

# MAXAM RIONEL MS-UG

MAXAM Australia

Chemwatch: 4884-55

Version No: 5.1.1.1

Material Safety Data Sheet according to NOHSC and ADG requirements

Chemwatch Hazard Alert Code: 4

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## SECTION 1 IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

### Product Identifier

Product name	MAXAM RIONEL MS-UG
Chemical Name	Not Applicable
Synonyms	MS Delays
Proper shipping name	DETONATOR ASSEMBLIES, NON-ELECTRIC for blasting†
Chemical formula	Not Applicable
Other means of identification	Not Available
CAS number	Not Applicable

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

Relevant identified uses	For general blasting purposes, mainly to initiate other explosives or for special applications. Use of this product by persons lacking adequate training, experience and supervision may result in injury or death. Obey all Commonwealth, State and Local Laws and Regulations. DANGER - If misused or disposed of improperly material may explode and cause death or injury. DO NOT HANDLE WHEN IN DOUBT.
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### Details of the manufacturer/importer

Registered company name	MAXAM Australia
Address	141 Boundary Road Oxley 4074 QLD Australia
Telephone	+61 7 3717 1818
Fax	+61 7 3717 1888
Website	<a href="http://www.maxam-corp.com.au">http://www.maxam-corp.com.au</a>
Email	<a href="mailto:info@maxam-int.com.au">info@maxam-int.com.au</a>

### Emergency telephone number

Association / Organisation	Not Available
Emergency telephone numbers	1800 833 111 (24hrs)
Other emergency telephone numbers	

## SECTION 2 HAZARDS IDENTIFICATION

### Classification of the substance or mixture

**☑ DANGEROUS GOODS. NON-HAZARDOUS SUBSTANCE.** According to NOHSC Criteria, and ADG Code.

Poisons Schedule	Not Applicable
Risk Phrases <sup>[1]</sup>	<b>R3</b> Extreme risk of explosion by shock, fire, friction or other sources of ignition.
Legend:	1. Classified by Chemwatch; 2. Classification drawn from HSIS ; 3. Classification drawn from EC Directive 1272/2008 - Annex VI



Relevant risk statements are found in section 2

Indication(s) of danger	E
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### SAFETY ADVICE

S56	Dispose of this material and its container at hazardous or special waste collection point.
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### Other hazards

Not Applicable

## SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Continued...

**Substances**

See section below for composition of Mixtures

**Mixtures**

CAS No	%[weight]	Name
78-11-5	>60	<a href="#">pentaerythritol tetranitrate</a>
13424-46-9	30-40	<a href="#">lead azide</a>

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

<b>Eye Contact</b>	<p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> <li>▶ Wash out immediately with fresh running water.</li> <li>▶ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.</li> <li>▶ Seek medical attention without delay; if pain persists or recurs seek medical attention.</li> <li>▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.</li> </ul>
<b>Skin Contact</b>	<p>If skin contact occurs:</p> <ul style="list-style-type: none"> <li>▶ Immediately remove all contaminated clothing, including footwear.</li> <li>▶ Flush skin and hair with running water (and soap if available).</li> <li>▶ Seek medical attention in event of irritation.</li> </ul> <p>In case of burns:</p> <ul style="list-style-type: none"> <li>▶ Quickly immerse affected area in cold running water for 10 to 15 minutes.</li> <li>▶ Bandage lightly with a sterile dressing. Treat for shock if required.</li> <li>▶ Lay patient down. Keep warm and rested.</li> <li>▶ Transport to hospital, or doctor.</li> </ul>
<b>Inhalation</b>	<ul style="list-style-type: none"> <li>▶ If fumes, aerosols or combustion products are inhaled remove from contaminated area.</li> <li>▶ Other measures are usually unnecessary.</li> </ul>
<b>Ingestion</b>	<ul style="list-style-type: none"> <li>▶ Not considered a normal route of entry.</li> </ul> <p>The form and packaging of explosive detonators prevents any significant contamination by the charge.</p>

**Indication of any immediate medical attention and special treatment needed**

Delayed pulmonary oedema may result following exposure to nitrous oxides formed during an explosion or on thermal decomposition of the explosive. Long term exposure to low airborne concentrations of lead from test firing of detonators of this type may result in altered haemoglobin breakdown, kidney damage, anaemia and central and peripheral nervous system damage.

