

## MATERIAL SAFETY DATA SHEET

### SECTION 1 – CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**MANUFACTURER:** MAXAM - Union Explosivos-Ensign Bickford, Sistemas de Iniciación, S.L.  
Barrío de Zuazo, s/n  
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**SOLD BY:** Maxam North America, Inc.  
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(304) 836-5646 (Maxam North America, Inc. Plant)  
917 220 100 / 900 100 605 (Union Explosivos)  
94 457 72 00 (Fábrica de Zuazo)

**TRADE NAME:** Riodelt®, Seismic Riodelt®, RIODET IZ, RIODET IEP

**CAS NUMBER:** N/A

### SECTION 2 – COMPOSITION/INFORMATION ON INGREDIENTS\*

**PRIMARY EXPLOSIVE:** Lead Azide, Lead Trinitroresorcinate  
**SECONDARY EXPLOSIVE:** Pentaerythrythol Tetranitrate, PETN  
**PROTECHNIC COMPOSITION:** Lead Peroxide, Potassium Permanganate, Silicon, Antimony  
\* Not all components are used for each product

#### Exposure Limits (mg/m<sup>3</sup>)

Component	CAS No.	ACGIH TLV	CAS Register N°	% w/w Typical
Lead Azide	13424-46-9	0.15	0.05	10
Lead Trinitroresorcinate	15245-44-0	0.05 as Pb	0.05 as Pb	6
Pentaerythrythol Tetranitrate (PETN)	78-11-5	n/a	n/a	64
Lead Peroxide	1309-60-0	0.05	0.05	5
Potassium Permanganate	7722-64-7	n/a	n/a	5
Silicon	7440-21-3	10	15	5
Antimony	7440-36-0	0.5	0.5	5

### SECTION 3 – HAZARDS IDENTIFICATION

**FOR PEOPLE:** Improper handling of the product may cause it to explode, and this may lead to injuries due to projection of particles.

**ENVIRONMENTAL:** Dangers in accordance with their chemical components: Lead compounds.

## MATERIAL SAFETY DATA SHEET

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### **X SECTION 4 – FIRST AID AND MEASURES**

If explosion fumes have been inhaled, remove to a well ventilated area. If breathing difficulties persist seek medical help.

An explosion would cause injuries by projection of particles. In the event of injuries, call for immediate medical attention.

### **X SECTION 5 – FIRE-FIGHTING MEASURES**

DO NOT FIGHT AN ESTABLISHED FIRE. Evacuate the area immediately. Avoid toxic fumes created by the 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:*

- Pick up the boxes or units.
- Prevent factors affecting product stability.
- Do not use damaged detonators.
- Destruction of damaged detonators must be carried out under the direct supervision of a person qualified in accordance with current regulations.
- This material can become dangerous waste under certain conditions, and must be collected, labeled and destroyed by means of explosion in accordance with current regulations.

### **X SECTION 7 – HANDLING AND STORAGE**

*HANDLING:* Current regulations concerning the handling and use of explosives must be complied with at all times. No smoking. Always keep the detonators away from all sources of heat, flames or sparks.

*STORAGE:* Current regulations concerning the storage of explosives must be complied with at all times. Store the detonators separately from explosives, detonating cord, boosters or fuses. Keep the detonators away from other explosives in the work place until they are connected.

### **X SECTION 8 – EXPOSURE CONTROL / PERSONAL PROTECTION**

*RESPIRATORY:* Avoid inhaling fumes from the detonation.

*HANDS:* Not required.

*EYE:* The use of approved safety visors during handling of the product is advisable.

*GENERAL:* The use of semiconductor footwear and antistatic clothing during handling of the product is advisable.



## MATERIAL SAFETY DATA SHEET

### SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

*APPEARANCE:* Aluminum shell crimped to a plastic tube. (Test Method: MAXAM internal method)

*SMELL:* Odorless

*AUTOIGNITION TEMPERATURE:* 200° C

*DANGER OF EXPLOSION:* Yes.

### X SECTION 10 – STABILITY AND REACTIVITY

*STABILITY:* May explode if subjected to flames, heat, impacts, friction, electrical currents, electrostatic energy and radiofrequency.

*CONDITIONS TO AVOID:* Do not expose to temperatures exceeding 75° C. Avoid contact with acids and bases.

*HAZARDOUS DECOMPOSITION PRODUCTS:* Lead fumes, carbon monoxide and oxides of nitrogen.

### X SECTION 11 – TOXICOLOGICAL DATA

The product only runs the risk of toxicological problems due to toxic gases (lead fumes, carbon monoxide, and oxides of nitrogen) following detonation.

### X SECTION 12 – ECOLOGICAL INFORMATION

The only ecological risks are those stemming from use of the product (detonation).

### X SECTION 13 – DISPOSAL CONSIDERATIONS

*WASTE DISPOSAL:* The detonators must be disposed of by explosion carried out under the direct supervision of a person qualified in accordance with current regulations.

*PACKAGING:* The product is packaged in cardboard, and may be recycled. The outer and inner package is made from cardboard and may be recycled.

### X SECTION 14 – TRANSPORTATION INFORMATION

<i>SHIPPING NAME:</i>	Detonators, Electric
<i>HAZARD CLASS AND DIV.:</i>	1.1B
<i>ID NUMBER:</i>	UN 0030
<i>APPROVAL No.:</i>	RD-2114/1978, RD-863/1985 and other directives which expand upon the same.
<i>PACKING GROUP:</i>	II
<i>DANGEROUS WHEN WET:</i>	No
<i>POISON:</i>	No

Before using this product, read the Safety Recommendations on the box.

## MATERIAL SAFETY DATA SHEET

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### **X SECTION 15 – OTHER INFORMATION**

This safety data dossier describes our products in accordance with the safety regulations and aspects, and includes our current experiences and information. Such information is not to be taken as a guarantee of properties.