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Document Type:	Safety Data Sheet	
Title:	VIPERTRON®	

1. Identification of the Product and Company Identification

Shipping Name	Detonator Assemblies Electronic Delay Detonators, programmable for blasting	Manufacturer/ supplied by BME A division of Omnia Group (Pty) Ltd <i>Physical address</i> Omnia Holdings, Building H Monte Circle Business Park 178 Montecasino Boulevard Fourways Sandton, 2191 <i>Postal address</i> P.O. Box 70040 Bryanston, 2021 Gauteng, South Africa <i>Contact</i> Tel: +27 11 709 8888 E-mail: info@bme.co.za
Trade Name	VIPERTRON®	
Product Name	VIPERTRON® Electronic Delay Detonator	
Recommended Use	Electronic initiation system for explosive charge	
Synonyms	EDD; Electronic Delay Detonator	
Chemical Formula	Not applicable	
Emergency telephone number	(+27) 11 706 3398	
QR code		

2. Hazards identification

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Based on available information, this material is not classified as hazardous according to the health criteria of international authorities.

Classified as Dangerous Goods, under the UN Code for the Transport of Explosives by Road and Rail.

Class: : 1.1B Explosive. When shipped or handled as UN0511 (Mass explosion hazard if it is initiated).
: 1.4S Explosive. When packed in approved 1.4S packaging, when shipped or handled as UN0513. (Very limited explosion hazard and it is designed so that the accidental functioning is confined to the packaging. It presents no significant blast hazard as it is packed and designed to mitigate explosive effects and engineered to cause minimal external impact).
: 1.4B Explosive when shipped or handled as UN0512. (No mass explosion hazard localized and limited explosive risk. Minor explosive hazard).

Poisons Schedule: None allocated

Additional Hazards: Toxic or irritant fumes: May be emitted on burning or detonation (e.g. Carbon Monoxide, Carbon Dioxide, Nitrogen Oxide, etc.). Avoid inhalation and ensure evacuation during a fire.
Hearing hazard: from detonation. Use hearing protection during controlled firing.
Shock sensitivity: Articles are electro-sensitive. Avoid electromagnetic fields, static discharge and mechanical impact. Store and handle as per the licensed magazine requirements stated in the SDS.

GHS Classification: Explosives (Divisions 1.1B and 1.4S (when packed in approved 1.4S packaging) and 1.4B), physical hazards- Explosives
Signal Words: Danger and Warning
Hazard Pictogram: GHS01



Hazard Statements: H201, H203, H204
H201: Explosive, mass explosion hazard. Indicates a substance capable of a mass explosion as it can explode virtually instantaneously across the entire mass
H203: Explosive, fire, blast or projection hazard. Indicates the material may explode, causing fire, blast or projectile hazards
H204: Fire or projection hazard. Indicates the substance presents a fire hazard and/or may project fragments when involved in an incident

Precautionary Statements: P210, P250, P241, P280, P370+P380, P372, P373, P401, P501
P210: Keep away from heat/sparks/open flames/hot surfaces- No smoking. This is a prevention statement requiring the avoidance of ignition sources.
P250: Do not subject to grinding/shock/friction. This indicates that the product must not be exposed to mechanical stimuli that may trigger an explosion.
P241: Use explosion proof electrical/ventilating/equipment. This requires the use of certified explosion proof equipment.
P280: Wear protective gloves/protective clothing/eye protection/face protection. Indicates the need for appropriate PPE to prevent contact or injury.
P370+P380: In the case of fire or incidents involving fire, immediately evacuate the area. This indicates the need to move people away from the hazard zone, typically when fire or explosion risks exist.
P372: Explosion risk in case of fire. This statement is used for explosive or highly reactive substances to warn that fire may trigger an explosion, and special precautions are required.
P373: Do not fight fire when fire reaches explosives. This indicates that firefighting is unsafe once explosives are involved.
P401: Storage instructions must be carefully and strictly followed for this product.
P501: Dispose of the product contents in accordance with regulations. This indicates that proper disposal via the approved waste systems is required.