**SECTION 5 FIREFIGHTING MEASURES****Extinguishing media**

	<ul style="list-style-type: none"> <li>▶ <b>DANGER:</b> Deliver media remotely.</li> <li>▶ Water spray or fog.</li> <li>▶ Flooding quantities only.</li> </ul>
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**Special hazards arising from the substrate or mixture**

<b>Fire Incompatibility</b>	<ul style="list-style-type: none"> <li>▶ Avoid contact with other explosives, pyrotechnics, solvents, adhesives, paints, cleaners and unauthorized metals, plastics, packing equipment and materials.</li> <li>▶ Avoid contamination with acids, alkalis, reducing agents, amines and phosphorus.</li> </ul>
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**Advice for firefighters**

<b>Fire Fighting</b>	<p>Fire-fighting fires involving explosives generally considered inappropriate. Evacuation procedures should be followed.</p> <p>Public Safety, outside the immediate are of the incident, is of paramount concern and the following actions should be considered:</p> <ul style="list-style-type: none"> <li>▶ People should be warned to stay indoors with all doors and windows closed, preferably in rooms upstairs and facing away from the incident. Ignition sources should be eliminated and any ventilation stopped.</li> <li>▶ Effects may spread beyond the immediate vicinity. All non-essential personnel should be instructed to move at least 250 meters away from the incident. Police and Fire Brigade incident commanders should consult each other and with a product expert, or with a source of product expertise.</li> <li>▶ The possible need for subsequent evacuation should be considered, but it should be remembered that in most cases it will be safer to remain in a building than to evacuate.</li> </ul> <p>For Division 1.1 Explosives Evacuation is required in case of Emergency. For quantities of up to:</p> <ul style="list-style-type: none"> <li>▶ 1000 kg, the evacuation distance is 400 metres</li> <li>▶ 5000 kg, the evacuation distance is 600 metres</li> <li>▶ 20000 kg, the evacuation distance is 800 metres</li> <li>▶ 40000 kg, the evacuation distance is 1000 meters</li> </ul> <p>  n case of a small fire, if actual explosive is not burning, carefully  remove containers from path of fire.  If explosive is burning evacuate area immediately. DO NOT fight fire.</p>
<b>Fire/Explosion Hazard</b>	<p>Div 1.1, Compatibility Group A and B <b>DANGER: SEVERE EXPLOSION HAZARD!</b></p> <ul style="list-style-type: none"> <li>▶ Combustible.</li> <li>▶ Detonation may occur from heavy impact or excessive heating.</li> <li>▶ Dry material is sensitive to shock, friction and sparks.</li> <li>▶ Heating may cause expansion or decomposition leading to violent rupture of containers.</li> <li>▶ Heat affected containers remain hazardous.</li> <li>▶ May detonate in a mass explosion if confined or mixed with incompatible materials.</li> <li>▶ Explosives can supply own oxygen for combustion and smothering action of foam or dry chemical may be ineffective.</li> <li>▶ May emit irritating, poisonous or corrosive fumes.</li> <li>▶ Combustion or decomposition produces oxides of nitrogen (NOx), carbon monoxide (CO) and carbon dioxide (CO2).</li> </ul> <p>  n burning under confined or semi-confined conditions toxic fumes of lead will be present.</p>

