SAFETY DATA SHEET MEGAPRIME® EDGE

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier
Product name: MEGAPRIME® EDGE
Synonym(s): MEGAPRIME BLA DE

1.2 Uses and uses advised against
Use(s): DETONATING CORD • INITIATING EXPLOSIVE CHARGE

1.3 Details of the supplier of the product
Supplier name: JOHNSON HI-TECH (AUSTRALIA) PTY LTD
Address: Level 1, 63 Abernethy Road, Belmont WA 6104 AUSTRALIA
Telephone: +61 8 6250 8200
Fax: +61 8 6250 8299
Email: info@johnex.com.au
Website: www.johnex.com.au

1.4 Emergency telephone number(s)
Emergency: 1800 014 100

SDS Date: 25 Oct 2024

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture
CLASSIFIED AS HAZARDOUS PER THE GLOBALLY HARMONISED SYSTEM OF CLASSIFICATION AND LABELLING OF CHEMICAL (GHS) INCLUDING WORK, HEALTH AND SAFETY REGULATIONS, AUSTRALIA.
Classified as Dangerous Goods by the criteria of the Australian Code for the Transport of Explosives by Road and Rail: DANGEROUS GOODS.
This material is hazardous per Safe Work Australia; HAZARDOUS SUBSTANCE.

GHS classification(s): Explosives: Division 1.1

2.2 Label elements
Signal word: DANGER
Pictogram(s):

Hazard statement(s)
H201 Explosive; mass explosion hazard.
H201 Explosives: mass explosion hazard
H301 Toxic if swallowed
H311 Toxic in contact with skin
H331 Toxic if inhaled
H373 May cause damage to organs through prolonged or repeated exposure
H411 Toxic to aquatic life with long lasting effects

Prevention statement(s)
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking
P240 Ground container and receiving equipment
P250 Do not subject to grinding/shock/friction/impact/electrical energy
P260 Do not breathe dust/fume/gas/mist/vapour/spray
P270 Do not eat, drink or smoke when using this product
P271 Use only outdoors or in a well ventilated area
P273 Avoid release to the environment
P280 Wear protective gloves, clothing, eye and face protection
P264 Wash hands thoroughly after handling

Response statement(s)
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTRE or doctor/physician
P302 + P352 IF ON SKIN: Wash with plenty of soap and water
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing
P307 + P311 IF EXPOSED: Call a POISON CENTRE or doctor/ physician
P312 Call a POISON CENTRE or doctor/ physician if you feel unwell
P361 Remove/ Take off immediately all contaminated clothing
P363 Wash contaminated clothing before reuse
P370 + P380 In case of fire: Evacuate area
P372 Explosion Risk in case of fire
P373 DO NOT fight fire when fire reached explosives
P391 Collect spillage

Storage statement(s)
P401 Store in accordance with AS2187.1, in a magazine licensed for Class 1.1D explosives
P403 + P233 Store in well ventilated place. Keep container tightly closed
P405 Store locked up

Disposal statement(s)
P501 Dispose of contents/ container in accordance with local/regional/national/international regulations.

2.3 Other hazards
No information provided.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances / Mixtures

Ingredient	CAS Number	EC Number	Content
Ingredients determined not to be hazardous	-	-	<8%
Pentaerythritol tetranitrate (PETN)	78-11-5	-	0-60%
Cyclonite (RDX, Cyclotrimethylenetrinitramine)	121-82-4	-	0-60%
Trinitrotoluene (TNT)	118-96-7	-	35-45%

4. FIRST AID MEASURES

4.1 Description of first aid measures

Inhalation Remove victim from area of exposure - avoid becoming a casualty. Remove contaminated clothing and loosen remaining clothing. Allow patient to assume most comfortable position and keep warm. Keep at rest until fully recovered. If patient finds breathing difficult and develops a bluish discoloration of the skin (which suggests a lack of oxygen in the blood - cyanosis), ensure airways are clear of any obstruction and have a qualified person give oxygen through a face mask. Apply artificial respiration if patient is not breathing. Seek immediate medical advice.

