

RISK ASSESSMENT

Rocloc® Resin Capsules



RSC EKUSASA MINING

WE REINFORCE THE MINES®



INTRODUCTION

RSC Ekusasa Mining is a well-established company owned by The Barnes Group. RSC Ekusasa Mining has a Level 3 BEE status and a 110% BEE Supplier Recognition which is accredited through SANAS. Black ownership of 51% and fronting listed as low.

RSC Ekusasa Mining is ISO 9001:2015, ISO 14001:2015 and ISO 45001:2018 accredited and has a certified Integrated Management System in place.

RSC Ekusasa Mining has been involved in various ground control and underground roof support projects throughout the world. RSC Ekusasa Mining often works with other companies in order to provide cost effective solutions to suit our customer needs. The range of critical / safety products and services supplied, includes a wide range of lateral and reinforcing roof support systems. The group's services extend from initial manufacture to the ultimate supply of high quality, roof support tendons and resin capsules.

RSC Ekusasa Mining adheres strictly to the standards of the South African National Standard (SANS) 1534: 2018 requirements for "Resin capsules for use with tendon based support systems".

These resin Capsules are delivered to the mine on purchase and these articles are used and installed by the mine's employees and or contractors employed by the mine.

The Mine Health and Safety Act (Act 29 of 1996) section 21 however 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 the requirements in terms of this Act;

(b) erects or installs any article for use at a mine must ensure, as far as reasonably practicable, that nothing about the manner in which it is erected or installed makes it unsafe or creates a risk to health and safety when used properly; or

- (c) Designs, manufactures, erects or installs any article for use at a mine must ensure, as far as reasonably practicable, that ergonomic principles are considered and implemented during design, manufacture, erection or installation.

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
- (d) That other 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.”

Due to this legal requirements RSC Ekusasa Mining embarked on a full risk assessment to ensure as far as reasonably practicable, that all potential health, safety and financial hazards are identified, relevant risks measured and control measures taken to ensure the articles are safe and without risk to the user. Furthermore, the risk assessment serves as proof of RSC Ekusasa Mining’s due diligence towards the mine, its employees, and assets and contributes in ensuring a healthy and safe work environment as far as reasonably practicable.

Team Members that participated in the assessment is as follows:

Name	Designation
Johann Steyn	Managing Director
Alf Piroddi	General Manager- Resin
Gert Jordaan	SHEQ Manager
Grace Mofokeng	Technical Manager - Resin

SCOPE OF WORK

This risk assessment on Rocloc® Resin Capsules is structured as follows:

- A - Loading, off-loading and transport by supplier
- B - Storage of articles on surface by user
- C - Loading, transport and off-loading of articles by user
- D - Storage of articles underground by user
- E - Installation of Rocloc® Resin Capsules by user
- F - Inspection on Rocloc® Resin Capsules by user before installation
- G - Inspection on Rocloc® Resin Capsules by user after installation
- H - Underground and surface impacts on Rocloc® Resin Capsules
- I - Chemical/Health hazards

The Objective of the Risk assessment

Conducting a risk assessment that will, identify most, if not all, potential health, safety and financial hazards the article could pose to the user. Measure each identified hazard, recommend controls to mitigate or control the relevant risks in order to reduce or eliminate the risk.

The identified Aim of the Risk Assessment

Providing the user with information that will assist in the appropriate safe use and handling of the article. In training and educating/guiding of employees, the specified recommendations/controls should be used in conjunction with the user's controls/procedures to safely and proper use of the article.

EXECUTIVE SUMMARY

Introduction –

The typical activities considered for the appropriate use of RocLoc® Resin Capsules include, the loading & offloading, storage, installation and inspection which the user is informed of. These activities occur at the supplier and at the user, which include both the surface/stores and the underground operations of the user.

The risk assessment on the RocLoc® Resin Capsules considered activities such as loading, offloading, transport, storage, installation, maintenance, and inspections, which are typical activities the user performs whenever using the article supplied. The risk assessment was therefore structured in such a manner that all potential health, safety and financial hazards and relevant risks could be identified, as far as reasonably practicable, whenever performing any of the activities using the article supplied.

The user can use the information in conjunction with the user's procedures during each activity.

Mentioned activities were broken down into specific task steps, as the supplier foresees the user using the articles, then all potential hazards were identified, related risks measured and recommendations made to guide the user of the most effective means in handling the articles when performing such activities.

Risks were measured using a risk index, which considers the three factors influencing the degree of risk, such as consequence; exposure and probability. The reason for risk measurement is to prioritize the hazards identified looking at the significant risks it poses, and then deciding whether the risks should be eliminated, controlled, minimized or are the risks perhaps tolerable as is.

Result

In summary the highest risks pertaining to each activity is listed below:

- A** - **Loading, and transport by supplier:**
 - Loading - Over loading of truck
 - Transport - Traffic and public roads
 - Off-loading - Unsafe off-loading with forklift and truck standing on uneven ground
- B** - **Storage of articles on surface by user:**
 - Ensure product is stored as recommended by supplier
- C** - **Loading & Off-loading, transport of articles by user:**
 - Loading & off-loading – Handling articles manually
 - Transportation
- D** - **Storage of articles underground by user:**
 - Safe, and as per supplier recommendations
- E** - **Installation of Rocloc® Resin Capsules by user**
 - Area of installation is safe
 - Installation occurs as specified by the supplier
- F** - **Inspection on Rocloc® Resin Capsules by user before installation**
 - Serves as a checklist only
- G** - **Inspection on Rocloc® Resin Capsules by user after installation**
 - Serves as a checklist only
- H** - **Underground and surface impacts on Rocloc® Resin Capsules**
 - Heat
 - Ventilation
- I** - **Chemical/Health hazards**
 - Eye and/or skin contact

Potential Benefits

The following potential benefits resulted from the risk assessment conducted:

- Legal compliance;
- Mutual understanding between the end user and the supplier regarding possible hazards and risks associated with the use of Rocloc® Resin Capsules;
- Instructions for end user to ensure correct use of Rocloc® Resin Capsules;
- Recommended safe use of Rocloc® Resin Capsules; therefore
 - Improved health and safe working practices;
 - Prevention / reduction of downtime;
 - Reduced potential for production loss;
 - Reduced potential for financial loss;
 - Reduced potential for injury;
 - Reduced potential for damage to equipment;
- Specified steps can/should be used as training / demonstration material; therefore
 - Improve hazard awareness;
 - Improved workmanship;
- Quality roof bolt installations; therefore
 - Improved safety;
 - Reduced falls of ground occurrences;
 - Improved production;
 - Financial gain;
 - Improved health and safety in the work environment

