SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier
Trade name: **SHOCKSTAR DETONATOR**
Shockstar MS, Shockstar TS (25-2000 ms), Shockstar Dual Delay (max. 2000 ms), Shockstar Surface, Shockstar DC Relay, Shockstar StartLine.

1.2 Relevant identified uses of the substance or mixture and uses advised against
No further relevant information available.
Application of the substance / the mixture:
Detonators for commercial use.
Open-air mining and quarries
Underground mining
Civil work sites
Demolitions

1.3 Details of the supplier of the safety data sheet
Manufacturer/Supplier:
E-Mail: apa.comercial@austinpowder.com
Information Department:
Austin Powder Argentina S.A.- Luis Maggi 770 - Rafaela (Santa Fe) - Phone: + 54 3492 434851 - Fax: + 54 3492 433905 88

1.4 Emergency telephone number:
+54 3492 424775 – 0800 666 2282 (CIPET)

SECTION 2: Hazards identification

2.1 Classification of the mixture
Classification according to SGA – 5° Edition:

Hazard class	Code	Hazard Category
Expl. 1.1	H201	Division 1.1
Carcinogenicity	H351	2
Reproductive toxicity	H360Df	1A
Reproductive toxicity, Additional category, Effects on or via lactation	H362	
Specific target organ toxicity	H372	1
Hazardous to the aquatic environment — Acute Hazard	H400	1
Hazardous to the aquatic environment — Chronic Hazard	H411	2

Human and environmental-specific hazards:
Substances and goods that present a risk of mass explosion.

2.2 Label elements
The product must be labelled according to the established regulations listed in the “Globally Harmonized System of Classification and Labelling of Chemical Products”, according to resolution 801/15 of the Labour Risks Superintendency (SRT).

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Hazard pictograms:

GHS01

GHS08

GHS09

Signal word: Danger.
Hazard statements:
H201 - Explosive; mass explosion hazard.
H351 - Suspected of causing cancer.
H360Df - May damage the unborn child. Suspected of damaging fertility.
H362 - May cause harm to breast-fed children.
H372 - Causes damage to organs through prolonged or repeated exposure.
H400 - Very toxic to aquatic life.
H411 - Toxic to aquatic life with long lasting effects.

Precautionary statements:

P201	Read instructions before use
P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P250	Do not subject to grinding/shock/friction.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P370+P372+P380+P373	In case of fire: Explosion risk. Evacuate area. DO NOT fight fire when fire reaches explosives.
P401	Store in accordance with local regulations on explosives, in dry and well-ventilated areas, in temperatures -30 °C to +40 °C..
P501	Dispose of contents/container to must be in accordance with corresponding local regulations for disposal of packages and explosives

2.3 Other hazards
In case of fire: Extreme risk of explosion. Evacuate area. **DO NOT** fight fire when fire reaches explosives.

SECTION 3: Hazards identification

3.1 Substances
Non-applicable

3.2 Mixtures
Comments: Nonelectric assembled detonator contains also chemicals that are not classified as hazardous, and various other components, such as plastic tube, plug and other plastic components. These parts do not contain SVHC substances.

Name	CAS	GHS classification	Concentration
HMX/A1 (EXEL)	2691-41-0	Expl. 1.1 – H201; Acute tox.4 - H302; Acute tox. 3 – H311	≤0.26
Aluminium	4729-90-5	Pyr. Sol.1- H250 Water-react 2- H261	≤0.03
Pentaerythritol tetranitrate (PETN)	78-11-5	Expl. 1.1, H201	≤ 20%

Lead azide	13424-46-9	Unst. Expl. 1.1 – H200; Acute tox. ingestion 4 - H302; Acute tox. Inh. 4 – H332; Repr. 1A – H360; STOT RE 2 –H373; Acute aquatic 1 – H400; Aquatic chronic 1 – H410	≤1%
Orange lead substance listed as REACH Candidate (Orange lead (lead tetroxide))	1314-41-6	Acute Tox. 4 (Oral) - H302 Acute Tox. 4 (Inhalation) - H332 Acute Tox. 4 (Inhalation:dust,mist) - H332 Carc. 2 - H351 Repr. 1A - H360Df Lact.- H362 STOT RE 1- H372 Aquatic Acute 1- H400 (M=10) Aquatic Chronic 1- H410	≤12%
Zirconium powder (pyrophoric) (*)	7440-67-7	Water-react. 1, H260 Pyr. Sol. 1, H250	≤7%

Comments: * The mixture is introduced in the market as a solid substance. The mixture is not in contact with air or water. The classification Water-react.1 H260 a Pyr. Sol. 1 H250 is not relevant for this mixture.