3. Composition/information on ingredients

Recommended Use:	Electronic Initiation System for explosive charges,
Composition:	Article composed of aluminium or copper alloy shell, wiring, connector and internal energetic materials
Energetic components:	DDNP (primary charge), PETN/RDX (base charge)

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Appearance:

Copper or Aluminium shells closed at one end and connected to a length of yellow insulated copper wire which is terminated by a white, yellow or green connector at the other end.
The wire is arranged in a tubular spool configuration with the Copper or Aluminium shell and connector housed in the cavity of the spool. The spool is held together in a clear shrink wrap.

The electronic detonator assemblies consist of 3 parts that are interconnected: a Copper or Aluminium shell, a spool of wire and a connector. Enclosed within the copper or aluminium alloy shell are a printed circuit board, a fuse head, a primary charge, and a base charge. The primary charge and base charge consist of DDNP and PETN/RDX respectively. Refer to product data information for the specific configuration.

Substance/preparation:

Chemical name	CAS No	%	GHS Classification
Metal and plastic composition articles		> 60	Not applicable

4. First-aid measures

The construction of the items prevents any chemical contamination.

General: Treat symptomatically, detonator assemblies are explosive

Ingestion: Remove object, obtain medical attention. Physicians are to be made aware of the risk of detonation. Unlikely, but seek medical attention if it occurs.

Eye contact: In cases of eye injury or contamination, it is a sensible precaution to seek medical advice. Seek medical attention if exposed to fumes

Skin: Not applicable unless injury due to detonation. Obtain medical attention immediately.

Inhalation: If exposed to fumes from detonation, in a poorly ventilated area, remove the victim from exposure and loosen clothing. Allow the patient to assume a most comfortable position and keep warm. Keep at rest until fully recovered. Seek medical advice if the effects persist. Remove from exposure and monitor for symptoms.

Hearing: In the event of detonation in the vicinity, check the hearing system by a specialist.

Notes to physician: Treat symptomatically. Detonator assemblies are explosive – handle with care.

5. Fire-fighting measures

Specific hazards: Explosives material. Avoid all ignition sources.

Explosive hazard: Evacuate the area immediately and DO NOT attempt to fight a fire involving explosives.

Firefighting: Explosive. Severe detonation hazard when exposed to heat. In case of fire where the actual product is not involved, carefully remove the product to a safe distance, otherwise evacuate the area immediately and allow it to burn. On burning may emit toxic fumes. Firefighters should wear self-contained breathing apparatus if the risk of exposure to vapour or products of detonation.

6. Accidental release measures

Personal Precautions: Avoid exposure to shock, friction, heat and ignition sources and anything that could cause a spark. Keep away from open flames or sources of heat. Shut off all potential sources of ignition

Environmental Precautions: Shut off all ignition sources. Collect and seal in properly labelled containers for collection. In the case of a transport accident notify the Police, Explosives Inspectors and BME (Tel No. - +27 11 709 8888). Explosives should not be abandoned at any location for any reason. It is important to notify the authorities in case of a transport accident. Collect only the intact articles, do not dismantle.

7. Handling and storage

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Handling:	No smoking or open fire is allowed in the vicinity. Heat or flame may cause detonation. Handle with care, preferably by hand. Avoid impact or friction.
Storage:	Store in clean, dry licensed explosive magazine suitably licensed for Class 1.1 explosives, safe from electric and magnetic risks in compliance with rules of compatibility of storage of product in original packaging. Do not store directly on the ground. Do not store with explosives or flammable products. Recommended storage temperature range -5°C to +30°C. Do not subject materials to impact sparking or any type of heat. Keep away from electromagnetic fields, heat sources or static discharge.

8. Exposure controls/personal protection

National occupational exposure limits:	No occupational exposure limits have been assigned for this specific material.
Engineering Measures:	When test firing, ensure adequate ventilation, when exposed to fumes, to maintain air concentration below Exposure Standard. Natural ventilation should be adequate under normal use conditions.
Personal protective equipment:	Hearing protection is recommended during controlled firing or test shots of the product Eye protection using safety goggles are strongly advised when working with the product. Always wash hands before smoking, eating, drinking or using the toilet. A respirator is not required under normal and intended conditions of product use.

