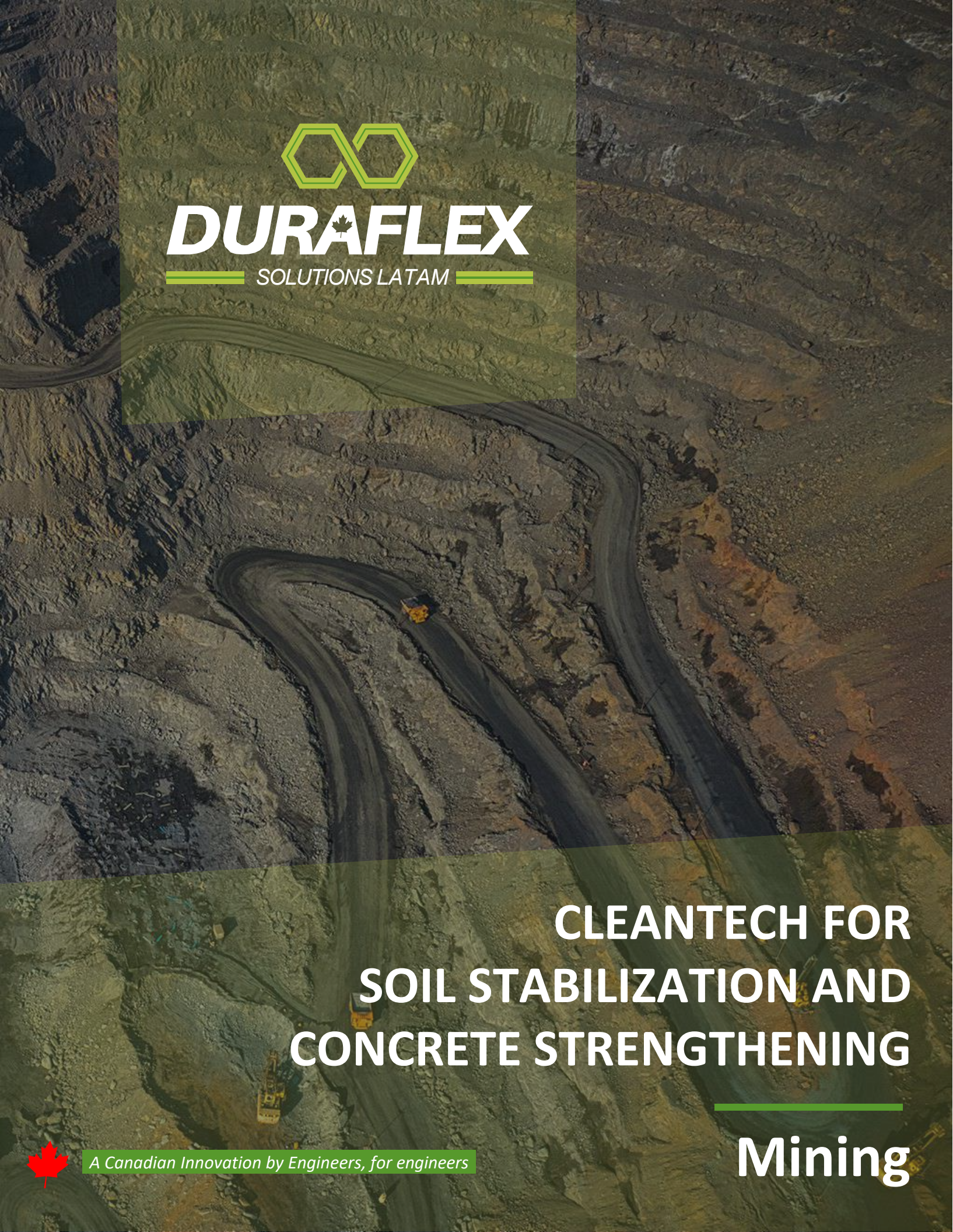


DURAFLEX

SOLUTIONS LATAM

CLEANTECH FOR SOIL STABILIZATION AND CONCRETE STRENGTHENING

Mining

A Canadian Innovation by Engineers, for engineers

Duraflex® is a cement admixture used in the compaction of native soils.

