Deton Engineering – Risk Assessment

Roof Support Wedge

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1. Introduction to the Deton Group of Companies

Deton Engineering (Pty) Ltd., was established in 1973 by Hercules du Preez, the first product being the Hercules Jack for mining applications.

From this date, Deton Engineering has specialised in the production of products with safety and efficiency in mind, especially for applications in the Mining and Industrial industries. The Deton Group is continuously focussed on the monitoring and improvement of production, reduced downtime, improved safety, and the servicing and support of our products which has made Deton a leader in its field.

Within the Deton Group of Companies are the following companies whose processes are incorporated in our Quality Management System –

Deton Engineering (Pty) Ltd. – Deton Engineering manufactures Jacks, Rail Benders, Snatch Blocks, Pulleys, Hercules Jack and related products for the Mining and Industrial markets.

Wearresist SA (Pty) Ltd. – Wearresist manufactures, sells and applies a range of wear-resistant coatings, based upon a resin matrix with a 90% alumina content, targeted at the Mining and Industrial markets.

Ceramic Linings (Pty) Ltd. – Ceramic Linings manufacture and market alumina ceramic tiles for high abrasion, high impact and high temperature applications. The products compliment the Wearresist products and can be used in conjunction in such environments.

Cutlass Products (Pty) Ltd. – Cutlass manufacture and market a range of corrosion and abrasion resistant products, aimed at the general Industrial market.

Densit S.A. (Pty) Ltd. – Densit supplies and applies a range of branded wear-resistant products to the general industrial markets, under license from Densit Norway.

2. Details of Deton Engineering

This Risk Assessment refers to our Alberton based Head Office and Workshops, the details of which are –

6 Barium Street
Alrode Ext. 7
Alberton

P.O. Box 123920
Alrode
1450

Telephone: (011) 908-1922 Facsimile: (011) 864-5386
E-mail: info@deton.co.za Website: www.deton.co.za

3. Scope of Quality Management System (SABS ISO 9001:2008)

The manufacture and repair of Hercules Jacks, Snatch Blocks, explosive boxes, mining equipment, rail benders, pipe splitters, railway rolling stock and re-railing equipment for mining, agriculture, postal and transport industries, the manufacture of corrosion-coating resins and wear-resistant linings, including the Cutlass range of epoxy products.

4. Risk Assessment Team

As a result of Deton Engineering's commitment to our customers, this Risk Assessment was conducted in order to ensure that all potential health, safety and related hazards are identified, the risks evaluated and controls implemented to ensure that the products are safe and without risk to our customers, as far as is reasonably practicable.

This Risk Assessment was compiled by the following team -

HP du Preez	Chairman
A du Preez	Managing Director
W Germishuizen	Sales & Marketing
I Gasa	Production Foreman
J Downward	Production & Operations
S Barley	Quality & Risk

5. Excerpt from Mine Safety Act (Act 29 of 1996)

Section 21 of the Mine Safety Act states the following -

21.(1) Any person who -

(a) designs, manufactures, repairs, imports or supplies any article for use at a mine must ensure, as far as reasonably practicable -

(i) that the article is safe and without risk to health and safety when used properly and

(ii) that it complies with all requirements in terms of this Act;

21.(2) Any person who bears a duty in terms of sub-section (1) is relieved of that duty to the extent that is reasonable in the circumstances , if -

(a) that person designs, manufactures, repairs, imports or supplies an article for or to another person; and

(b) that person provides a written undertaking to take specified steps sufficient to ensure, as far as reasonably practicable, that the article will be safe and without risk to health and safety when used properly and that it complies with all prescribed requirements

6. Scope of Risk Assessment

The scope of this Risk Assessment is limited to the Deton Engineering Roof Support Wedges and their application in a mining environment.

The objective of this Risk Assessment is to, as far as is reasonably practicable -

- identify all potential health, safety and related risks that the Roof Support Wedge could pose to the end-user
- measure the level of risk of the identified risks
- to recommend controls to alleviate or minimise the risks

The aim of this Risk Assessment is to provide end-users with detailed information that will permit them to use the Roof Support Wedge in a manner that is safe and provide optimal utilisation.

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7. Format of Risk Assessment

The Risk Assessments are reflected in tabular format, with the specific aspects listed under the following main headings -

Potential Hazard - what could go wrong?
Consequences & Impact - what could happen if the instance occurred?
Recommendations & Controls - what measures are in place or should be taken?

