# PROTECTIVE COATINGS FOR MINING OPERATIONS



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UNITEDWATERPROOFERSCANADA.CA

# About Us

- Established in 2019, we are a rapidly growing company that provides customized concrete repairs & waterproofing applications to each client, based on their needs.
- We specialize in polyurea-based membrane applications.
- We bring unique solutions to the mining sector, to ensure safety and prolong the useful life of mines and equipment.



# PROTECTIVE COATINGS FOR MINING OPERATIONS



## **MINE SHAFT COATING**

Polyurea-based flexible coating that ensures:

Worker safety.

Optimal conditions for the mine operations and significant maintenance costs savings.



## MILLING MACHINERY LINING

Polyurea-based, less flexible coating.

Protects against:

Abrasion Cavitation



#### **REDUCED ENVIRONMENTAL IMPACT**

Polyurea-based coating, with appropriate additives used for tailing pound lining.

Mitigates pollution by preventing tailings from infiltrating into ground water.



#### **RADIATION CONTROL**

Polyurea-based membrane with additives which prevent permeation of radioactive materials. Applied when a mine is decommissioned.

> Mine opening is backfilled by the operator. A concrete slab is placed on the entrances.

Polyurea membrane is applied.

# MINE SHAFT COATING SAFETY & PROTECTION

### **REPAIR METHOD**

To ensure optimal results for durable protection against water and methane infiltration, proper application procedure must be followed:

- 1. Prep the surface by removing dirt and debris.
- 2. Inject LeakStop into all surface cracks and voids.
- 3. Spray structural FireSkin<sup>™</sup> Foam (10 pcf) on mine surfaces (25mm).
- 4. Apply BlastSkinII super-polymer over the structural FireSkin Foam (3mm to 6mm).
- 5. Apply GlowSkin striping to walls (0.5mm) additional reflective material (optional).





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# LOW ENVIRONMENTAL IMPACT

HANDLING TAILINGS

# **REPAIR METHOD**

To ensure minimal environmental impact caused by tailings, before they are deposited, the valley is properly lined:

- 1. Cover valley surface with geotextilematerial.
- 2. Primer is applied
- 3. StormSkin is applied (1.5 to 3mm in thickness).



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# MILLING MACHINERY LININIG EXTENDS THE SERVICE LIFE

## **REPAIR METHOD**

To prolong the service life the milling machinery the lining is applied to protect from abrasion and cavitation by the following procedure:

- 1. The surfaces are thoroughly cleaned to remove any rust.
- 2. Primer is applied (0.4064mm in thickness).
- 3. StormSkin is applied (1.5 to 2mm in thickness).



# RADIATION CONTROL MINE END-LIFE CYCLE

## **REPAIR METHOD**

A basalt additive is mixed with a polyurea-based membrane to ensure that the mine is properly sealed at the end of its life cycle (radiation will not permeate).

- 1. The mine is backfilled.
- 2. Concrete pad or geomaterial is placed (1 foot thick).
- 3. Primer is applied(0.4064mm in thickness).
- 4. The mixture of StormSkin with a basalt additive is applied (3 to 6 mm in thickness).



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# POLYUREA-BASED MATERIALS

THEIR ADVANTAGES

# NO SURFACE PRE-TREATMENT

Can be applied directly to rock surface, without an extra expense of time and materials.

# ELASTICITY

Covers cracks and small cavities caused by rock displacement, preventing water infiltration and lose rocks from falling.

# **APPLICATION FLEXIBILITY**

Can be applied over existing coating to repair any damaged areas, without membrane replacement.

# VARIETY OF ADDITIVES

Can be mixed with a variety of other materials – from polyurethane to polyamide, for a range of applications.

# HIGHLY RESISTANT

Can withstand:

- abrasion,
- chemicals and solvents.

# VARIED APPLICATION METHODS

Foam or spray, roll on / brush on (depending on additives used).





#### **SAFETY & PROTECTION**

This super-polymer system provides structural support, while shielding surfaces against water / methane infiltration.

## **APPLICATION ADVANTAGES**

- No limitation to skin thickness.
- Application temperature range: 0°F to 150°F (on dry surface).

#### **SUPERIOR QUALITIES**

Elongation	ASTM D412	250%
Abrasion	ASTM D4060	22 mg/1k cycles
Tensile strength	ASTM D412	5411 psi
Impact	ASTM D2794	>350 in. lbs

### **GREEN FORMULA**

A two-component, no-VOC, 100% solids, fire retardant formula.







#### **SAFETY & PROTECTION**

Aids in the protection of building infrastructure, pipelines, bridges, etc., by eliminating water vapor transmission.

## **APPLICATION ADVANTAGES**

- No limitation to skin thickness.
- Application temperature range: 0°F to 150°F (on dry surface).

#### **SUPERIOR QUALITIES**

Elongation	ASTM D412	300%
Abrasion	ASTM D4060	22 mg/1k cycles
Tensile strength	ASTM D412	2850 psi
Impact	ASTM D2794	>350 in. lbs

## **GREEN FORMULA**

A two-component, no-VOC, 100% solids, fire retardant formula.