Risk Assessment Database

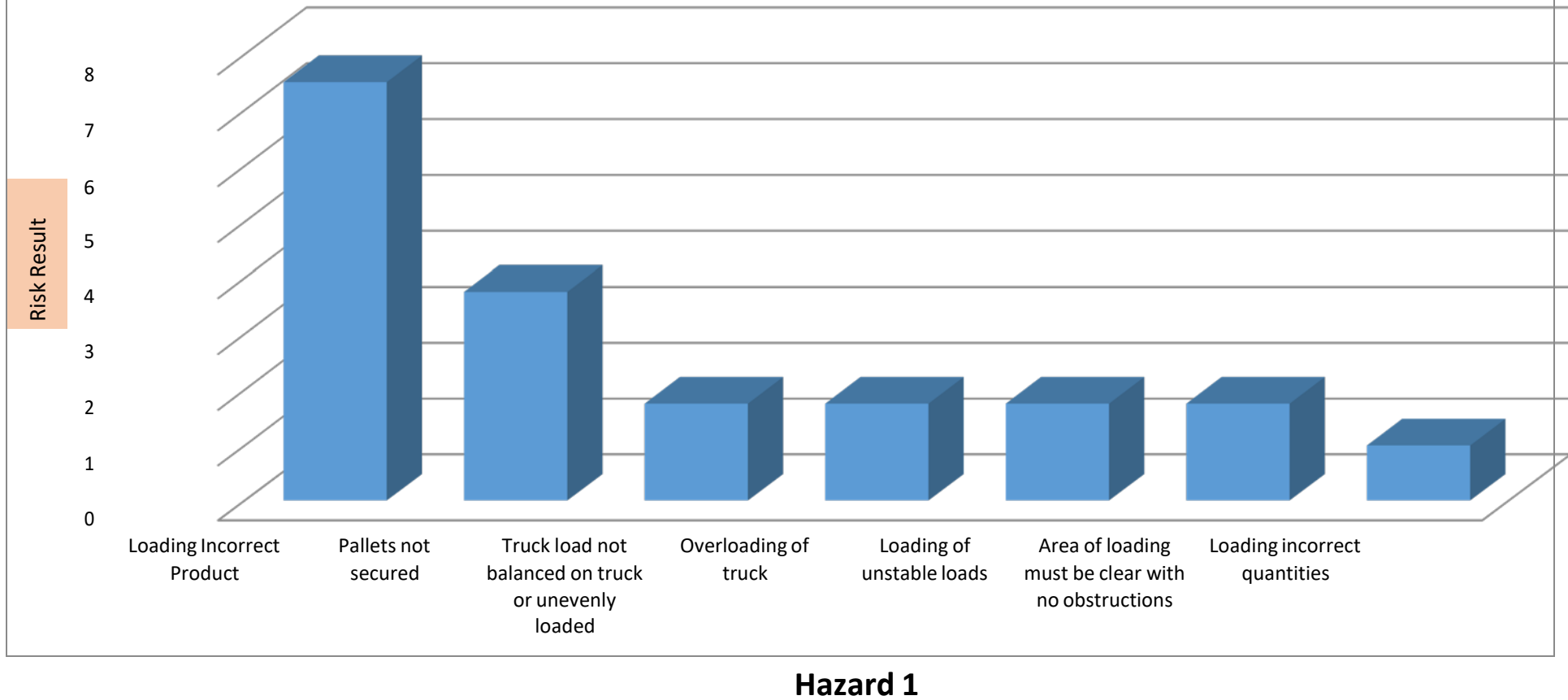
The following items are incorporated into the risk assessment database covering all issues as described in the structure of the risk assessment explained under the scope of work:

- Risk profiles
- Hazard identification and risk measurement database
- Recommended safe working procedures/practices

RISK MATRIX

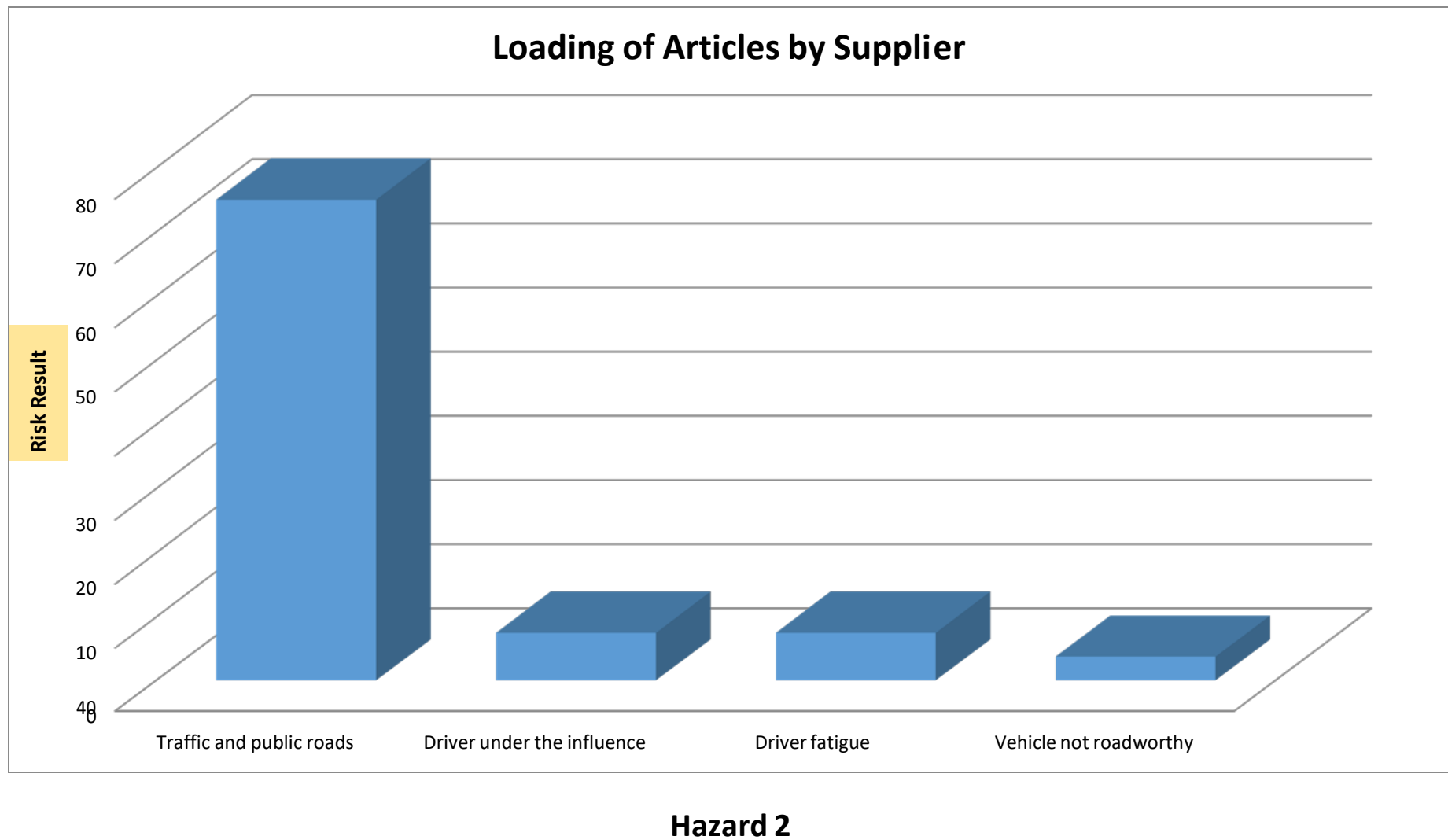
PROBABILITY		CONSEQUENCE		EXPOSURE	
Can it happen		What injury / damage could we expect		How often are people currently exposed to the hazard	
Well expected / Happens often	0.1	Catastrophic / Disaster / Multiple Fatal's / + R5 Mil Fatality / Severe	40	Continuous / Full Shift	10
Quite possible	0.5	Permanent Disability / R1 - R5 Mil	15	Frequent / Daily	6
Unusual - Has happened before	3	Very Serious Injury (ICU) / R500 000 - R1 Mil	10	Often / Weekly	5
Remotely Possible - Happened elsewhere	4	Serious Injury (ICU) / R100 000 - R500 000	7	Occasional / Monthly	3
Very unlikely but conceivable - Hasn't happened yet	5	Disabling Injury / R1 000 - R100 000	5	Unusual / Yearly	2
Practically Impossible - 1 in a million chance	6	Treat & Return Injury - Below R1 000	3	Rare / Within 5 Years	1
Virtually Impossible - Full certainty	7	Near Miss Injury / Damage	1	Remote / Beyond 5 Years	0.5
RISK RATING = Probability X Consequence X Exposure					
0	100	215	343		
LOW		MEDIUM	HIGH		