Skin Contact If skin or hair contact occurs, immediately remove any contaminated clothing and wash skin and hair thoroughly with running water. A component of this material can be absorbed through the skin with resultant toxic effects. Seek immediate medical assistance.

Eye Contact If in eyes, wash out immediately with water. In all cases of eye contamination, it is a sensible precaution to seek medical advice.

Ingestion Rinse mouth with water. If swallowed, give a glass of water to drink. DO NOT induce vomiting, but if vomiting occurs give further water Seek medical assistance.

Notes to physician Treat symptomatically. Explosive material. PETN is a vasodilator. Maintain blood pressure by fluid administration. Liver and kidney damage are possible complications. Effects may be delayed. May cause methemoglobinemia. Clinical findings: The smooth muscle relaxant effect of nitrate salts may lead to headache, dizziness and marked hypotension.

Cyanosis is clinically detectable when approximately 15% of the haemoglobin has been converted to methaemoglobin (ie. ferric iron).

Symptoms such as headache, dizziness, weakness and dyspnoea occur when methaemoglobin concentrations are 30% to 40%; at levels of about 60%, stupor, convulsions, coma and respiratory paralysis occur and the blood is a chocolate brown colour. At higher levels death may result.

Spectrophotometric analysis can determine the presence and concentration of methaemoglobin in blood.

Treatment:
1. Give 100% oxygen.
2. In cases of (a) ingestion: use gastric lavage, (b) contamination of skin (unburnt or burnt): continue washing to remove salts.
3. Observe blood pressure and treat hypotension if necessary.
4. When methaemoglobin concentrations exceed 40% or when symptoms are present, give methylene blue 1 to 2 mg/kg body weight in a 1% solution by slow intravenous injection. If cyanosis has not resolved within one hour a second dose of 2 mg/kg body weight may be given. The total dose should not exceed 7 mg/kg body weight as unwanted effects such as dyspnoea, chest pain, vomiting, diarrhoea, mental confusion and cyanosis may occur. Without treatment methaemoglobin levels of 20-30% revert to normal within 3 days.
5. Bed rest is required for methaemoglobin levels in excess of 40%.
6. Continue to monitor and give oxygen for at least two hours after treatment with methylene blue.
7. Consider transfer to centre where haemoperfusion can be performed to remove the nitrates from the blood if the condition of the patient is unstable.
8. Following inhalation of oxides of nitrogen the patient should be observed in hospital for 24 hours for delayed onset of pulmonary oedema. Further observation for 2-3 weeks may be required to detect the onset of the inflammatory changes of bronchiolitis fibrosa obliterans.

4.2 Most important symptoms and effects, both acute and delayed

See Section 11 for more detailed information on health effects and symptoms.

4.3 Immediate medical attention and special treatment needed

Treat symptomatically. Where ingestion of the PETN has occurred, blood pressure may be lowered due to vasodilatory effects of the material. Maintain blood pressure by fluid administration. May cause methemoglobinemia. Treat as for exposure to nitrates.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media

DO NOT FIGHT FIRES. Immediately isolate area and evacuate personnel to safe distance.

5.2 Special hazards arising from the substance or mixture

Will explode if suitably primed. Avoid extreme conditions of heat or shock. Under fire conditions this product may emit toxic and/or irritating fumes including ammonia, oxides of nitrogen, carbon monoxide and carbon dioxide.

5.3 Advice for firefighters

DO NOT FIGHT FIRE when fire reaches explosives. In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion.

Use only remote or fixed extinguishing systems (sprinklers).

5.4 Hazchem code

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6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Shut off all possible sources of ignition. Clear area of all unprotected personnel. Avoid friction and impact. Wear protective equipment to prevent skin and eye contact.

6.2 Environmental precautions

Prevent product from entering drains and waterways.