Additional information: For the wording of the listed risk phrases refer to section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

First-aid measures general : In the assembled detonator, the mixture is enclosed in a metal case that cannot be disassembled. If used in accordance with section 1.2, the exposition is not possible. The exposition can occur only in case of detonation in the form of post-detonation reaction products. Detonation may cause burns and injuries. In case of any suspicion, seek medical advice.

First-aid measures after inhalation : Interrupt the exposition, move the exposed person to the fresh air. Keep the person warm and at rest. If the symptoms of respiratory system irritation (e.g. heavy breathing) persist, look for the medical help.

First-aid measures after skin contact : In case of detonation, there is a risk of burns, general injuries and injuries caused by splinters. Seek medical advice.

First-aid measures after eye contact : In case of detonation, there is a risk of general injuries and injuries caused by splinters. Seek medical advice.

First-aid measures after ingestion : Rinse mouth, seek medical advice.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects after inhalation : In case of inhalation of post-detonation reaction products, an irritation of respiratory system and a headache may occur.

Symptoms/effects after skin contact : Injuries, burns.

Symptoms/effects after eye contact : Injuries, burns.

Symptoms/effects after ingestion : Not relevant.

4.3. Indication of any immediate medical attention and special treatment needed

No special means are stated.
If any health troubles appear or in case of doubt, please inform the doctor and provide the information from this safety sheet

SECTION 5: Firefighting measures

DO NOT fight fires involving Explosives. There is an extreme risk that explosives involved in a fire may detonate, especially if confined. Evacuate the area in all directions for one (1) kilometer or more away for cover if any amount of explosives is involved in a fire. Evacuation is recommended if the initial (incipient) fire, not involving explosives, becomes intense.

5.1 Extinguishing media
Suitable extinguishing agents:
Suitable extinguishing media: do not extinguish fires. Evacuate personnel immediately. Let the fire extinguish by itself.

5.2 Special hazards arising from the substance or mixture
Dangers of unusual fire and explosion: It can explode, especially if exposed to fire or heat when confined and in great amounts In case of fire, it can produce fumes or toxic and irritating gases.

5.3 Advice for firefighters
Protective equipment:
Do not extinguish fires. Use positive pressure self-contained breathing equipment. Firefighter equipment will provide only limited protection

Additional information: Collect contaminated firefighting water separately. It must not enter the sewage system.
Announcing risk of explosion!
Tire or vehicle fire: use plenty of water and flood the fire. If there is no water available, use CO_2, dry chemical powder or mud. If the fire is on the load, do not extinguish it. Evacuate immediately.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Evacuate the area and isolate at least 500 meters. Use breathing apparatus in the event of exposure to dusts/fumes/aerosols. Ventilate closed spaces before entering. Avoid all sources of heat, flames, electrostatic discharge. Do not smoke. Avoid all kinds of shock and friction.

6.2 Environmental precautions
Do not spill in culverts, gutters or drainages.

6.3 Methods and material for containment and cleaning up
Pick up the material in a careful and mechanical way and place it in closed containers. Do not reuse these products under any circumstance. Only people with permission can dispose of altered products. In case of mechanical alteration of the detonators, it is necessary to contact the manufacturer immediately, who will dispose of the unused pieces in a special way.

6.4 Reference to other sections
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Technical measures: Use proper protective equipment.
Precautions: Protect containers from physical damage.
Recommendations on safe handling: Avoid contact with incompatible materials. Avoid inhalation and ingestion of the product. It is prohibited to eat, drink or smoke in the work areas.