Loading of Articles by Supplier



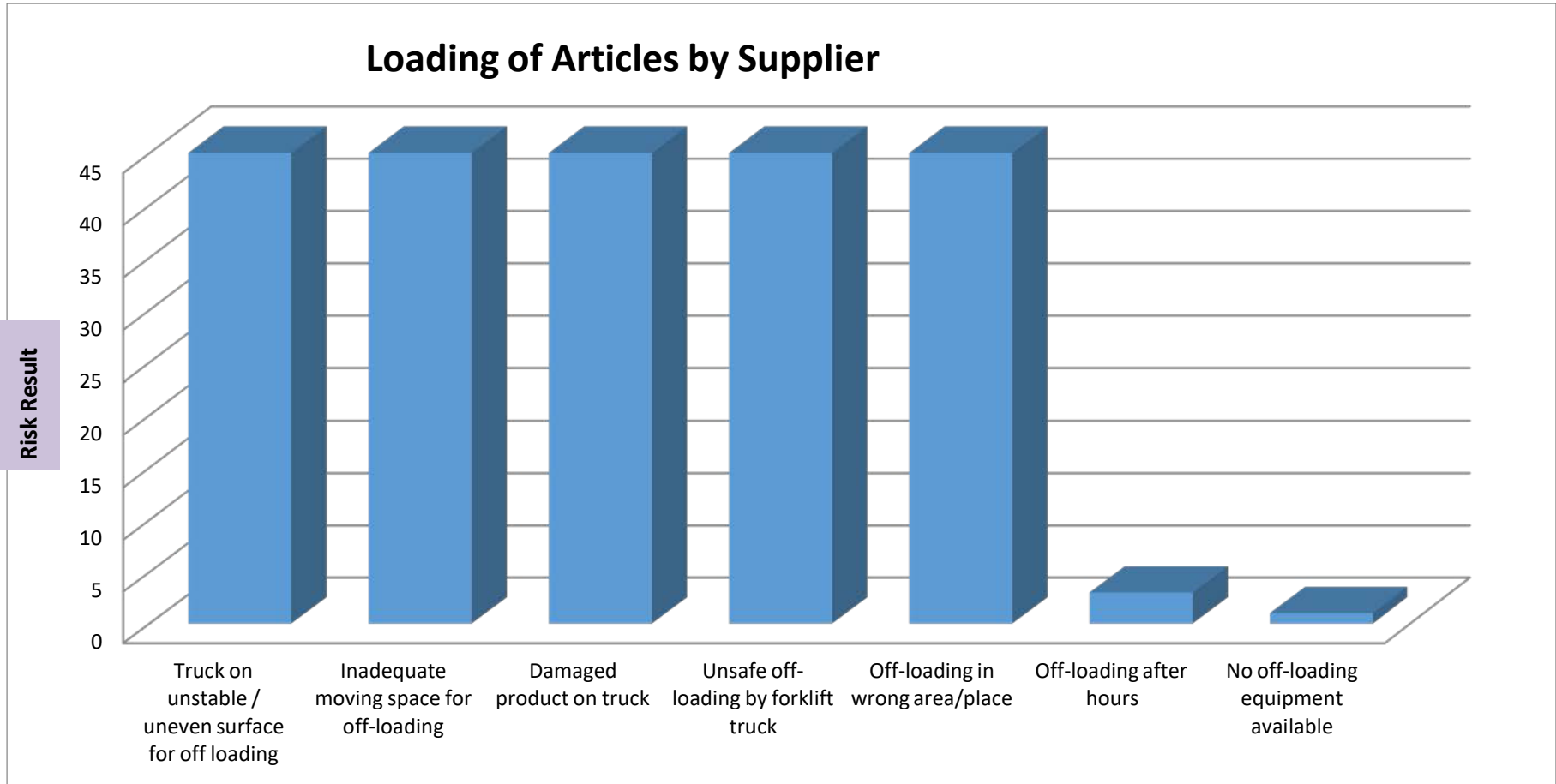
A – Loading of Articles by Supplier (Loading – Over loading of truck)

No	Activity	Potential Hazard	Consequences	C	E	P	Risk Result	Recommendations/Controls
1	Loading	Loading incorrect product	Substandard installation, personal injury, production loss, financial loss, down time, property damage	15	1	0.5	7.5	All products to be well labelled. Inspection of all products prior to loading. Certificate of Conformance for product used as reference. Receiving person at user must just and confirm right product is received.
		Truck load not balanced on truck or unevenly loaded	Truck not safe on the road, possible cause of road accident or loss of load on the road.	7	0.5	0.5	1.75	Driver of truck must instruct supplier how to load the truck to ensure load is evenly spread.
		Pallets not secured	Unstable load, road accident, personal injury, financial loss, down time	15	0.5	0.5	3.75	Load controller/truck driver ensures that load is securely fastened prior to truck leaves the yard.
		Loading incorrect quantities	Short delivery to customer, production loss, financial loss	1	1	1	1	Load controller must double count stock loaded and amounts must be concurred with the driver for which he signs for.
		Loading of unstable loads	While loading truck, product falls off; personal injury, financial loss, down time, late delivery	7	0.5	0.5	1.75	Prior to any product being loaded, the load controller must inspect all loads.
		Area of loading must be clear with no obstructions	Delay in loading, injury to people in the area, damage to property and or product	7	0.5	0.5	1.75	Area must be demarcated and no people in the area. Loading area must be clear of any obstacles.
		Overloading of truck	Truck not safe on the road, possible cause of road accident or loss of load on the road.	7	0.5	0.5	1.75	Load must conform to truck load specification. Pre-calculate load prior to loading by load controller.



