



MATERIALS SAFETY DATA

MIGHTY ATOM, MEGAPRIME, EZIStarter

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Supplier Name: JOHNSON HI-TECH (AUSTRALIA) PTY LTD
Address: 103 Great Eastern Highway, Rivervale, WA, AUSTRALIA, 6103
Telephone: +61 8 6250 8200
Fax: +61 8 6250 8299
Emergency: 1800 014 100
Synonym(s): JOHNEZ STARTER, JOHNEZ MEGAPRIME, MIGHTY ATOM
Use(s): INITIATING EXPLOSIVE CHARGE
MSDS Date: 12 Aug 2009

2. HAZARDS IDENTIFICATION

CLASSIFIED AS HAZARDOUS ACCORDING TO ASCC CRITERIA.

RISK PHRASES

R23/24/25: Toxic by inhalation, in contact with skin and if swallowed.
R3: Extreme risk of explosion by shock, friction, fire or other sources of ignition.
R33: Danger of cumulative effects.

SAFETY PHRASES

S35: This material and its container must be disposed of in a safe way.
S45: In case of accident or if you feel unwell seek medical advice immediately (show the label where possible).
S61: Avoid release to the environment. Refer to special instructions / safety data sheets.

CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE.

UN No: 0042
DG Class: 1.1D
Subsidiary Risk(s): None Allocated
Packing Group: None Allocated
Hazchem Code: E
EPG: None Allocated

3. COMPOSITION/ INFORMATION ON INGREDIENTS

Ingredient	Formula	CAS No.	Content
CYCLOTRIMETHYLENE TRINITRAMINE (RDX)	C3-H6-N6-O6	121-82-4	<65%
TRINITROTOLUENE (TNT)	C7-H5-N3-O6	118-96-7	35-45%
PENTAERYTHRITOL TETRANITRATE (PETN)	C5-H8-N4-O12	78-11-5	55-65%

4. FIRST AID MEASURES

EYE: If in eyes, hold eyelids apart and flush the eye continuously with running water. Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.

SKIN: If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre or a doctor.

INHALATION: If inhaled, remove from contaminated area. To protect rescuer, use an Air-line respirator where an inhalation risk exists. Apply artificial respiration if not breathing.

INGESTION: For advice, contact a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor (at once).

ADVICE TO DOCTOR: Treat symptomatically.

5. FIRE FIGHTING MEASURES

FIRE AND EXPLOSION: Evacuate area and contact emergency services. Toxic gases may be evolved in a fire situation. Remain upwind and notify those downwind of hazard. Do not attempt to fight fire. Use waterfog to cool intact containers and nearby storage areas. May explode from heat, pressure, friction or shock.

EXTINGUISHING: DO NOT attempt to extinguish burning explosives. Evacuate area immediately. Notify trained emergency response personnel.

FLAMMABILITY: EXPLOSIVE. Will explode under specific conditions. May evolve toxic gases (carbon/ nitrogen oxides, hydrocarbons) when heated to decomposition. Eliminate all ignition sources including cigarettes, open flames, spark producing switches/tools, heaters, naked lights, pilot lights etc. when handling. **CAUTION:** Will explode if exposed to heat or with heavy impact.

HAZCHEM CODE: E

6. ACCIDENTAL RELEASE MEASURES

SPILLAGE: If spilt (bulk), evacuate area and contact emergency services immediately. Contain spillage, then collect and place in suitable containers for disposal. Eliminate all ignition sources. Prevent spill entering drains or waterways.

7. STORAGE AND HANDLING

STORAGE: Store in clean, well ventilated and dry magazine licensed for Class 1.1 Explosives. Segregate from all other reagents including sunlight, specific incompatibilities (acids, alkalis, ammonia, oxidising agents, combustibles, reducing agents) and foodstuffs. Ensure magazines are adequately labelled and protected from physical damage/shock or friction.

HANDLING: Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

EXPOSURE STDS:

Ingredient	Reference	TWA		STEL	
		ppm	mg/m3	ppm	mg/m3
Cyclonite	ASCC (AUS)	--	1.5	--	--
2,4,6-Trinitrotoluene (TNT)	ASCC (AUS)	--	0.5	--	--

BIOLOGICAL LIMITS: No biological limit allocated.

ENGINEERING CONTROLS: Avoid inhalation. Use in well ventilated areas. Where an inhalation risk exists, mechanical explosion proof extraction ventilation is recommended. Maintain dust levels below the recommended exposure standard.

PPE: Wear rubber or PVC gloves, coveralls and safety glasses. If entering poorly ventilated or confined areas shortly after explosions wear self contained breathing apparatus.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: YELLOW-BUFF CAST CRYSTALLINE SOLID
SOLUBILITY (WATER): SLIGHTLY SOLUBLE
ODOUR: ODOURLESS
SPECIFIC GRAVITY: 1.65
pH: NOT AVAILABLE
% VOLATILES: 0 %
VAPOUR PRESSURE: NOT AVAILABLE
FLAMMABILITY: EXPLOSIVE
VAPOUR DENSITY: NOT AVAILABLE
FLASH POINT: NOT AVAILABLE
BOILING POINT: NOT AVAILABLE
UPPER EXPLOSION LIMIT: NOT AVAILABLE
MELTING POINT: DECOMPOSES
LOWER EXPLOSION LIMIT: NOT AVAILABLE
EVAPORATION RATE: NOT AVAILABLE
DECOMPOSITION TEMPERATURE: > 150°C

10. STABILITY AND REACTIVITY

CHEMICAL STABILITY: Stable under recommended conditions of storage.
CONDITIONS TO AVOID: Avoid shock, friction, heavy impact, heat, sparks, open flames and other ignition sources.
MATERIAL TO AVOID: May detonate if heated strongly or exposed to severe shock. Incompatible (explosively) with acids (eg. nitric acid), metal powders, combustible materials, alkalis (eg. hydroxides), oxidising agents (eg. hypochlorites), chloride salts, sulphur, urea, nitrites and reducing agents.
HAZARDOUS DECOMPOSITION PRODUCTS: May evolve toxic gases (carbon/ nitrogen oxides, hydrocarbons) when heated to decomposition.
HAZARDOUS REACTIONS: Polymerization will not occur.