7.2 Conditions for safe storage, including any incompatibilities
Storage
Requirements to be met by storerooms and receptacles:
Store in closed original packages until its use at room temperature and in a well ventilated dry place, with temperature intervals that oscillate between -30°C and +40°C. Take measures to prevent the accumulation of electrostatic discharge. Keep away from flames, hot surfaces and sources of ignition. Do not store together with drugs, food, drinks and animal feed. Keep away from children.

Information about storage in one common storage facility:
Technical measures: Store away from incompatible materials and substances.
Storage conditions: Do not expose to sunlight. Store in an area without access to water-drainages or culverts.
Incompatible products: Strong alkali or acids.

Further information about storage conditions:
Between -30°C and +40°C

7.3 Specific end use(s)
No further relevant information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters
Components with limit values that require monitoring at the workplace:

No national control limit values are available. Exposition should be evaluated according to applicable local rules.

Additional information:

8.2 Exposure controls
Personal protective equipment:

General protective and hygienic measures:
Reduce the number of individuals at the work area to the minimum. Authorized personnel only

Breathing equipment:
According to common use and routine, after the detonation it is advisable to use respiratory protective equipment. Filters against gases and combined filters. The work to be made will determine the type of mask or average mask to use.

Protection of hands:
Not required, except to avoid injuries by abrasion and to reduce contact with the skin.
Material of gloves:
Neoprene, natural rubber
Eye protection:
Use protective glasses with sides or closed protective glasses.
Body protection:
Wear waterproof clothing, antistatic protective clothing.

SECTION 9: Physical and chemical properties

· **9.1 Information on basic physical and chemical properties**
· **General Information**
· **Appearance:**

Form:	Solid
Color:	Not applicable
Odor:	Odourless

· **pH-value:**	Not available.
· **Change in condition** **Boiling point/Boiling range:**	Not available
· **Flash point:**	Not available
· **Flammability (solid, gaseous):**	Not available
· **Ignition temperature:**	Not available
Decomposition temperature:	Not available
· **Self igniting:**	Product is not self-igniting.
· **Danger of explosion:**	Yes.
· **Vapor pressure:**	Not applicable.
· **Density at 20 °C:**	Not available
· **Solubility in / Miscibility with** **Water:**	Insoluble
· **Solvent content:** **Organic solvents:**	
Solids content: · **9.2 Other information**	No further relevant information available

SECTION 10: Stability and reactivity

10.1 Reactivity
Avoid contact with oxidizing agents and strong acids

10.2 Chemical stability
Stable under normal conditions.

10.3 Possibility of hazardous reactions
Hazardous polymerization will not occur.

10.4 Conditions to be avoided
Heat, flames and sparks. Avoid electrostatic discharge, shocks, impact and friction.

10.5 Incompatible materials
Alkalis or acids.

10.6 Hazardous decomposition products
The thermal decomposition products are toxic and can include lead, carbon oxides and nitrogen.

SECTION 11: Toxicological information

11.1 Information on toxicological effects
Acute toxicity:
Acute toxicity : Based on available data, the classification criteria are not met.

PETN
LD50 oral rat: 1660 mg/kg (Database TOMES/RTECS, Vol. 75

Orange lead
LD50 oral rat: > 10000 mg/kg (EU Database ECB/ESIS, 2000)
Lead diazide, lead azide
TDL0, orally, sewer-rat, 14 weeks intermittently (mg/kg): 3920 mg/kg (Data according to the database TOMES/RTECS, Vol. 75

Primary irritant effect:

Skin corrosion/irritation	:	Based on available data, the classification criteria are not met.
Serious eye damage/irritation	:	Based on available data, the classification criteria are not met.
Respiratory or skin sensitisation	:	Based on available data, the classification criteria are not met.
Germ cell mutagenicity	:	Based on available data, the classification criteria are not met.
Carcinogenicity	:	Suspected of causing cancer.
Reproductive toxicity	:	May damage the unborn child. Suspected of damaging fertility. May cause harm to breast-fed children.
STOT-single exposure	:	Based on available data, the classification criteria are not met.
STOT-repeated exposure	:	Causes damage to organs through prolonged or repeated exposure.
Aspiration hazard	:	Based on available data, the classification criteria are not met.
Other information	:	Lead and its compounds are partly excreted by kidneys, partly deposited inside body, especially bones. After long-term and high exposition, a chronic lead poisoning disease may develop, which is exhibited by failure of hemoglobin production, encephalopathy and by paralysis of peripheral nerves. Lead and its compounds are known for their bio accumulative effect and lead to irreversible health damage. Further lead and its compounds may damage unborn child and reproduction capability of humans. It is necessary to take this information into account in considering possibility of acquiring lead-poisoning disease caused by long term exposition (e.g. at work).