The aspects are then rated in terms of -

Likelihood (What are the chances of the incident occurring, probability?)

LIKELIHOOD	Index Value	Result
Most likely	5	
Highly likely	4	
Likely	3	
Unlikely	2	
Highly unlikely	1	

Risk (What level of risk/element of danger would this incident expose you to?)

RISK	Index Value	Result
Very high risk	5	
High risk	4	
Medium risk	3	
Low risk	2	
Very low risk	1	

Severity (What could the severity of this incident be in terms of injuries, damage)?

SEVERITY	Index Value	Result
Extremely severe	5	
Quite severe	4	
Severe	3	
Not too severe	2	
Negligible	1	

From the above results, the "Risk Result" is tabulated as follows -

RISK RESULT = **LIKELIHOOD** x **RISK** x **SEVERITY**

7. Format of Risk Assessment (cont.)

The figure obtained (the Risk Result) is then classified as follows -

61 +	High risk requiring immediate corrective action
39 - 60	High risk requiring corrective action (identified in RED)
21 - 40	Substantial risk with corrective action needed
6 - 20	Possible risk, must be brought to people's attention
- 5	Risk tolerable

This is reflected as "RR" on the accompanying Risk Assessment Charts.

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8.1 Risk Assessment – Manufacture of Roof Support Wedge

ITEM	POTENTIAL HAZARD	CONSEQUENCES & IMPACT	RATINGS				RECOMMENDATIONS and CONTROLS
			L	R	S	RR	
1	Substandard materials	• Roof Support Wedge could fail under load - EFFICIENCY & INJURY/DEATH	1	4	4	16	RECOMMENDATIONS • Segregate non-conforming materials and return to supplier CONTROLS • Purchases only made from Approved Suppliers • Full inspection upon receipt of materials (including Certification)
2	Substandard welding	• Roof Support Wedge could fail under load - EFFICIENCY & INJURY/DEATH	1	4	4	16	RECOMMENDATIONS • Segregate non-conforming welds CONTROLS • Welding only performed by allocated, trained Welders • Full inspection of welding
3	Valve incorrectly assembled	• Roof Support Wedge could fail under load - EFFICIENCY & INJURY	1	3	3	9	RECOMMENDATIONS • Training of staff in assembly of valves CONTROLS • Assembly of valves restricted to allocated, trained staff • Random inspection of valves prior to fitment to Roof Support Wedge

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8.2 Risk Assessment – Equipment Problems

ITEM	POTENTIAL HAZARD	CONSEQUENCES & IMPACT	RATINGS				RECOMMENDATIONS and CONTROLS
			L	R	S	RR	
1	Missing or broken components on Roof Support Wedge	• Cannot operate product effectively or safely - EFFICIENCY and/or INJURY	2	3	3	18	• Inspect Roof Support Wedge prior to use • Send Roof Support Wedge to Deton for repair • Safety Training
2	Drain valve of Roof Support Wedge is not properly closed/ missing	• Roof Support Wedge does not operate at maximum efficiency - EFICIENCY & INJURY	2	3	3	18	• Inspect Roof Support Wedge prior to use • Always ensure that Drain Valve is closed prior to energising Roof Support Wedge • Safety Training

8.2 Risk Assessment – Operating Errors/Human Factor

ITEM	POTENTIAL HAZARD	CONSEQUENCES & IMPACT	RATINGS				RECOMMENDATIONS and CONTROLS
			L	R	S	RR	
1	Roof Support Wedge is not securely mounted on Camlock Prop/Stick with locating plate	• Roof Support Wedge could slip - EFFICENCY/INJURY/DEATH	2	4	4	32	• Always make sure Roof Support Wedge is correctly located on Camlock Prop/Stick and that locating plate is used • Always make sure that Roof Support Wedge • Safety Training

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ITEM	POTENTIAL HAZARD	CONSEQUENCES & IMPACT	RATINGS				RECOMMENDATIONS and CONTROLS
			L	R	S	RR	
2	Drain valve of Roof Support Wedge is not properly closed	• Roof Support Wedge does not operate at maximum efficiency - EFICIENCY/INJURY	2	3	3	18	• Always ensure that Drain Valve is closed prior to energising Roof Support Wedge • Safety Training
	Roof Support Wedge is not operated in recommended manner/operated by incompetent person	• Roof Support Wedge could slip - INJURY/ DEATH	2	3	3	18	• Refer to Roof Support Wedge Risk Assessment • Safety Training