## SECTION 6 ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures

Minor Spills	<p><b>WARNING: EXPLOSIVE.</b> BLAST and/or PROJECTION and/or FIRE HAZARD</p> <ul style="list-style-type: none"> <li>▶ Clean up all spills immediately.</li> <li>▶ Avoid inhalation of the material and avoid contact with eyes and skin.</li> <li>▶ Wear impervious gloves and safety glasses.</li> <li>▶ Remove all ignition sources.</li> <li>▶ Use spark-free tools when handling.</li> <li>▶ Sweep into non-sparking containers or barrels and moisten with water.</li> <li>▶ Place spilled material in clean, sealable, labelled container for disposal.</li> <li>▶ Flush area with large amounts of water.</li> </ul>
Major Spills	<p><b>WARNING: EXPLOSIVE.</b></p> <ul style="list-style-type: none"> <li>▶ Clear area of personnel and move upwind.</li> <li>▶ Alert Fire Brigade and tell them location and nature of hazard.</li> <li>▶ May be violently or explosively reactive.</li> <li>▶ Wear full body protective clothing with breathing apparatus.</li> <li>▶ Consider evacuation (or protect in place).</li> <li>▶ In case of transport accident notify Police, Emergency Authority, Competent Explosives Authority or Manufacturer.</li> <li>▶ No smoking, naked lights, heat or ignition sources.</li> <li>▶ Increase ventilation.</li> <li>▶ Use extreme caution to prevent physical shock.</li> <li>▶ Use only spark-free shovels and explosion-proof equipment.</li> <li>▶ Collect recoverable material and segregate from spilled material.</li> <li>▶ Wash spill area with large quantities of water.</li> </ul>
<p>Personal Protective Equipment advice is contained in Section 8 of the MSDS.</p>	

## SECTION 7 HANDLING AND STORAGE

### Precautions for safe handling

Safe handling	<ul style="list-style-type: none"> <li>▶ Handle gently. Use good occupational work practice.</li> <li>▶ Observe manufacturer's storage and handling recommendations contained within this MSDS.</li> <li>▶ Avoid all personal contact, including inhalation.</li> <li>▶ Avoid smoking, naked lights, heat or ignition sources.</li> <li>▶ Explosives must not be struck with metal implements.</li> <li>▶ Avoid mechanical and thermal shock and friction.</li> <li>▶ Use in a well ventilated area.</li> <li>▶ Avoid contact with incompatible materials.</li> <li>▶ <b>When handling DO NOT eat, drink or smoke.</b></li> <li>▶ Avoid physical damage to containers.</li> <li>▶ Always wash hands with soap and water after handling.</li> <li>▶ Work clothes should be laundered separately.</li> </ul> <p> Explosives should not be abandoned at any location for any reason.  Do not handle during electrical storms.  Always stay away from area of explosion or disposal sites, behind suitable barriers.</p>
Other information	<ul style="list-style-type: none"> <li>▶ Store cases in a well ventilated magazine licenced for the appropriate Class, Division and Compatibility Group.</li> <li>▶ Rotate stock to prevent ageing. Use on FIFO (first in-first out) basis.</li> <li>▶ Observe manufacturer's storage and handling recommendations contained within this MSDS.</li> <li>▶ Store in a cool place in original containers.</li> <li>▶ Keep containers securely sealed.</li> <li>▶ No smoking, naked lights, heat or ignition sources.</li> <li>▶ Store in an isolated area away from other materials.</li> <li>▶ Keep storage area free of debris, waste and combustibles.</li> <li>▶ Protect containers against physical damage.</li> <li>▶ Check regularly for spills and leaks</li> </ul> <p><b>NOTE:</b> If explosives need to be destroyed contact the Competent Authority.  Protect against lightning.</p>

### Conditions for safe storage, including any incompatibilities

Suitable container	<ul style="list-style-type: none"> <li>▶ All packaging for Class 1 Goods shall be in accordance with the requirements of the relevant Code for the transport of Dangerous Goods.</li> <li>▶ Class 1 is unique in that the type of packaging used frequently has a very decisive effect on the hazard and therefore on the assignment to a particular division</li> </ul>
Storage incompatibility	<ul style="list-style-type: none"> <li>▶ Avoid contact with other explosives, pyrotechnics, solvents, adhesives, paints, cleaners and unauthorized metals, plastics, packing equipment and materials.</li> <li>▶ Avoid contamination with acids, alkalis, reducing agents, amines and phosphorus.</li> <li>▶ Dangerous goods of other classes.</li> </ul> <p>Remove all ignition sources.</p>

### PACKAGE MATERIAL INCOMPATIBILITIES

Not Available

## SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

### Control parameters

#### OCCUPATIONAL EXPOSURE LIMITS (OEL)

#### INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
Australia Exposure Standards	lead azide	Lead, inorganic dusts & fumes (as Pb)	0.15 mg/m3	Not Available	Not Available	Not Available

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## MAXAM RIONEL MS-UG

## EMERGENCY LIMITS

Ingredient	TEEL-0	TEEL-1	TEEL-2	TEEL-3
MAXAM RIONEL MS-UG	Not Available	Not Available	Not Available	Not Available