9. Physical and chemical properties

Appearance, form and colour:	Copper or Aluminium shells closed at one end and connected to a length of yellow insulated copper wire which is terminated by a white, yellow or green connector at the other end. The wire is arranged in a tubular spool configuration with the Copper or Aluminium shell and connector housed in the cavity of the spool. The spool is held together in a clear shrink wrap.
Solubility:	Insoluble in water.
Odour:	Odourless
Thermal Decomposition:	Explosion in the event of a rise in temperature/elevated temperatures.
Hazardous Decomposition:	CO, CO ₂ , oxides of nitrogen.

10. Stability and reactivity

Stability:	Stable under the recommended storage conditions. Detonation risk can occur from shock, impact, friction and excessive heating. Possible transmission of the explosion to all other detonators in the package.
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11. Toxicological information

No adverse health effects if the product is handled per the Safety Data Sheet and the product label.	
General:	Exposure to fumes may cause skin irritation, long term exposure to lead residue may affect the blood and kidneys.
Ingestion:	May cause irritation to the gastrointestinal tract. Keep under observation for possible lead poisoning. Long term exposure to low concentrations of lead may result in altered haemoglobin breakdown, kidney damage, anaemia and central and peripheral nervous system damage.
Eye contact:	Fumes from detonation or fire may cause eye irritation
Skin contact:	Only applicable in cases of detonation. Treat for shock, stop bleeding if applicable and obtain medical attention.
Inhalation:	N/A

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12. Ecological information

Avoid contaminating waterways.

13. Disposal considerations

Disposal must be done through licensed explosives destruction services. Do not discard into the environment or general waste streams.

For small quantities: Follow destruction methods duly authorised by relevant authorities and internal Management procedures.
Not to be thrown in sewers, natural environment or in refuse discharge. The operation of destroying pyrotechnical products by shooting or incineration must be carried out in a specially designated area by qualified personnel with the necessary safety measures in place. The procedures and instructions for the destruction of pyrotechnical products as well as the means of protecting personnel are to be defined by a safety study which fixes in particular maximum loadings according to the environment and the personnel to be protected. Explosive matters not to be mixed with priming devices at the time of the destruction of the latter.

For Large quantities: Should be returned to BME or be disposed of in conjunction with relevant authorities.

Waste Classification: Hazardous Waste.

14. Transport information

UN No : UN 0511
Class/Division : 1.1
Compatibility Group : B
Classification Code : 1.1B
Proper Shipping Name : DETONATORS, ELECTRONIC programmable for blasting

(When packed in special approved packaging and appropriately marked):

UN No : UN 0513
Class/Division : 1.4
Compatibility Group : S
Classification Code : 1.4S
Proper Shipping Name : DETONATORS, ELECTRONIC programmable for blasting

UN No : UN 0512
Class/Division : 1.4
Compatibility Group : B
Classification Code : 1.4B
Proper Shipping Name : DETONATORS, ELECTRONIC programmable for blasting

15. Regulatory Information

Based on the information available, this material is not hazardous, when it is based on adherence to safe working procedures. The Explosives Act and the associated regulations apply.
Classified under SANS 10234 (GHS) as an explosive.
Note the explosive hazards classification, the transport hazard class and that it is in accordance with GHS requirements.

16. Other information

Product Name: VIPERTRON®, Electronic Detonators for blasting

This SDS summarizes, at the date of issue, our best knowledge of the health and safety hazard information of the product, and in particular how to safely handle the product in the workplace. As BME cannot control the use and handling of the product each user must review the MSDS in the context of how the user intends to handle and use the product in the workplace.

This SDS was compiled as per the GHS classification system.

References:

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Authorized by	: DH Voogt – General Manager – Production and Logistics

Remarks:

This SDS summarises, at the date of issue, our best knowledge of health and safety hazard information of the product, and in particular how to safely handle the product in the workplace. As **BME** cannot control the use and handling of the product, each user must review the SDS in the context of how the user intends to handle and use the product in the workplace.

References:

- GHS "purple book": Globally Harmonized System of classification and labelling of chemicals.
- UNITAR GHS Companion Guide (United Nations Institute for Training and Research).
- APEC Implementation Guide (Asia-Pacific Economic Co-operation).
- EU CLP (European Union).
- OSHA Hazcom (Occupational Health and Safety Act Hazardous Communications).
- GHS country specific regulations.