What is Duraflex®?

Duraflex Solutions is a fourth generation product and is the result of extensive and consistent testing to ensure that it becomes the definitive product in soil stabilization.

With continuous testing by recognized institutions, Duraflex Solutions is today's benchmark product for ensuring soil stabilization in problematic environments.

Duraflex Solutions immobilizes harmful substances that endanger the environment, such as heavy metals and organic parameters. These substances can be permanently fixed in the new crystalline structures.

Duraflex can be used as an additive in most types of soil composition, with the exception of highly organic soils such as peat.

Duraflex inhibits the action of fulvic and carbonic acids, while supporting and enhancing the hydration process. **Due to the newly created interlocking hexagonal crystal structures, significant increases in bonding capabilities occur. This bonding results in higher compressive strength and faster cure times.**

Duraflex® as a cement additive

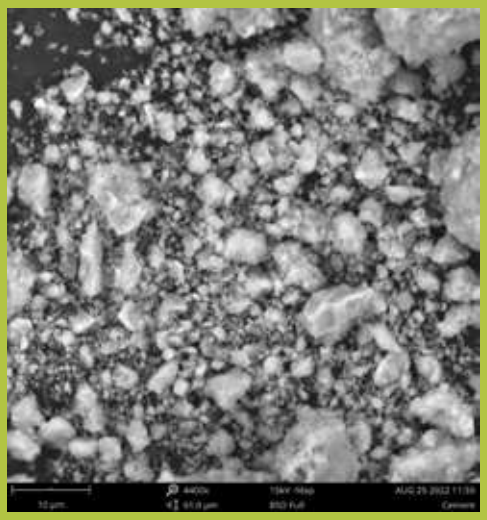
Existing soil + OPC Cement + Duraflex

100% | 10% (BY WEIGHT OF SOIL) | 2% (BY WEIGHT OF CEMENT)

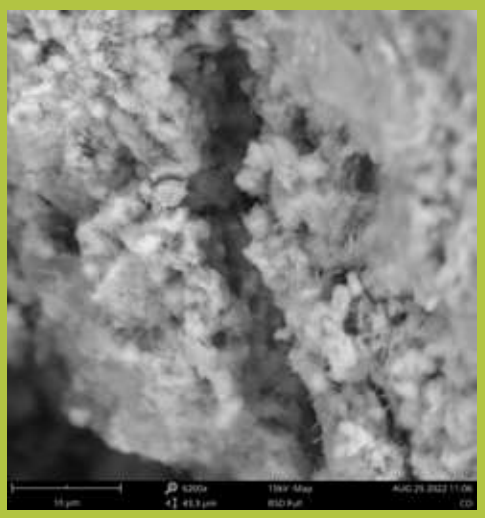
PROCEDURE

1. Water
2. Compaction
3. Finished Structure

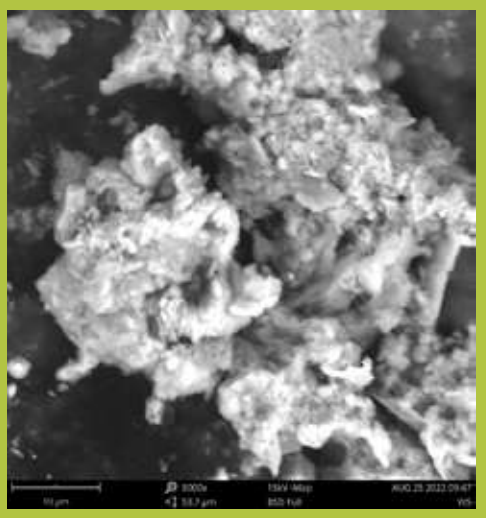
Duraflex® results under the microscope



CEMENT



CEMENT + DURAFLEX



SOIL + CEMENT + DURAFLEX

Areas of use of Duraflex®

Foundations

- Drilling rigs for the oil and gas industry
- Industrial areas / Plants / industrial facilities
- Sewage systems
- Ports / Docks / Container Terminals
- Parking/handling/loading areas
- Tunnels
- Camp facilities (civilian, industrial military)
- Railroads

