

MSDS INFORMATION

Document No.: MSDSNONEX01SB60



NXCO MINING TECHNOLOGIES (PTY) LTD

1. IDENTIFICATION

SUPPLIER

Company: NXCO Mining Technologies (Pty) Ltd

Address: P.O. Box 529
Broederstroom 0240
South Africa

Telephone +27 12 305 5237
Emergency Telephone +27 83 415 4369

PRODUCT DESIGNATION

***Product Name:* NoneX Safety Cartridge**

UN. Number. 0323 Cartridge-Power Device
Dangerous Goods Class: 1.4S
Subsidiary Risk: None
Poisons Schedule Number: None

USE

Rock / Concrete breaking and excavation

PERSONAL PROTECTIVE EQUIPMENT REQUIRED

None

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PHYSICAL DESCRIPTION / PROPERTIES

APPEARANCE

Cylinder of various lengths 75 to 310 mm and external diameter 28 or 34 mm.

Each Cartridge contains between 20 to 180 grams of a 50/50 nitrocellulose propellant and ammonium nitrate mixture. (10034 = 100 gram mixture and 34 mm diameter)

PHYSICAL PROPERTIES

Boiling Point (°C):	Not Applicable
Melting Point (°C):	Not Applicable
Vapor Pressure (kPa):	Negligible
Freezing Point (°C):	Not Applicable
Specific Gravity of Propellant:	Approx-0.9
Flash Point:	Not Applicable
Lower Explosive Limit:	Not Applicable
Upper Explosive Limit:	Not Applicable
Solubility in Water ('Propellant,):	Immiscible

2. CHEMICAL SPECIFICATIONS

Table 1. Chemical Specification of Ammonium Nitrate.

Item		Quantity
Ammonium Nitrate	NHNO ₃	99,5%
pH	-	4.5 – 6.0
Moisture	H ₂ O	0,1% max
Chloride	Cl	50 ppm max
Copper	Cu	10 ppm max
Iron	Fe	50 ppm max
Loose bulk density	-	0.7 – 0.76 kg/l
C Absorption	-	7.5% min
Particle size	> 2.8 mm	3 % max
Distribution	< 1.0 mm	1 % max
Total organic material	C	0.2 %
UN Hazard classification	United Nations 1942 Oxidising Substance Class 5.1	

ppm = parts per million

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Table 2. Chemical Specification of Nitrocellulose Propellant.

	Characteristics	Specification Limits		Method	Classification of defects
1	Chemical properties			SLM 210	Minor
1.1	Nitrocellulose (Spec No. 06-7600-2020-075)	Remainder %			Minor
1.4	Dibutylphthalate (Spec No. 06-7600-2010-027)	3 to 6 %		**	Major
1.5	Diphenylamine (Spec No. 06-7600-2010-023)	0.8 % min, 1.4 % max		**	Minor
1.6	Calcium Carbonate (Spec No. 06-7600-2010-004)	0.5 % max		**	Minor
1.7	Potassium Nitrate (Spec No. 06-7600-2010-022)	0.4 to 1.0 %			Minor
1.8	Sodium Sulphate (Spec No. 06-7600-2010-075)	0.5 % max			Minor
1.9	Stannic Oxide (Addition optional) (Spec No. 06-7600-2010-077)	0.2 % max			Minor
1.10	Graphite (Spec No. 06-7600-2010-084)	0.1 to 0.4 %			Major
1.11	Water and volatile matter (2h at 100 °C)	0.75 to 1.25 %			Major
1.12	Dust and foreign matter	0.10 % max			Major
2	Methyl Violet stability at 120 °C				Major
2.1	Complete discolouration to salmon pink	Not within 45 min			
2.2	Emission of brown fumes	Not within 60 min			
2.3	Explosion	Not within 5 h			
3	Dimension of granules	Rolled	Unrolled		Minor
3.1	Smaller than 850 µm	97 % min	97 % min		
3.2	Between 850 and 400 µm	90 % min			
3.3	Smaller than 400 µm	7 % max			
3.4	Smaller than 355 µm	3 % max			
3.5	Between 850 and 355 µm		90 % max		
3.6	Smaller than 355 µm		7 % max		
3.7	Smaller than 212 µm		3 % max		
3.8	Voids and fissures	5 % max			Information only
4	Bulk Density	Reference to approximately 3 %			Minor
4.1	Approximate range	800 to 1000 g/dm ³		SPM 5.1	Minor

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3. HEALTH HAZARD INFORMATION

3.1 HEALTH EFFECTS - CARTRIDGE STRUCTURE UNCOMPROMISED

ACUTE

SWALLOWED

No Risk - Humans unable to swallow cartridge.