A – Loading of Articles by Supplier (Transport – Traffic and public roads)

No	Activity	Potential Hazard	Consequences	C	E	P	Risk Result	Recommendations/Controls
2	Transporting	Vehicle not roadworthy	Truck not safe on the road, possible cause of road accident or loss of load on the road. Production loss, financial loss, people injury.	15	0.5	0.5	3.75	Supplier uses reputable transport service. Supplier to evaluate overall condition of trucks prior to loading.
		Driver fatigue	Truck not safe on the road, possible cause of road accident or loss of load on the road. Production loss, financial loss, people injury.	15	1	0.5	7.5	Truck supplier track history has proven that drivers are rotated regularly and accident history is used as a tool.
		Driver under the influence	Truck not safe on the road, possible cause of road accident or loss of load on the road. Production loss, financial loss, people injury.	15	1	0.5	7.5	Gate controls of all people entering are tested. Truck supplier track history has proven that drivers are rotated regularly and accident history is used as a tool.
		Traffic and public roads	Truck not safe on the road, possible cause of road accident or loss of load on the road. Production loss, financial loss, people injury.	15	10	0.5	75	Planned routes are discussed regularly with transporter. Trucks are loaded early or late afternoon to ensure travelling is not done during peak hours of traffic.

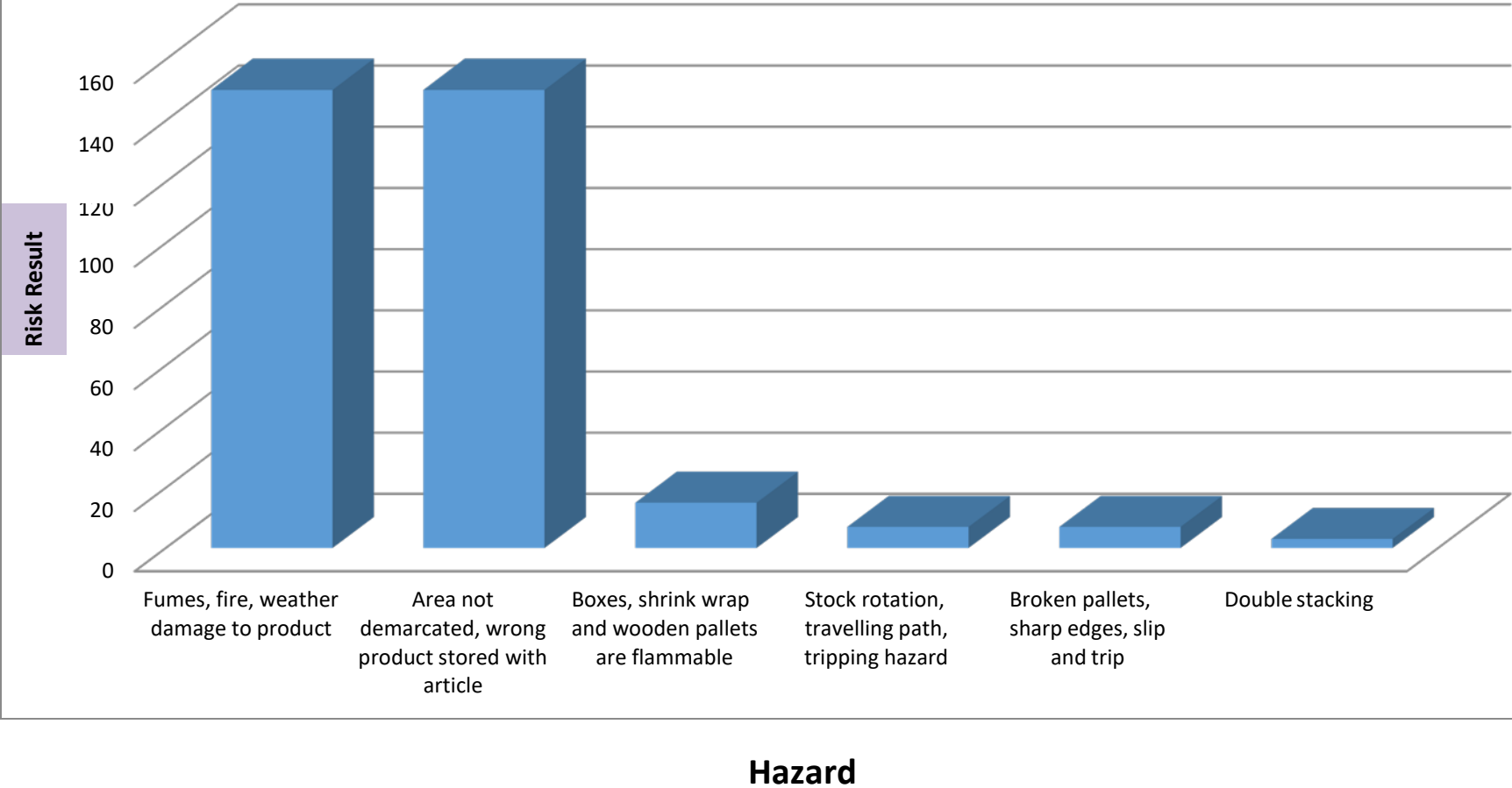


Hazard 3

A – Loading of Articles by Supplier (Off-loading – Unsafe off-loading with forklift and truck standing on Un-even ground)

No	Activity	Potential Hazard	Consequences	C	E	P	Risk Result	Recommendations/Controls
3	Off-loading	Truck on unstable / uneven surface for off loading	Personal injury, product damage	15	1	3	45	User to ensure that a demarcated even area is provided for off-loading.
		Inadequate moving space for off-loading	Personal injury, product damage, property damage	15	1	3	45	User to ensure that off-loading area is safe and provides sufficient space to safely enter and exit the area.
		Damaged product on truck	Unstable load, personal injury, financial loss, down time	15	1	3	45	User to not off-load product and return the load to supplier. Supplier to re-supply quality product.
		Unsafe off-loading by forklift truck	Personal injury, property damage, product damage, delay	15	1	3	45	User to ensure that competent person operates the equipment and that the equipment is designed for the safe off-loading of the product. Driver to report to supplier any concerns which the supplier can take-up with the user.
		Off-loading in wrong area/place	Delay at user, downtime, financial loss, double handling	15	1	3	45	Supplier issues driver with a delivery note to where off-loading will occur. Driver to confirm with user prior to off-loading that the product is for the right user.
		No off-loading equipment available	Delay at user, downtime	2	0.5	1	1	User to ensure that truck is off-loaded timeously.
		Off-loading after hours	Delay at user, downtime, in-correct receipting	1	1	3	3	User to provide competent staff for afterhour's delivery.