6.3 Methods of cleaning up

Handle with care. Collect and seal in properly labelled containers. Use a spark free shovel. In the case of a transport accident notify the Police, Explosives Inspector and JOHNEX Explosives.

6.4 Reference to other sections

See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Only properly qualified and authorised personnel should handle and use explosives. Avoid skin and eye contact. Do NOT subject the material to impact, friction between hard surfaces, nor to any form of heating. Avoid impact with solid surfaces or other boosters. Avoid contamination with other materials. Do not drill into explosive. Handle with care.

7.2 Conditions for safe storage, including any incompatibilities

Store material in a well ventilated magazine suitably licensed for Class 1.1D Explosives. Do not store detonators in the same magazine. Store away from

sources of heat or ignition. Store away from incompatible materials described in Section 10. Keep containers closed when not in use - check regularly for spills. Have appropriate fire extinguishers available in and near the storage area. Take precautions against static electricity discharges. Use proper grounding procedures.

7.3 Specific end use(s)
No information provided.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters
Exposure standards
No value assigned for this specific material by Safe Work Australia. However, Exposure Standard(s) for constituent(s):

2,4,6-Trinitrotoluene (TNT): 8hr TWA = 0.5 mg/m3, Sk
Cyclonite: 8hr TWA = 1.5 mg/m3, Sk

As published by Safe Work Australia Workplace Exposure Standards for Airborne Contaminates.

TWA - The time-weighted average airborne concentration over an eight-hour working day, for a five-day working week over an entire working life.
`Sk' Notice - absorption through the skin may be a significant source of exposure. The exposure standard is invalidated if such contact should occur.

These Exposure Standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity.

Biological limits
No biological limit values have been entered for this product.

8.2 Exposure controls
Engineering controls Ensure ventilation is adequate and that air concentrations of components are controlled below quoted Workplace Exposure Standards. Keep containers closed when not in use.

PPE

Wear standard safety equipment – overalls, safety shoes, safety glasses, gloves and dust mask. Always wash hands before smoking, eating, drinking or using the toilet. Wash contaminated clothing and other protective equipment before storage or reuse.

Eye / Face	Wear dust-proof goggles.
Hands	Wear PVC or rubber gloves.
Body	Wear coveralls.
Respiratory	Not required under normal conditions of use.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	ARTICLE, SOLID, CARDBOARD OR PLASTIC TUBES, WITH OR WITHOUT CAPS
Colour	CREAM TO TAN
Odour	MILD
Flammability	EXPLOSIVE
Melting point	140 C (PETN)
Solubility (water)	INSOLUBLE
Specific gravity	1.5 - 1.68 (approx) @ 20°C
Flash point	NOT AVAILABLE
Flammability Limits (%)	N/A Explosive material. Do not subject the material to impact, sparks or heating.
Autoignition temperature	May explode when subjected to fire or shock. Avoid toxic fumes from fire.
Decomposition point	> 150 C (for PETN)

9.2 Other information

% Volatiles	0 %

10. STABILITY AND REACTIVITY

10.1 Reactivity
Carefully review all information provided in sections 10.2 to 10.6.

10.2 Chemical stability
Extreme risk of explosion by shock, friction, fire or other sources of ignition. Heat, particularly under confinement, may cause a mass explosion. Detonation may occur from impact, friction or excessive heating.

10.3 Possibility of hazardous reactions
Polymerization will not occur.

10.4 Conditions to avoid
Avoid exposure to heat, sources of ignition, and open flame. Avoid build-up of static electricity. Avoid friction. Avoid contact with combustible substances. Avoid contact with other chemicals. Avoid impact with solid surfaces or other boosters.

10.5 Incompatible materials
Incompatible with combustible materials. Incompatible with oxidising agents. Incompatible with reducing agents. Incompatible with alkalis. Incompatible with acids.