Construction

- Highways
- Urban and interurban roads
- Rural and agricultural roads
- Plantation roads
- Access to the mining, oil and gas industry
- Access and service roads for wind farms and wind farms

Stabilization

- Embankments
- Pavement recycling
- Slopes
- Dams/irrigation and flood mitigation
- Landfills
- Landslides
- Natural subgrades

Duraflex® in the Mining Industry

Mining experience

Duraflex Solutions has proven to be a reliable and effective partner in the mining industry, especially in work related to tailings ponds, heap leach pads, stockpiles and haul roads. With extensive experience and expertise in soil stabilization, Duraflex has provided innovative and quality solutions in these critical mining projects.

In the field of tailings ponds, Duraflex Solutions has been instrumental in improving the stability and reliability of these structures. Through the application of our additive, we have strengthened the soils used in the construction of the ponds, improving their resistance and reducing the risks of leaks and collapse. The immobilization effect of harmful substances, such as heavy metals, has contributed to environmental protection and compliance with environmental regulations.

In heap leach pads, Duraflex Solutions has played a key role in improving the efficiency and effectiveness of mineral extraction processes. Our additive has enabled better compaction of heap leach pads, optimizing leachant circulation and improving recovery of valuable minerals. In addition, we have worked on stabilizing the storage yards to ensure the integrity of the stored materials and prevent heap collapse.

When it comes to haulage roads in the mining industry, Duraflex Solutions has proven its ability to strengthen and improve the strength of these crucial roads. Our additive has been used in the construction and maintenance of haul roads, allowing for increased load capacity, reduced deformation and improved track durability. This has contributed to greater efficiency in the mining operation by ensuring safe and smooth transport of mined materials.

Some of the projects executed

Works in mine

- HBMS - Flinflon, Manitoba
- VALE (INCO) - Sudbury, Ontario
- VALE (INCO) - Thomson, Manitoba
- ARUTMIN MINERALS - Kotabura, Indonesia
- JOHNSON LAKE - Tuscon, Arizona
- ARUTMIN MINERAIS - Sumatra, Indonesia
- JOHNSON LAKE MINE - Tucson, Arizona

Roads in mine

- IMPERIAL OIL(EXXON) - Fort McMurray
- SUNCOR - Fort McMurray, Alberta, Canada
- ARUTMIN MINERAIS - Kotabura, Indonesia
- GLENCORE - Chad, Africa
- CNRL Southern Alberta, Canada
- SOUTH DEEP MINERALS - South Africa
- SHANXI COAL - Shanxi, China

CleanTech for soils, structures and liabilities

Emissions reduction

The use of Duraflex has a significant impact on the reduction of CO2 emissions. During the setting process, CO2 emissions are considerably reduced compared to the use of traditional cement. Cement can emit up to 15% CO2, the combination of cement and Duraflex reduces this emission to 2%. In soil and cement applications with Duraflex, CO2 emissions are reduced to 0%.

It also reduces the need for borrow materials, which results in less transportation of materials to the job site, reducing emissions. Furthermore, the improved deflection resistance provided by Duraflex translates into a 20% increase in the service life of heavy-duty vehicle tires, reducing emissions related to tire production and disposal. As a result of these positive impacts on CO2 emissions reduction, **the Duraflex team has worked hard to convert this advantage into carbon credits.**

The use of Duraflex now allows for the certification and issuance of carbon credits, providing our customers with an additional way to recognize and value their commitment to sustainability.

Liability Management

In collaboration with our partner Practical Waste Solutions, we have successfully developed a contaminated land remediation strategy for the historic shipyards in Belfast, Ireland.

Preliminary laboratory results confirm that **DURAFLEX, in combination with cement and contaminated soil, successfully microencapsulates remaining metal residues** at the shipyard site, including arsenic, cadmium, chromium, copper, mercury, nickel, lead, selenium and zinc. This meets the standards for using the material as backfill for construction projects.