Ingredient	Original IDLH	Revised IDLH
pentaerythritol tetranitrate	Not Available	Not Available
lead azide	700 mg/m3	100 mg/m3

## Exposure controls

Appropriate engineering controls	Product needs to be used by experienced and skilled personnel under the supervision of a qualified Shotfirer.
Personal protection	
Eye and face protection	▶ Generally not applicable.
Skin protection	See Hand protection below
Hands/feet protection	▶ Cotton gloves ▶ Safety footwear
Body protection	See Other protection below
Other protection	▶ Generally not applicable.
Thermal hazards	Not Available

## Recommended material(s)

## GLOVE SELECTION INDEX

Glove selection is based on a modified presentation of the:

"Forsberg Clothing Performance Index".

The effect(s) of the following substance(s) are taken into account in the **computer-generated** selection:

MAXAM RIONEL MS-UG Not Available

Material	CPI

\* CPI - Chemwatch Performance Index

A: Best Selection

B: Satisfactory; may degrade after 4 hours continuous immersion

C: Poor to Dangerous Choice for other than short term immersion

**NOTE:** As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -

\* Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

## Respiratory protection

Not Applicable

## SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

## Information on basic physical and chemical properties

Appearance	A precision heavy duty initiator composed of a flexible shock tube, a millisecond delay detonator (aluminium tube) and a detonating cord connector.		
Physical state	Manufactured	Relative density (Water = 1)	Not Applicable
Odour	Not Available	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	Explosive
pH (as supplied)	Not Applicable	Decomposition temperature	Not Applicable
Melting point / freezing point (°C)	Explosive	Viscosity (cSt)	Not Applicable
Initial boiling point and boiling range (°C)	Not Applicable	Molecular weight (g/mol)	Not Applicable
Flash point (°C)	Not Applicable	Taste	Not Available
Evaporation rate	Not Applicable	Explosive properties	Not Available
Flammability	Not Applicable	Oxidising properties	Not Available
Upper Explosive Limit (%)	Not Applicable	Surface Tension (dyn/cm or mN/m)	Not Applicable
Lower Explosive Limit (%)	Not Applicable	Volatile Component (%vol)	Not Applicable
Vapour pressure (kPa)	Not Applicable	Gas group	Not Available
Solubility in water (g/L)	Not Applicable	pH as a solution(1%)	Not Applicable
Vapour density (Air = 1)	Not Applicable	VOC g/L	Not Available

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## SECTION 10 STABILITY AND REACTIVITY

Reactivity	See section 7
Chemical stability	Hazardous polymerisation will not occur.  Detonation may occur from impact or heat. Avoid all contact with other chemicals.  Conditions contributing to instability - heat (confinement), stacking (burning)  Explodes at 160 degrees Celsius or on impact, produces shrapnel.
Possibility of hazardous reactions	See section 7
Conditions to avoid	See section 7
Incompatible materials	See section 7
Hazardous decomposition products	See section 5

## SECTION 11 TOXICOLOGICAL INFORMATION

## Information on toxicological effects




Inhaled	▶ Generally not applicable.  Test firing in poorly ventilated areas can cause lead fume exposure.
Ingestion	▶ Generally not applicable.  Explosive ingredients are contained wholly within a small tube.
Skin Contact	▶ Generally not applicable.  Accidental detonation of explosive devices can cause lacerations,  punctures and/or traumatic injury. Severity of the injuries is dependent  on the number and proximity of the detonators.
Eye	▶ Generally not applicable.  Explosive ingredients are contained wholly within a small tube.
Chronic	Short term exposure by all routes is considered to be practically  non-harmful apart from explosive nature of product.  Over-exposure to lead fumes from test firing in poorly ventilated areas may  result in anaemia, kidney and nervous system damage.

	TOXICITY	IRRITATION
MAXAM RIONEL MS-UG	Not Available	Not Available
pentaerythritol tetranitrate	Oral (rat) LD50: 1660 mg/kg Not Available	Not Available
lead azide	Not Available	Not Available

Not available. Refer to individual constituents.