10.6 Hazardous decomposition products
Oxides of carbon. Oxides of nitrogen. Oxides of sulfur.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects
No adverse health effects expected if the product is handled in accordance with this Safety Data Sheet and the product label. Symptoms or effects that may arise if the product is mishandled and overexposure occurs are:

Ingestion	Swallowing can result in nausea, vomiting, weakness, dizziness, headaches, jaundice, cyanosis, pallor, liver damage, blood effects and convulsions. May cause central nervous system effects.
Eye Contact	May be an eye irritant.
Skin Contact	Contact with skin may result in irritation. Component/s of this material can be absorbed through the skin with resultant toxic effects. See effects as noted under 'Ingestion'. May cause skin sensitization in sensitive individuals. Repeated or prolonged skin contact may lead to allergic contact dermatitis. Shrapnel from detonation may cause burns and wounds to skin and eyes.
Inhalation	Breathing in dust may result in respiratory irritation. Breathing in high concentrations may result in the same symptoms described for 'Ingestion'.
Long Term Effects	Available evidence from animal studies indicate that repeated or prolonged exposure to a component of this material could result in effects on the blood system, central nervous system, kidneys and liver.

Toxicological Data No LD50 data available for the product.

For the constituent Trinitrotoluene:
Oral LD50 (rat): 795 mg/kg; 607 mg/kg (1)
Oral LD50 (mice): 660 mg/kg (1)

For TNT, evidence from studies on exposed workers has shown increased incidences of catarats following chronic exposure.
Blood effects observed in exposed workers include aplastic anaemia, leucocytosis, leucopenia and methaemoglobinaemia.

Oral LD50 9rat): 100mg/kg for RDX (component of mixture)
Workers exposed to oral doses of the component RDX (unspecified amounts) have experienced convulsions, disorientation, nausea, restlessness, muscle twitching and lethargy. Rats exposed to an oral dose of 40mg/kg/day for six months developed myocardial degeneration, blood disorders, renal dysfunction, enlarged adrenals and cataracts (2).

PETN is absorbed slowly through the lungs and gastrointestinal tract but not appreciably through the skin. Vasodilatory agent, therefore causes dilation of the blood vessels and a reduction in blood pressure. Exposure to high doses may cause methaemoglobinaemia. Negative in AMES test for mutagenicity.

12. ECOLOGICAL INFORMATION

12.1 Ecotoxicity
Avoid contaminating waterways.
Toxic to aquatic organisms. May cause long term adverse effects in the aquatic environment.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods
Waste disposal Dispose of under direct supervision of a qualified person per local, state and federal regulations. In all circumstances, detonation is the preferred method of disposal. For small quantities, place in a blast hole and explode during blasting.

14. TRANSPORT INFORMATION

CLASSIFIED AS DANGEROUS GOODS BY THE CRITERIA OF THE AUSTRALIAN CODE FOR THE TRANSPORT OF EXPLOSIVES BY ROAD AND RAIL.

	LAND TRANSPORT (ADG)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
14.1 UN Number	0042	0042	0042
14.2 Proper Shipping Name	BOOSTERS	BOOSTERS	BOOSTERS
14.3 Transport Hazard Class	1.1D Explosive	1.1D Explosive	1.1D Explosive

Marine Transport
Classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea.

DANGEROUS GOODS

Air Transport
TRANSPORT PROHIBITED under the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air in passenger aircraft and cargo aircraft.

15. REGULATORY INFORMATION

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

Poison schedule A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Classifications Safework Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals.
The classifications and phrases listed below are based on the Approved Criteria for Classifying Hazardous Substances [NOHSC: 1008(2004)].
Explosives - Division 1.1
Acute Oral Toxicity – Category 3
Acute Dermal Toxicity – Category 3
Acute Inhalation Toxicity – Category 3
Specific target organ toxicity (single exposure) – Category 1
Specific target organ toxicity (repeated exposure) – Category 2
Chronic Aquatic Toxicity – Category 2

Hazard codes E Explosive

Hazard Statements H201 Explosive; mass explosion hazard
H301+ H311 + H331 Toxic if swallowed, in contact with skin or inhaled.
H370 Causes damage to organs
H373 May cause damage to organs through prolonged or repeated exposure.
H411 Toxic to aquatic life with long lasting effects.