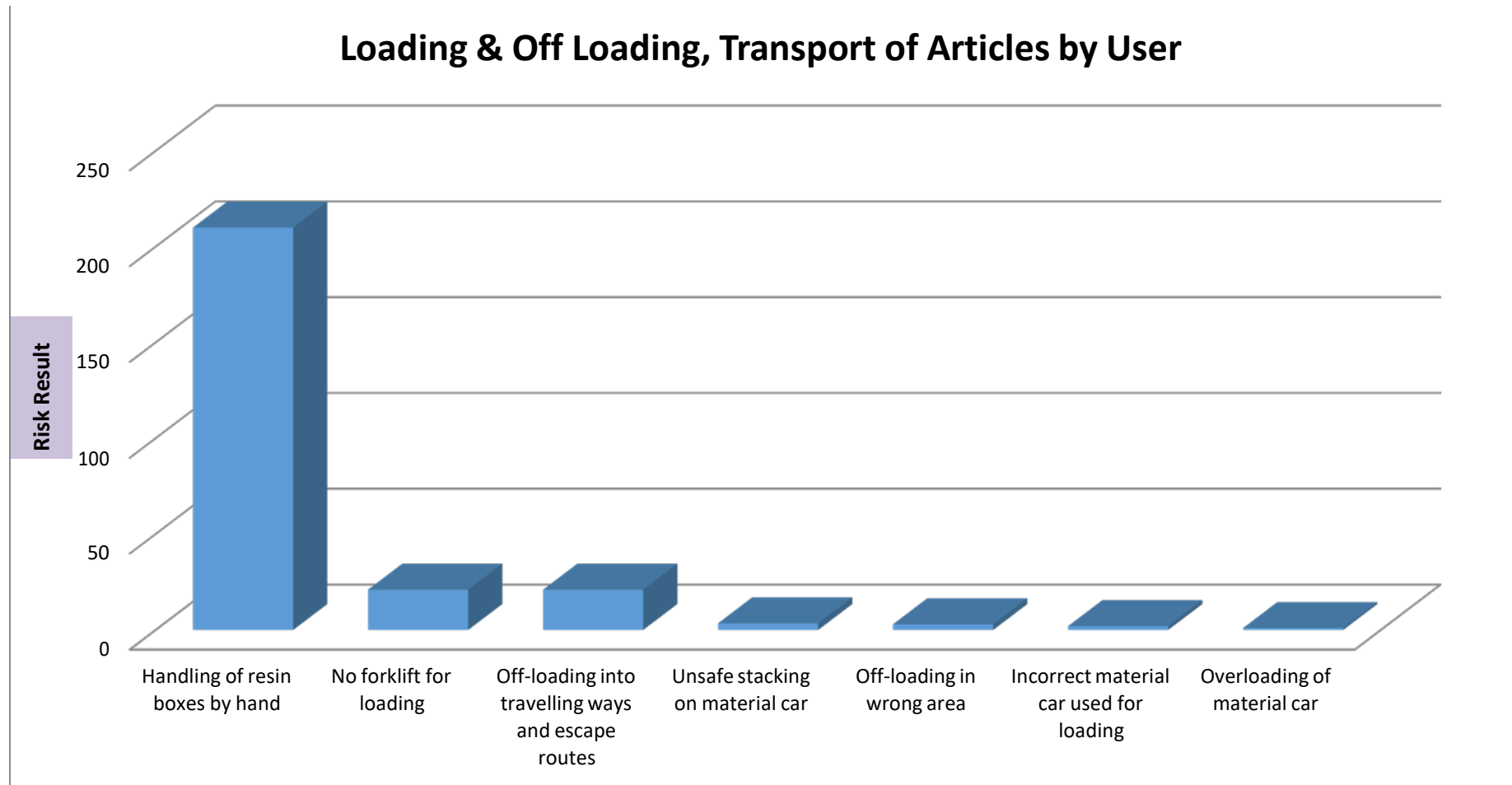
Storage of Articles on Surface by User



B - Storage of articles on surface by user

No	Activity	Potential Hazard	Consequences	C	E	P	Risk Result	Recommendations/Controls
1	Area of Storage	Fumes, fire, weather damage to product.	Damage to property, damage to product, environmental, health, financial loss	15	10	1	150	Product must be stored as recommended by supplier in a safe, well - ventilated area. No flammable products to be in close proximity of the product. Product not to be stored in direct sun-light on surface. Product to be stored un-cover.
2	Area of Storage	Ignition sources	Fire, damage to property	10	0.5	5	25	Keep product away from heat, sparks, open flames or hot surfaces.
3	Area demarcated	Area not demarcated, wrong product stored with article	Damage to property, damage to product, environmental, health, financial loss	15	3	1	45	Area must be well demarcated. Use product Technical Data Sheet (TDS) to ensure product is stored correctly with other products. Ask supplier for advice if not sure.
4	Ensure correct stack height of article pallets	Double stacking	Damage to product, injury to persons, financial loss	15	2	0.1	3	No double stacking of article pallets.
5	Spacing between article pallets	Stock rotation, travelling path, tripping hazard	Damage to product, injury to persons, financial loss	7	1	0.5	3.5	Ensure that there is sufficient space between pallets so that they pallets can be inspected for damage and stock rotation.
6	No sharp ends protruding from pallet	Broken pallets, sharp edges, slip and trip	Personal injury, product damage, falling stack	7	1	0.5	3.5	User to remove broken pallets with protruding sharp edges to prevent injury or damage to article
7	Ensure fire extinguisher equipment is in close proximity	Boxes, shrink wrap and wooden pallets are flammable	Fire, damage to product, damage to property and possible injury	15	10	0.1	15	Ensure the fire equipment is in close proximity. Remove and through away all materials removed from the pallet. Good house-keeping practices are required.