LEAD AZIDE	<b>WARNING:</b> This substance has been classified by the IARC as Group 2B: Possibly Carcinogenic to Humans. Intraperitoneal (rat) LD <sub>50</sub> >150 mg/kg Nil reported
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Acute Toxicity	☉	Carcinogenicity	☉
Skin Irritation/Corrosion	☉	Reproductivity	☉
Serious Eye Damage/Irritation	☉	STOT - Single Exposure	☉
Respiratory or Skin sensitisation	☉	STOT - Repeated Exposure	☉
Mutagenicity	☉	Aspiration Hazard	☉

Legend:  – Data required to make classification available  
 – Data available but does not fill the criteria for classification  
 – Data Not Available to make classification

## CMR STATUS

Not Applicable

## SECTION 12 ECOLOGICAL INFORMATION

## Toxicity

**DO NOT** discharge into sewer or waterways.

## Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
	No Data available for all ingredients	No Data available for all ingredients

## Bioaccumulative potential

Continued...

Ingredient	Bioaccumulation
	No Data available for all ingredients


**Mobility in soil**

Ingredient	Mobility
	No Data available for all ingredients

**SECTION 13 DISPOSAL CONSIDERATIONS****Waste treatment methods**

Product / Packaging disposal	
	Disposal of unexploded or deteriorated explosives can be hazardous. Expert assistance is positively recommended in destroying explosives. Accidents can be prevented by thorough planning and handling in accordance with approved methods. Consult your supervisor, or the nearest Maxam office for assistance. In all cases, follow site emergency response procedures.

**SECTION 14 TRANSPORT INFORMATION****Labels Required**

	
Marine Pollutant	NO
HAZCHEM	E

**Land transport (ADG)**

UN number	0360
Packing group	Not Applicable
UN proper shipping name	DETONATOR ASSEMBLIES, NON-ELECTRIC for blasting†
Environmental hazard	No relevant data
Transport hazard class(es)	Class : 1.1B Subrisk : Not Applicable
Special precautions for user	Special provisions : Not Applicable Limited quantity : 0

**Air transport (ICAO-IATA / DGR)**

UN number	0360
Packing group	Not Applicable
UN proper shipping name	Detonator assemblies, non-electric for blasting †
Environmental hazard	No relevant data
Transport hazard class(es)	ICAO/IATA Class : 1.1B ICAO / IATA Subrisk : Not Applicable ERG Code : 1L
Special precautions for user	Special provisions : Not Applicable Cargo Only Packing Instructions : Forbidden Cargo Only Maximum Qty / Pack : Forbidden Passenger and Cargo Packing Instructions : Forbidden Passenger and Cargo Maximum Qty / Pack : Forbidden Passenger and Cargo Limited Quantity Packing Instructions : Forbidden Passenger and Cargo Limited Maximum Qty / Pack : Forbidden

**Sea transport (IMDG-Code / GGVSee)**

UN number	0360
Packing group	Not Applicable
UN proper shipping name	DETONATOR ASSEMBLIES, NON-ELECTRIC for blasting
Environmental hazard	No relevant data
Transport hazard class(es)	IMDG Class : 1.1B IMDG Subrisk : Not Applicable

<b>Special precautions for user</b>	EMS Number	F-B , S-X
	Special provisions	Not Applicable
	Limited Quantities	0

## SECTION 15 REGULATORY INFORMATION

### Safety, health and environmental regulations / legislation specific for the substance or mixture

<b>pentaerythritol tetranitrate(78-11-5) is found on the following regulatory lists</b>	"Australia Inventory of Chemical Substances (AICS)", "International Air Transport Association (IATA) Dangerous Goods Regulations - Prohibited List Passenger and Cargo Aircraft", "Australia Hazardous Substances Information System - Consolidated Lists"
<b>lead azide(13424-46-9) is found on the following regulatory lists</b>	"Australia Exposure Standards", "International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs", "Australia Inventory of Chemical Substances (AICS)", "International Air Transport Association (IATA) Dangerous Goods Regulations - Prohibited List Passenger and Cargo Aircraft", "Australia Hazardous Substances Information System - Consolidated Lists"

## SECTION 16 OTHER INFORMATION

### Other information

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

A list of reference resources used to assist the committee may be found at:

[www.chemwatch.net/references](http://www.chemwatch.net/references)

The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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