11. TOXICOLOGICAL INFORMATION

HEALTH HAZARD SUMMARY: Toxic - Highly reactive explosive component. Ingredients in this product have been shown to cause liver, blood, bone marrow, kidney and nervous system damage with over exposure. However due to product packaging, potential risk exposure is low. **WARNING:** May explode with shock, heat or friction.
EYE: Due to product packaging, the potential for exposure is reduced. However, contact with packaged contents may result in irritation, pain and redness.
INHALATION: Toxic fumes evolved. Over exposure may result in dizziness and headache due to lowering of blood pressure, and possible cyanosis and breathing difficulties. Due to product form, an inhalation hazard is only anticipated following explosions or if container is damaged.
SKIN: Toxic. Prolonged or repeated contact may result in liver damage and possible sensitisation. However, due to product form / nature of use, skin contact is considered unlikely.
INGESTION: Toxic. Ingestion is considered unlikely due to product form. However, ingestion via hand-mouth transfer may result in gastrointestinal irritation, nausea and vomiting.

TOXICITY DATA:

CYCLOTRIMETHYLENE TRINITRAMINE (RDX) (121-82-4)
LD50 (Ingestion): 59 mg/kg (mouse)
LD50 (Intraperitoneal): 10 mg/kg (rat)
LD50 (Intravenous): 19 mg/kg (mouse)
LDLo (Ingestion): 100 mg/kg (cat)
TDLo (Ingestion): 85 mg/kg (child)

TRINITROTOLUENE (TNT) (118-96-7)
LD50 (Ingestion): 660 mg/kg (mouse)
LDLo (Ingestion): 500 mg/kg (rabbit)
LDLo (Subcutaneous): 500 mg/kg (rabbit)
TDLo (Ingestion): 5376 mg/kg (rat)

PENTAERYTHRITOL TETRANITRATE (PETN) (78-11-5)
LD50 (Ingestion): 35.5 g/kg (rat)
LDLo (Ingestion): 7 g/kg (mouse)
TDLo (Ingestion): 1669 mg/kg (man)

12. ECOLOGICAL INFORMATION

ENVIRONMENT: Trinitrotoluene (TNT) will undergo photochemical degradation, however it is toxic to bacteria which might biochemically degrade it. TNT is toxic to fish above 1.5 ppm. TNT and pentaerythritol tetranitrate (PETN) are not expected to bioconcentrate. PETN may degrade by hydrolysis.

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL: Do not dispose of this product. Small quantities of damaged or deteriorated material may be destroyed by inclusion in a blast hole containing good explosives (licensed personnel). Detonators should not be inserted into defective explosives. For larger amounts contact the manufacturer for additional information.

LEGISLATION: Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

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

CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE

Shipping Name : BOOSTERS without detonator
UN No: 0042
DG Class: 1.1D
Subsidiary Risk(s): None Allocated
Packing Group: None Allocated
Hazchem Code: E
EPG: None Allocated

IATA
Shipping Name: None Allocated
UN No: None Allocated
DG Class: None Allocated
Subsidiary Risk(s): None Allocated
Packing Group: None Allocated

IMDG
Shipping Name: BOOSTERS without detonator
UN No: 0042
DG Class: 1.1D
Subsidiary Risk(s): None Allocated
Packing Group: None Allocated



JOHNEX
explosives

PRODUCT DISCLAIMER: The information contained in this technical bulletin is believed to be accurate, but can not possibly cover every application or variation of conditions under which the product is used or tested. The specifications here in are based on the manufacturer's experiences, research and testing. Johnson Hi-Tech (Australia) Pty Ltd trading as Johnex Explosives can not anticipate or control conditions under which this information and it's products may be used. Each user is responsible for being aware of the details in the technical bulletin and the product applications in the specific context of the intended use. Johnson Hi-Tech (Australia) Pty Ltd will not be responsible for damages of any nature resulting from the use or reliance upon the information. No express or implied warranties are given other than those implied as mandatory by Commonwealth, State or Territory legislation.

15. REGULATORY INFORMATION

POISON SCHEDULE: A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

AICS: All chemicals listed on the Australian Inventory of Chemical Substances (AICS).

16. OTHER 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 MSDS report are advised to ensure familiarity and compliance with the appropriate legal requirements (eg. 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 approx 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.

ABBREVIATIONS:

ADB - Air-Dry Basis.

BEI - Biological Exposure Indices

CAS# - Chemical Abstract Service number - used to uniquely identify chemical compounds.

CNS - Central Nervous System.

EINECS - European Inventory of Existing Commercial chemical Substances.

IARC - International Agency for Research on Cancer.

M - moles per litre, a unit of concentration.

mg/m³ - Milligrams per cubic metre.

NOS - Not Otherwise Specified.

NTP - National Toxicology Program.

OSHA - Occupational Safety and Health Administration.

pH - relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).

ppm - Parts Per Million.

RTECS - Registry of Toxic Effects of Chemical Substances.

TWA/ES - Time Weighted Average or Exposure Standard.

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 MSDS report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:

The recommendation for protective equipment contained within this MSDS 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.