Loading & Off Loading, Transport of Articles by User

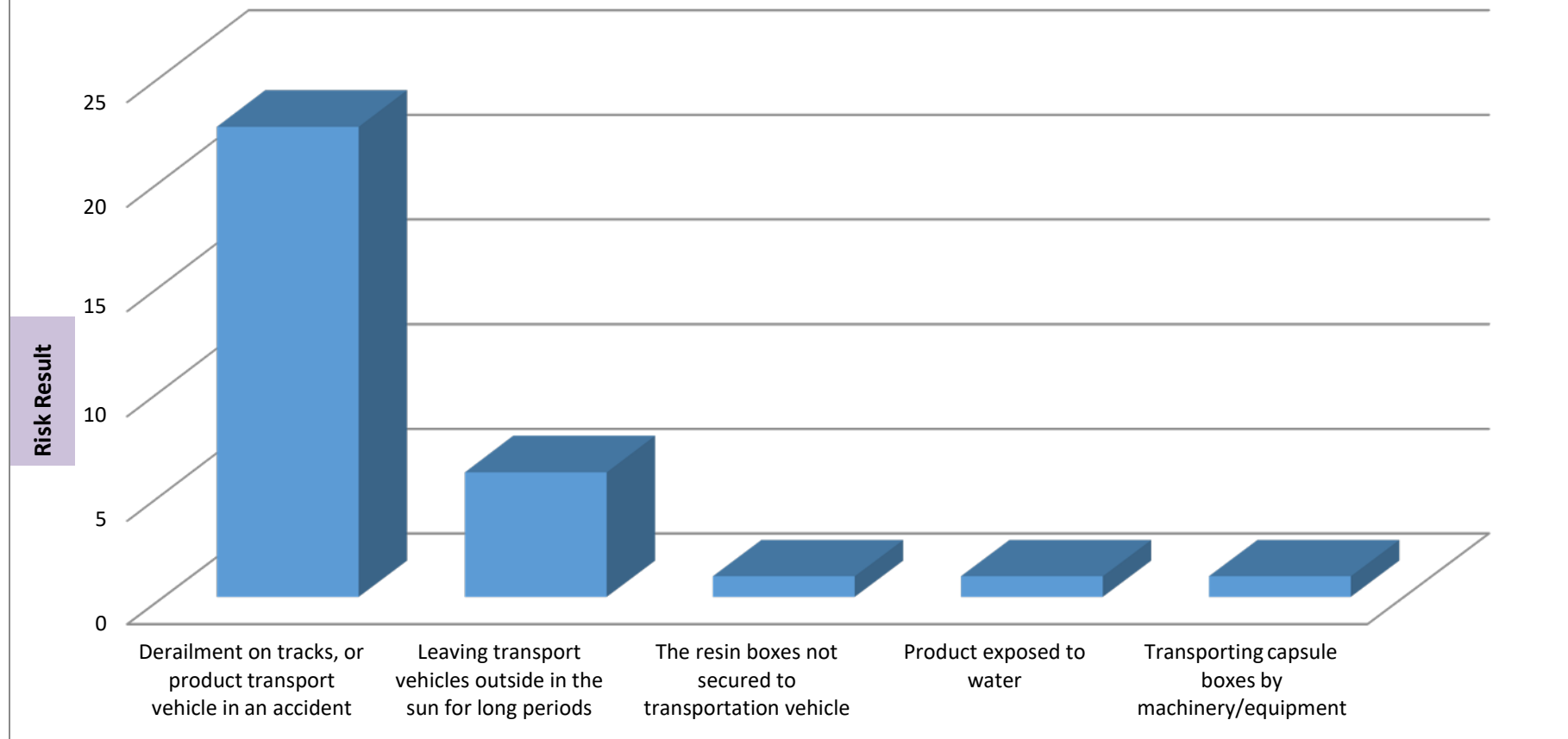


Hazard 1

C - Loading & Off-loading, transport of articles by user:

No	Activity	Potential Hazard	Consequences	C	E	P	Risk Result	Recommendations/Controls
1	Loading	No forklift for loading	Delay, handling boxes by hand	7	3	1	21	The user must ensure the use of a forklift for loading the product. This will eliminate any possible hand handling and prevent injury.
		Unsafe stacking on material car	Damage to product, injury to persons, financial loss	7	1	0.5	3.5	User to load capsule boxes properly into material car. Do not stack more than 6 boxes high. Do not stack any other material on top of the boxes.
		Overloading of material car	Damage to product, injury to persons, financial loss	1	2	0.5	1	User not to load in excess of the rim of the material car and not more than 6 boxes high.
		Incorrect material car used for loading	Property damage, product damage, possible injury	1	2	1	2	As far as reasonably practical the user only to use proper enclosed material cars for the transport of the article.
		Handling of resin boxes by hand	Back injuries, hand injuries, eye injuries, pollution	7	10	3	210	Supplier manufactures boxes with straps on the box which is to be used for lifting and lowering the boxes. Where at all times the suppliers recommended PPE.
		Off-loading in wrong area	Time delay	1	3	1	3	User to clearly mark or have a system in place to ensure that material car is delivered to the correct working area.
		Off-loading into travelling ways and escape routes	Obstructed travelling and escape routes, personal injury	7	3	1	21	User to ensure product is off-loaded in designated areas only.

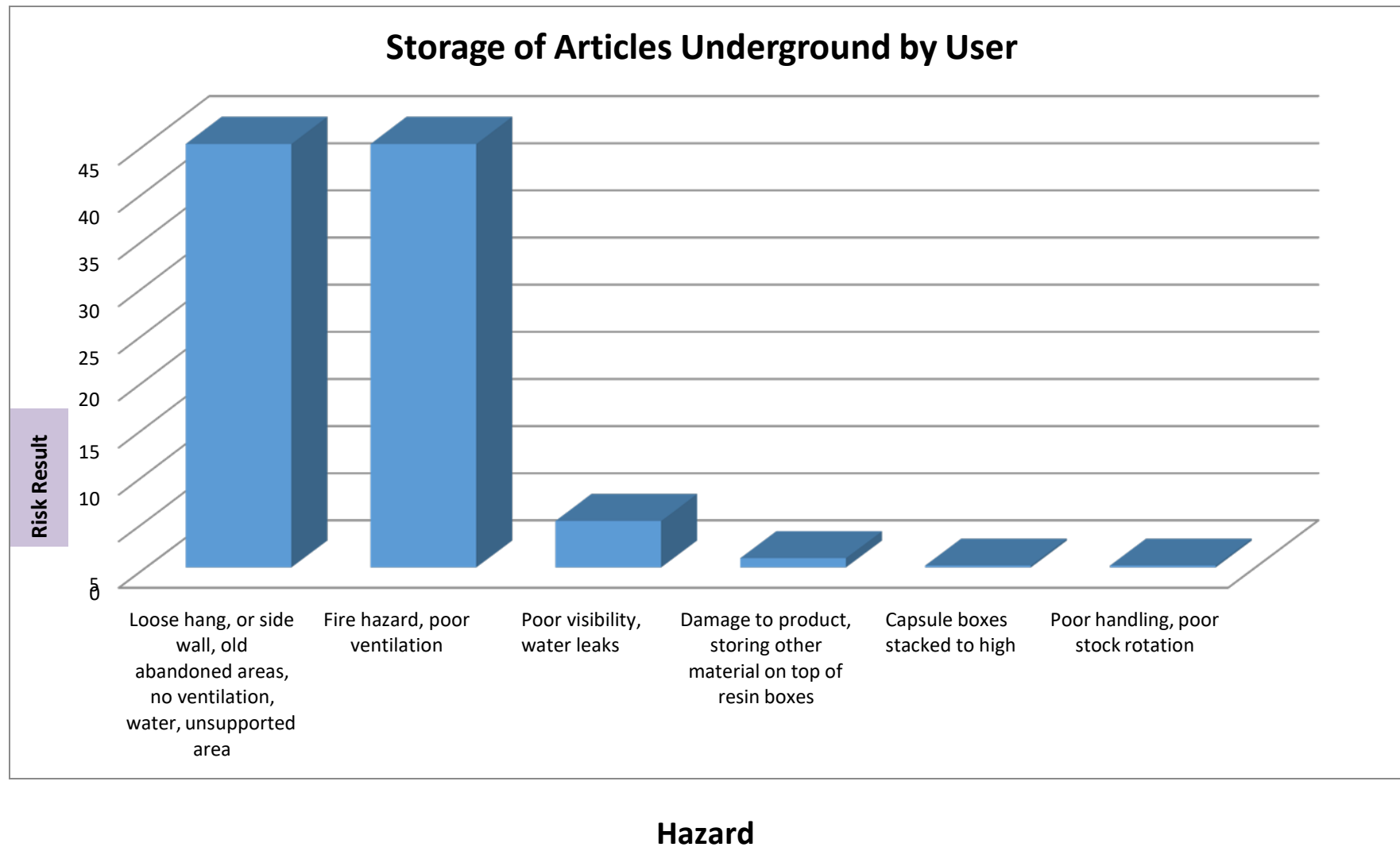
Loading & Off Loading, Transport of Article by User