Risk phrases R3 Extreme risk of explosion by shock, friction, fire or other sources of ignition.

Safety phrases S35 This material and its container must be disposed of in a safe way.

Inventory listing(s) **AUSTRALIA: AICS (Australian Inventory of Chemical Substances)**
All components are listed on AICS, or are exempt.

16. OTHER INFORMATION

Additional information
EXPLOSIVES & BLASTING AGENTS: Refer to Local State and Federal legislation that specifically relates to the use of Explosives. Users of products described in this report are advised to ensure familiarity and compliance with the appropriate legal requirements (e.g. Regulations) prior to the use of this product. Where any further information is required, users may contact their local authority in Explosives and Dangerous Goods.
EXPLOSIONS: Fires involving explosives or explosive mixtures may undergo further explosions and rapid propagation. Police and emergency personnel should be notified immediately. Evacuate individuals to a safe sheltered area at least 800 metres away. If possible remove vehicles and further heat and ignition sources from the area. Do not return to areas until at least one hour after fire and explosions have ceased.
EXPLOSIONS: For further information please refer to Australian Standard 1216, for classification of explosives and Local and Federal Explosive and Dangerous Goods legislation (Act and Regulations).
EXPLOSIVES -BURNING SAFETY: Note: Disposal in a blast with fresh explosives may be preferable to burning.
(a) Make a sawdust (or newspaper) trail 450mm wide and ~20mm deep in the direction of the wind. The trail should be 2m longer than necessary.
(b) Place the cartridges on the sawdust (or paper), they may be touching,

but not piled on top of each other

(c) Individual trails should be no closer than 2m and should not contain more than 12kgs of explosives.

(d) Trails should be side by side, not in a line. No more than 4 should be set up at one time.

(e) Remove explosives not being burnt, to at least 300m away, unless the material can be stored behind something substantial.

(f) Thoroughly wet the trail with kerosene or diesel (never petrol or any other highly flammable liquid). Use at least 2L of fuel per 10m of trail.

(g) Light the trail from a long rolled paper wick, place down wind and contact the 2m of trail which is not covered by explosives. The flame should blow away from the unburned explosives otherwise preheating and detonation may occur.

(g) Use a plastic igniter if available instead of paper. Coil one end into the sawdust or under the paper and light the other end from a minimum distance of 7m away from the trail.

(h) Move away at least 300m. Do not return for a period of at least 30mins after burning has finished.

(j) If the fire goes out, do not approach for at least 15mins. Do not add kerosene or diesel oil unless certain that the flame is completely extinguished.

(k) Bury the residue as it is poisonous to livestock.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:

The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

HEALTH EFFECTS FROM EXPOSURE:

It should be noted that the effects from exposure to this product will depend on several factors including: frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
CAS #	Chemical Abstract Service number - used to uniquely identify chemical compounds
CNS	Central Nervous System
EC No.	EC No - European Community Number
EMS	Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
GHS	Globally Harmonized System
GTEPG	Group Text Emergency Procedure Guide
IARC	International Agency for Research on Cancer
LC50	Lethal Concentration, 50% / Median Lethal Concentration
LD50	Lethal Dose, 50% / Median Lethal Dose
mg/m³	Milligrams per Cubic Metre
OEL	Occupational Exposure Limit
pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm	Parts Per Million
STEL	Short-Term Exposure Limit
STOT-RE	Specific target organ toxicity (repeated exposure)
STOT-SE	Specific target organ toxicity (single exposure)
SUSMP	Standard for the Uniform Scheduling of Medicines and Poisons
SWA	Safe Work Australia
TLV	Threshold Limit Value
TWA	Time Weighted Average