITON ACT (SARA) TITLE III: This product is considered an “Extremely Hazardous Substance.” This product contains Ammonium Nitrate which is reportable to SARA (313) Toxic Release Program.

X SECTION 16 – OTHER INFORMATION

This product meets UN standards for blasting explosives as outlined in TDG Manual of Tests and Criteria.