Hazard 2

C - Loading & Off-loading, transport of articles by user:

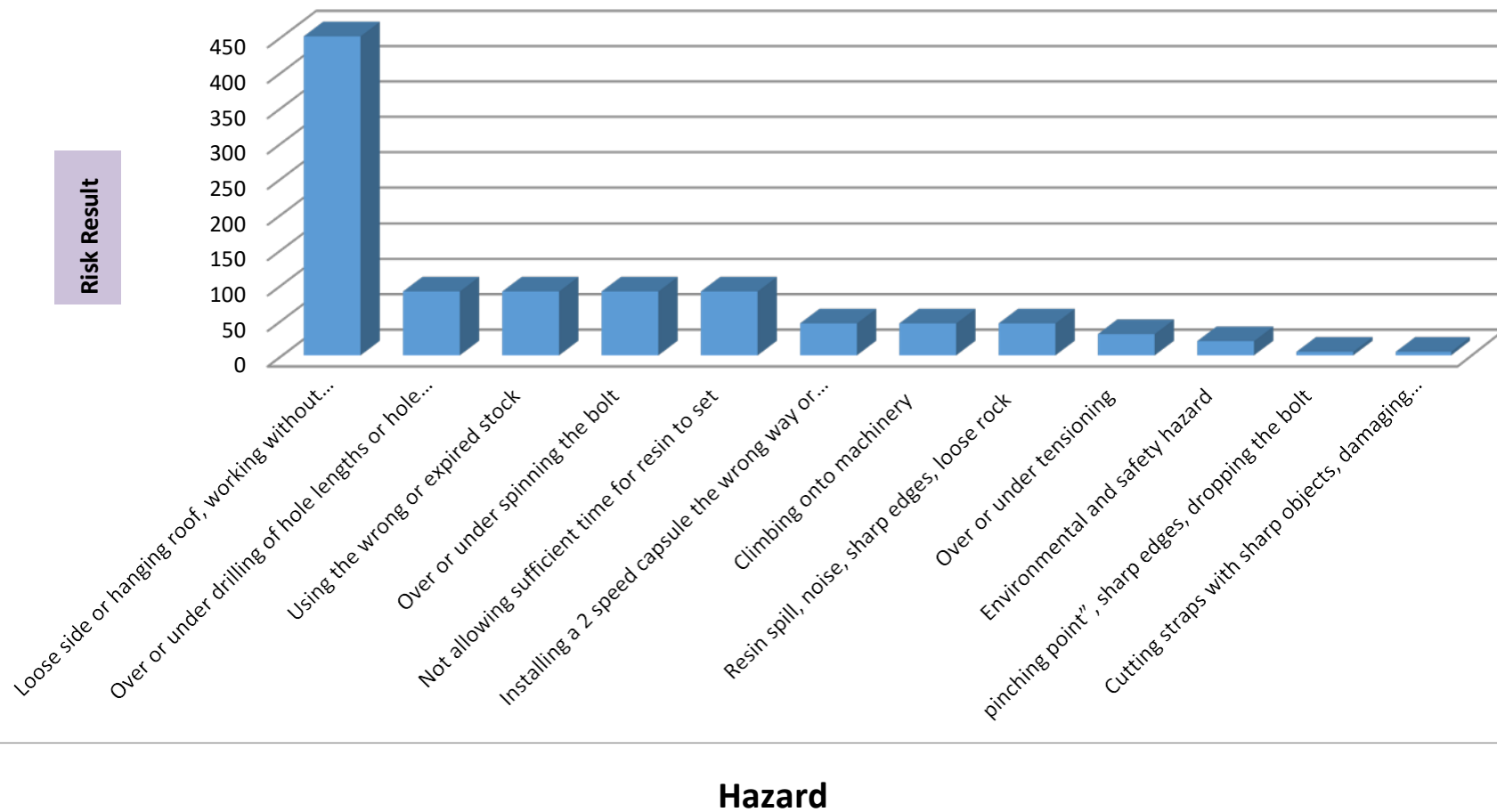
No	Activity	Potential Hazard	Consequences	C	E	P	Risk Result	Recommendations/Controls
2	Transport	Derailment on tracks, or product transport vehicle in an accident	Property damage, product damage, personal injury	15	3	0.5	22.5	User to ensure that well maintained equipment, material car and transport vehicle is used at all times.
		The resin boxes not secured to transportation vehicle	Property damage, product damage, personal injury	1	1	1	1	User to ensure that all resin boxes are securely transported at all times.
		Product exposed to water	Property damage, product damage	1	1	1	1	As far as possible, cover resin boxes that is transported in the open
		Leaving transport vehicles outside in the sun for long periods	Property damage, product damage, reduced product performance	3	2	1	6	When product is loaded, it must be transported underground/work area as soon as practically possible. Do not unnecessary expose the products to the elements.
		Transporting capsule boxes by machinery/equipment	Property damage, product damage, reduced product performance	1	10	0.1	1	The user must ensure that the product which is transported by machinery/equipment is done in such a manner the box is not damaged. Do not drop the box.



D - Storage of articles underground by user

No	Activity	Potential Hazard	Consequences	C	E	P	Risk Result	Recommendations/Controls
1	Ensure safe storage area for product	Loose hang, or side wall, old abandoned areas, no ventilation, water, unsupported area	Property damage, product damage, reduced product performance	15	6	0.5	45	User to ensure a competent person ensures area for storage purpose is safe and clearly demarcated. Refer to manufactures storage conditions.
	Ensure correct stack height	Capsule boxes stacked to high	Loss of product	1	3	0.5	0.2	Do not stack resin capsule boxes more the 6 high.
	Ensure easy accessibility	Poor handling, poor stock rotation	Property damage, product damage, reduced product performance	1	2	0.5	0.2	User to ensure proper demarcated areas to ensure sufficient access to product to ensure FIFO system is used on the product.
	Heat, store near transformer	Fire hazard, poor ventilation	Property damage, product damage, reduced product performance	15	6	0.5	45	Do not store product in close proximity of electrical transformers or and equipment or machinery that generates heat. Area must always be well ventilated.
	Storage area	Poor visibility, water leaks	Property damage, product damage, reduced product performance	5	1	1	5	Ensure that product is stored in a well illuminated area and there is no water leaks onto the product.
	Storage area	Damage to product, storing other material on top of resin boxes	Property damage, product damage, reduced product performance	1	1	1	1	Do not store any other material or equipment on top of the resin capsule boxes.