EYE

No Risk - All irritating material is contained within the cartridge.

SKIN

No Risk - All irritating material is contained within the cartridge.

INHALED

No Risk - All irritating material is contained within the cartridge.

CHRONIC

No Risk apart from the explosive nature of the product

FIRST AID

All potentially hazardous substances are sealed within the cartridge and as such do not pose a risk to users.

3.2 HEALTH EFFECTS - CARTRIDGE STRUCTURE COMPROMISED

ACUTE

SWALLOWED

Propellant is toxic if swallowed.
Considered an unlikely route of entry in commercial / industrial environments.

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EYE

Propellant may be irritating to the eyes.

SKIN

Propellant may be irritating to the skin.
Repeated contact may lead to dermatitis.

INHALED

Dusty material may be irritating to the upper respiratory tract and lungs.
The decomposition vapors are extremely harmful to the upper respiratory tract and lungs.

CHRONIC

Principal routes of exposure are usually by skin contact and inhalation of dust.

The principal hazard is related to the potential of fire / explosion and associated physical injury.

As with any chemical, ingestion, inhalation and prolonged or repeated skin contact should be avoided by good occupational work practice.

Short-term exposure by all routes is considered to be practically non-harmful, apart from the explosive nature of the propellant.

FIRST AID

SWALLOWED

- § DO NOT induce vomiting.
- § Give water (or milk to rinse out mouth), then provide liquid slowly and as much as the casualty can comfortably drink. DO NOT give liquid to a person showing the signs of being sleepy or becoming unconscious.
- § Transport to hospital or doctor without delay'.

EYE

If the propellant comes into contact with the eyes:

- § Immediately hold the eyes open and wash continuously for at least 15 minutes with fresh running water. Ensure irrigation under the eyelids by occasionally lifting the upper and lower lids.
- § Transport to hospital or doctor without delay.
- § Skilled personnel should only undertake removal of contact lenses after an eye injury.

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SKIN

If propellant comes into contact with the skin:

- § Immediately remove all contaminated clothing, including footwear (after rinsing with water)
- § Wash affected area thoroughly with water (and soap if available).
- § Seek medical attention in the event of irritation.

INHALED

If fumes or combustion products are inhaled:

- § Remove to fresh air.
- § Lay patient down. Keep warm and rested.
- § If breathing is shallow or has stopped, ensure clear airway and apply resuscitation.
- § Transport to hospital or doctor.

ADVICE TO DOCTORS

Treat symptomatically and as for exposure to nitro compounds.

Delayed Pulmonary Edema may result following exposure to nitrous oxides formed on thermal decompositions.

4. SAFE HANDLING AND STORAGE

STORAGE REQUIREMENTS

- Store NoneX cartridge in original containers.
- Keep containers securely sealed until ready for use.
- No smoking, naked flames, heat or ignition source within 10 meters of storage location.
- Store NoneX cartridge in a well ventilated, secure store.
- Store in a cool dry place, do not store at temperatures above 65.5 °C (150 °F).
- Store in an area away from other materials.
- Protect NoneX cartridge Packaging against physical damage.
- Regularly check storage container and packaging.

STORAGE INCOMPATIBILITY

- Avoid storage with acids, alkalis and oxidizing / reducing agents.

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FIRE / EXPLOSION HAZARD

In the event of a fire, clear area of personnel and move upwind. Propellants contained within the NoneX cartridge are extremely sensitive to heat and will burn with rapidly increasing intensity of fire.

Heating of cartridges may cause expansion or decomposition of the propellant leading to violent rupture of the cartridge housing. Heat affected cartridges remain hazardous.

Use only water to fight a nitrocellulose fire.

Combustion / Decomposition produces toxic fumes of oxides and nitrogen (NO_x), carbon monoxide (CO) and carbon dioxide (CO₂) if burned unconfined.

MINOR SPILLS

In the event that propellant or black powder from a PCF cartridge should be spilt the following action should be taken:

- Clear up all spills immediately.
- Avoid breathing the powder / vapor and contact with the skin and eyes.
- Wear impervious gloves and safety glasses.
- Remove all ignition sources.
- Use spark free tools when handling propellant.
- Sweep into non-sparking containers or barrels and place under water.
- Place spilled material in a clean container for disposal. Mark the container properly.
- Flush the area with large amounts of water.

5. CONTACT POINTS

EMERGENCY CONTACTS

Police/Fire Brigade

Dial 10111 (South Africa)

Notify Police and Fire Brigade as to location, material, quantity, UN Number and Company contact.

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Factory Telephone No.:

+27 12 305 5237

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