The Titanic in Belfast, Ireland - 1909

Comprehensive Technical Support with Duraflex®

Duraflex® Support

At Duraflex, we are proud to offer a strong support program to our customers around the world. **We have a team of over 20 highly specialized engineers located in Canada and Asia, ready to provide technical advice and customized solutions.**

Our team of engineers is trained in the latest advances in soil stabilization technology and support designs. They work closely with our customers to understand their specific needs and provide innovative and efficient solutions.

One of the highlights of our support program is that we offer free assistance. We believe that providing sound and accessible technical support is critical to ensuring our customers' success in their soil stabilization projects. Our team is available to answer questions, provide guidance and offer recommendations throughout the process.

In addition, we are committed to the development of engineering talent. For this reason, we have established a Scholarship Program for engineering students in South America.

We also recognize the importance of continuous training for our on-site personnel. We ensure that we provide support and training to our on-site team so that they are equipped with the skills and knowledge necessary to carry out soil stabilization projects effectively and safely.

At Duraflex, we are committed to providing solid support to our clients, accompanying them in every stage of their projects, in order to achieve successful and lasting results.

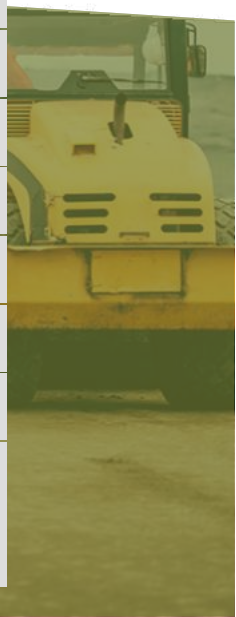
Duraflex® versus other alternatives

The best alternative

When we put Duraflex to the test with other alternatives available on the market, its advantages can be seen: it offers greater temporal efficiency, cost savings, durability and its application can be applied in a wide range of applications.

in a wide range of soil types. With its 100% mineral composition, its ability to reduce CO2 emissions makes Duraflex the most reliable, responsible and cost-effective long-term choice for a wide range of projects in different sectors.

	DURAFLEX	CAL	POLYMER	SALES	LIGNIN SULFATE	ENZYMES	EST. IONICS	GEO-SYNTHETICS
+UCS	✓	✗	◷	◷	◷	◷	◷	✗
Res. Pres. Hydraulics	✓	◷	✓	✗	◷	◷	◷	✗
Res. Pres. Hydrostatic	✓	✗	◷	✗	✗	◷	◷	◷
Tensile Strength	✓	✗	◷	✗	✗	◷	◷	✓
Waterproof	✓	◷	◷	✗	◷	◷	◷	◷
Sulfate Resistance	✓	✗	◷	✗	✗	✗	✗	◷
Corrosion Resistance	✓	✗	✗	✗	✗	◷	◷	✓
Plastic Flooring	✓	◷	✓	◷	◷	✓	✓	✓
Sandy Soils	✓	✗	✗	✗	✗	✗	✗	✓
Marine Soils	✓	◷	✗	✗	✗	✗	✗	◷
CleanTech	✓	✗	✗	✗	✗	✓	✗	N/A
VOC	NO	YES	POCO	YES	YES	NO	YES	N/A
Defrosting (cycles)	50+	3-5	3-5	0	0-1	4-6	4-6	10
Application Temperature	-6° A 30°	0° a 30°	2° a 28°	-10° a 30°	2° a 30°	2° a 30°	2° a 30°	N/A
Curing Time	24-36 hs	24 hs	48 hs	4 to 8 hs	24 hs	24-48 hs	48 hs	N/A
Useful Life Time	15 years +	6 months - 6 months - 6 months - 6 months - 6 months 2 years	1-4 years	3 months	1 year	3-4 years	3-4 years	N/A



DURAFLEX

SOLUTIONS LATAM

Building Solid Ground

Considerable savings in time, costs and CO2 emissions reduction.

Versatile formula, suitable for various types of soils and structures.

100% mineral and environmentally friendly composition.

Greater strength and durability compared to alternatives on the market.

+54 9 223 4484864

+54 9 223 4484864

mg@duraflexla.com

duraflexla.com