Installation of RocLoc® Resin Capsule by User



E - Installation of Rocloc® Resin Capsules by user

No	Activity	Potential Hazard	Consequences	C	E	P	Risk Result	Recommendations/Controls
1	Ensure immediate area is safe	Loose side or hanging roof, working without temporary support, poor ventilation, slippery surfaces, moving machinery	Personal injury or death, down time, financial loss, production loss, section 54's	15	10	3	450	User to ensure that a competent person declares area safe for installation of product. The working area must be well ventilated to prevent build-up of dust and fumes. Ensure other machinery and equipment users are aware of the installation process.
2	Drilling of the holes	Over or under drilling of hole lengths or hole diameters	Substandard or poor installations	15	2	3	90	The user must ensure that the drill operators perform this task as per the mines standard and that the correct equipment is available and used.
3	Use of capsule	Using the wrong or expired stock	Substandard or poor installations	15	2	3	90	The user must ensure that the correct product is used by the operator as per the mine standard and that the operator can understand the instruction on the resin box.
4	Removing capsules from the box	Cutting straps with sharp objects, damaging the product.	Substandard or poor installations	1	5	1	5	The operator must take care when opening the box as to ensure that he uses the correct tool and does not damage the product.
5	Installing the capsules into the hole	Installing a 2 speed capsule the wrong way or installing	Substandard or poor installations	15	3	1	45	The user must ensure that the operator has received sufficient training and understanding of the resin capsule product.

		the wrong sequence of capsules						ensure that all installation instructions of capsule sequence are communicated to the user.
6	Installing the capsules into the hole	Capsule Tear	Fumes – inhalation of fumes – respiratory difficulties	3	1	6	18	Wear prescribed respirators
			Resin in eye – eye irritation	3	1	6	18	Wear prescribed chemical goggles
			Resin on skin – skin irritation	3	1	6	18	Wear full overall and impervious goggles
7	Installing the capsules in high areas	Climbing onto machinery	Personal injury	15	3	1	45	The use of the correct equipment such as a resin capsule injector must be used.
No	Activity	Potential Hazard	Consequences	C	E	P	Risk Result	Recommendations/Controls
8	Installation process	Resin spill, noise, sharp edges, loose rock	Personal injury	15	3	1	45	Using the correct PPE at all times as per the mine's standard is essential.
9	Inserting the roof bolt	'pinching point", sharp edges, dropping the bolt	Personal injury	5	1	1	5	Using the correct PPE at all times as per the mine's standard is essential. Stay clear of all rotational equipment.
10	Spinning of roof bolt into hole through the resin	Over or under spinning the bolt	Substandard or poor installations	15	2	3	90	User must ensure that the spinning times that are stated by the supplier and or the mine's standard is adhered to. Equipment such as
11	Hold or wait time	Not allowing sufficient time for resin to set	Substandard or poor installations	15	2	3	90	User must ensure that the spinning times that are stated by the supplier and or the mine's standard is adhered to. Equipment such as

12	Tensioning of nut	Over or under tensioning	Substandard or poor installations	15	2	1	30	User to ensure that the correct torque settings on the equipment is set. Items such as crimp nuts, shear pins and load indicators can be used for this process to enable user to torque
13	Good housekeeping	Environmental and safety hazard	Personal injury, environmental damage	40	1	0.5	20	User to ensure that area is well cleaned and all excess items such as boxes, plastic act. Is properly disposed of.

F - Inspection on Rocloc® Resin Capsules by user before installation

Example of product code: RC1950030T30

Item	What to check	Possible Cause if not correct	Recommendation
Product Code	Check for diameter(19), first 2 numbers after the letters RC and the length (500), next 3 numbers, set time (30), next 2 numbers	Incorrect order, incorrect delivery, wrong product at the wrong work area	Do not use the product, inform Rock Engineering department and the supplier
Expiry date	That the date of use does not exceed the expiry date	Poor stock rotation, old resin left underground	Do not use the product, inform Rock Engineering department and the supplier
Box	Damages	Poor handling or poor storage	Check that no capsules are damaged, damaged capsules must not be used. Investigate and rectify the cause of damage.
Capsules	Colour of capsule is the same colour as indicated on the box label	Incorrect order, incorrect delivery, wrong product at the wrong work area	Do not use the product, inform Rock Engineering department and the supplier
Capsule	Catalyst, white part of the capsule is not hard.	Over exposure to heat	Do not use the product, inform Rock Engineering department and the supplier

G - Inspection on Rocloc® Resin Capsules by user after installation

Item	What to check	Possible Cause if not correct	Recommendation
Resin	No major spillage below installation	Wrong resin, wrong size holes	Inform supervisor and Rock Engineering Department
Shear Pin	Ensure that shear pins fitted to bolts have broken	Poor installation	New installation
Crimp Nut	Ensure that the nut has broken through the crimp and run up on the thread of the bolt	Poor installation	New installation
Load indicator	Ensure that the load indicator has collapsed	Poor installation	New installation

H - Underground and surface impacts on Rocloc® Resin Capsules

Unit	Potential Hazard	Consequences	C	E	P	Risk Result	Recommendations/Controls
Underground	Heat, water, physical damage, poor storage, poor stock rotation.	Reduced shelf life of product, financial loss, poor installations, lost time, personal injury, damage to property	15	3	3	135	The Rocloc® Resin Capsule is a critical component of the roof support system and the user must ensure that the product is handled, stored and used in the correct manner. The user must adhere to all recommendations and advice of supplier and the mine's standards.
Surface	Heat, water, physical damage, poor storage, poor stock rotation, natural elements, theft	Reduced shelf life of product, financial loss, poor installations, lost time, personal injury, damage to property	15	2	1	30	The Rocloc® Resin Capsule is a critical component of the roof support system and the user must ensure that the product is handled, stored and used in the correct manner. The user must adhere to all recommendations and advice of supplier and the mine's standards.

I - Chemical/Health hazards

Chemical	Potential Hazard	Consequences	C	E	P	Risk Result	Recommendations/Controls
Polyester resin	Eye contact	Burn and or irritation	7	10	0.5	35	User to ensure employees wears the required PPE during the handing and installation process. Should any contact occur, flash eyes with clean water and if required, seek medical attention.
	Skin contact	Irritation and or rash	1	6	0.5		User to ensure employees wears the required PPE during the handing and installation process. Should any contact occur, wash area with soap and clean water.
	Inhalation	Irritation and or coughing	1	0.5	0.5	0.25	User to ensure employees wears the required PPE during the handing and installation process. Should any inhalation occur, move away from the exposure. If required, seek medical attention.
	Ingestion	Nausea	3	0.5	0.5	0.75	User to ensure that employees do not consume food in close proximity of exposed resin. Should ingestion occur, wash mouth with water and seek medical attention.
	Fire	Toxic fumes	7	0.5	0.5	1.75	User to ensure articles are not stored or kept close to any potential fire hazard. In the result of a fire, use powder extinguishers and breathing apparatus to prevent inhalation of toxic fumes.

Design Intention

RocLoc® Resin Capsules – To provide a resin grouted bolt installation in either a full column or point anchoring system with specific set times and strength development to ensure the user of competent anchoring of rock bolts for a safe working environment.

Advantages in the use of *RocLoc® Resin Capsules*:

- Quick support system
- Cost Effective
- Ease of installation
- Protection of exposed steel rock bolts in full column installations
- Reduced storage space required
- Ease of handling boxes which do not exceed 22kg/box
- Reduces rock falls
- Enhances life of mine
- Durable
- Reduced labour requirements for installation
- Prolongs rock integrity
- Clearly identifiable packaging

Disadvantages in the use of *Resin Capsules*:

- Shelf life
- Requires PPE when used or handled
- Poses minor health hazard
- Requires supervision