SECTION 12: Ecological information

12.1 Toxicity

Aquatic toxicity:

Toxicity for fish:	CL_{50} (Pimephales promelas) 96 hs: 15 mg/L (HMX)- 0.1 mg/l (Orange lead)
Toxicity for other daphnias:	CE_{50} (Daphnia magna) 48 hs: 49 mg/L. (PETN)- 0.98 mg/l (Orange lead)
Toxicity for algae:	CE_{50} (Selenastrum capricornutum) 96 hs: > 32 mg/L (HMX)- 0.05 mg/l (Orange lead)

12.2 Persistence and degradability
Not available.

12.3 Bio-accumulative potential
PETN:
Bioconcentration factor (BCF REACH): 17
Partition coefficient n-octanol/water (Log Kow): 2.4

12.4 Mobility in soil
PETN:
Partition coefficient n-octanol/water (Log Koc): 2.81

Ecotoxic effects:
Type of test Effective concentration Method Assessment:

Additional ecological information:
Not available

12.5 Other adverse effects
Harmful for aquatic organisms

SECTION 13: Disposal considerations

13.1 Waste treatment methods
Recommendation:
Dispose material according to local or state regulations, under the direct supervision of qualified personnel. Call Austin Powder for recommendations and assistance. This product can be hazardous under certain conditions and it must be picked, tagged and disposed immediately

Uncleaned packaging:
Recommendations: Incineration.

SECTION 14: Transport information

· **14.1 UN-Number**	
· **ADR, IMDG**	UN 0360
· **14.2 UN proper shipping name**	
· **ADR**	DETONATOR ASSEMBLIES, NON- ELECTRIC
. **MERCOSUR**	DETONATOR ASSEMBLIES, NON- ELECTRIC
. **IMDG:**	DETONATOR ASSEMBLIES, NON- ELECTRIC
. **IATA**	Prohibited
· **14.3 Transport hazard class(es)**	
· **ADR, IMDG**	
	
· **Class**	1.1 B
· **Label**	1
· **IATA**	
· **Class**	1.1 B (prohibited)
· **14.4 Packing group**	
· **ADR, IMDG**	Non-applicable
· **14.5 Environmental hazards**	
· **Marine pollutant:**	No

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· **14.6 Special precautions for user**	Warning: Do not transport with incompatible materials. Do not use flammable materials for stowage of packages. Do not transport with live animals.
· **EMS Number:**	F-B, S-X
. **Danger code (Kemler)**	Non-applicable
· **14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not listed.
· **Transport/Additional information:**	
· **ADR**	
· **Tunnel restriction code**	
· **IATA**	
· **Remarks:**	Air transport ICAO-IATA/DGR Prohibited.
· **UN "Model Regulation":**	UN 0360**,** DETONATOR ASSEMBLIES, NON- ELECTRIC, 1.1B

SECTION 15: Regulatory information

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

National regulations
Law 19587 Regulatory decree 351/79 and Decree 295/2003
Law 20429 and decree 302/83
Resolution 801/15 of the Superintendency of Occupational Risks (SRT)

15.2 Chemical safety assessment
A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

Liability about information is not warranted although information is given to our best knowledge

Relevant phrases
H201 - Explosive; mass explosion hazard.
H351 - Suspected of causing cancer.
H360Df - May damage the unborn child. Suspected of damaging fertility.
H362 - May cause harm to breast-fed children.
H372 - Causes damage to organs through prolonged or repeated exposure.
H400 - Very toxic to aquatic life.
H411 - Toxic to aquatic life with long lasting effects.

Recommended restriction of use
Handling of explosives is permitted only to persons with the appropriate permission

Abbreviations and acronyms:
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)