



CONCRETE SIKA TECHNOLOGIES FOR MINING

BUILDING TRUST
CONSTRUIRE LA CONFIANCE

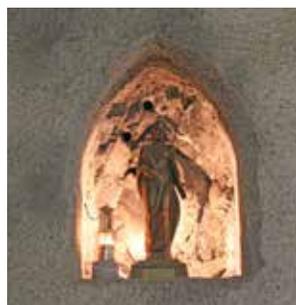


SIKA TECHNOLOGIES

SOLUTIONS FOR MINING

IF IT CANNOT BE GROWN, IT HAS TO BE MINED...

Thanks to quickly evolving technological advances, natural resources like iron, copper and coal have become crucial for the manufacture of the countless products we now use every day. World population growth and higher living standards everywhere, naturally, have fed our appetite for these products. Not surprisingly, the mining industry has responded by opening new mines, and expanding and rejuvenating existing ones, thus generating a demand for quickly-installed wall-face control systems like shotcrete (sprayed concrete) and durable, concrete transportation infrastructures. Sika has made it its mission to provide dedicated products and expert knowledge and services to satisfy this demand.



SHOTCRETE

Sprayed concrete combines the many qualities of modern concrete technology (with respect to materials handling technology) and concrete admixture chemistries. Sika masters all the technologies of sprayed concrete -- from wet to dry spray applications.

Sika® ViscoCrete®
Superplasticizer

SikaTard®
Shotcrete Retarder

SikaPump®
Pumping Agent

FlexoDrain®
Water Drainage System

Sigunit®
Accelerator

SikaFiber®
Micro/Macro Synthetic and Steel Fibres

Sika®-PM
Concrete Spraying Systems

Aliva® Rotary Machines
Concrete Spraying Machines



CONCRETE

Sika has contributed to concrete's development as a durable building material since 1910. As a full range supplier, Sika offers solutions for every step of the concrete production and construction processes.

Sika® ViscoCrete®
Superplasticizer

Sika® ViscoFlow
Slump Retention

SikaRapid®
Accelerator

Sika® Stabilizer
Viscosity Modifying Agent

SikaPump®
Pumping Agent

SikaPump® Start-1
Lubricant Agent

SikaFume®
Silica Fume

SikaFiber®
Micro/Macro Synthetic and Steel Fibres



COATINGS

Sika offers a range of coating products that either protect structures from abrasive and chemically-aggressive fluids, or seal entire containment structures. Sika's coating products protect specific mining infrastructures on a large scale, such as process water retention basins, thickeners, leach tanks, flotation cells and tailings processing and storage facilities.

Sikalastic®

This polyurea-based Sika standard coating product is suited to a whole range of applications. A highly chemical-resistant version of Sikalastic® is used to protect equipment and structures that are exposed to aggressive and chemical fluids.

Sikagard®

The standard epoxy coating from Sika for a wide range of coating applications.



GROUTING

Heavy machinery, such as mills, crushers and hoists are key components in large-scale mining operations. Grouts play an important role in transferring vibrations and heavy loads to the foundations. Expanding, non-shrink grouts quickly fill tight voids creating highly effective, high-strength weight-bearing areas. Sika offers a whole range of grouting solutions including epoxy, cementitious, acrylic and polyurethane materials.

Sikadur®, SikaGrout®

A range of high-performance, high-precision, cementitious, acrylic or epoxy grouting materials.

Icosit®-KC

A two-component polymer grout, especially designed for fixing heavy machinery and reducing vibration transmission.



INJECTION

Fast cycle-times are important for an efficient mining operation. The SikaFix® range provides effective and innovative injection solutions, including polyurethane, silicate, cementitious and acrylate materials for all possible injection and ground stabilization problems.

SikaFix®

A fast-reactive injection product which expands with or without contact with water, mainly injected using a two-component pump.

The SikaFix® range of injection products are suited for immediate water-blocking under high water ingress and high pressure conditions.



SPECIAL FLOORING

Sikafloor® provides efficient solutions for working areas that are subject to constant loads and need to be highly impact-resistant. Sika flooring products can be found in mine workshops and inventories all around the globe. Cementitious, resin and polyurethane systems are available for all types of flooring.

Sikafloor®

Fast commissioning and high chemical, thermal and mechanical resistant flooring for truck workshop locations that are constantly subjected to heavy loads and impacts.

Sikafloor® Epocem®

For repair and levelling of existing concrete. Pavement joints are sealed with elastic polyurethane.

SIKA TECHNOLOGIES FOR MINING

SHOTCRETE APPLICATIONS



SLOPE STABILIZATION

Slope stabilization is used, among other methods, for increased critical slope angles and mine portals to secure the working area.



WALL-FACE SUPPORT

High efficiency, both in terms of application as well as early strength development, is required for the application of shotcrete in underground mining.



SHOTCRETE EQUIPMENT

Sika® Aliva® and Putzmeister shotcrete equipment for all types of shotcrete.



SIKA SERVICE

Sika supports its mining customers, from pretesting to continuous mine site support, from logistics to ongoing optimization.

MAIN REQUIREMENTS OF SHOTCRETE IN MINING



High Early Strength with Sigunit®

Quick setting -- for safe and efficient application -- is key when it comes to shotcrete in mining.



Long Slump Retention with Sika® ViscoFlow Technology

Because, depending on the location and size of the mine, shotcrete may be required to travel long distances before it reaches the application site...



Laboratory Testing

Sika has developed a testing device called the "MiniShot" -- a device designed to test local raw materials (e.g. binder system), shotcrete accelerators, etc. in a quick and resource-efficient manner.



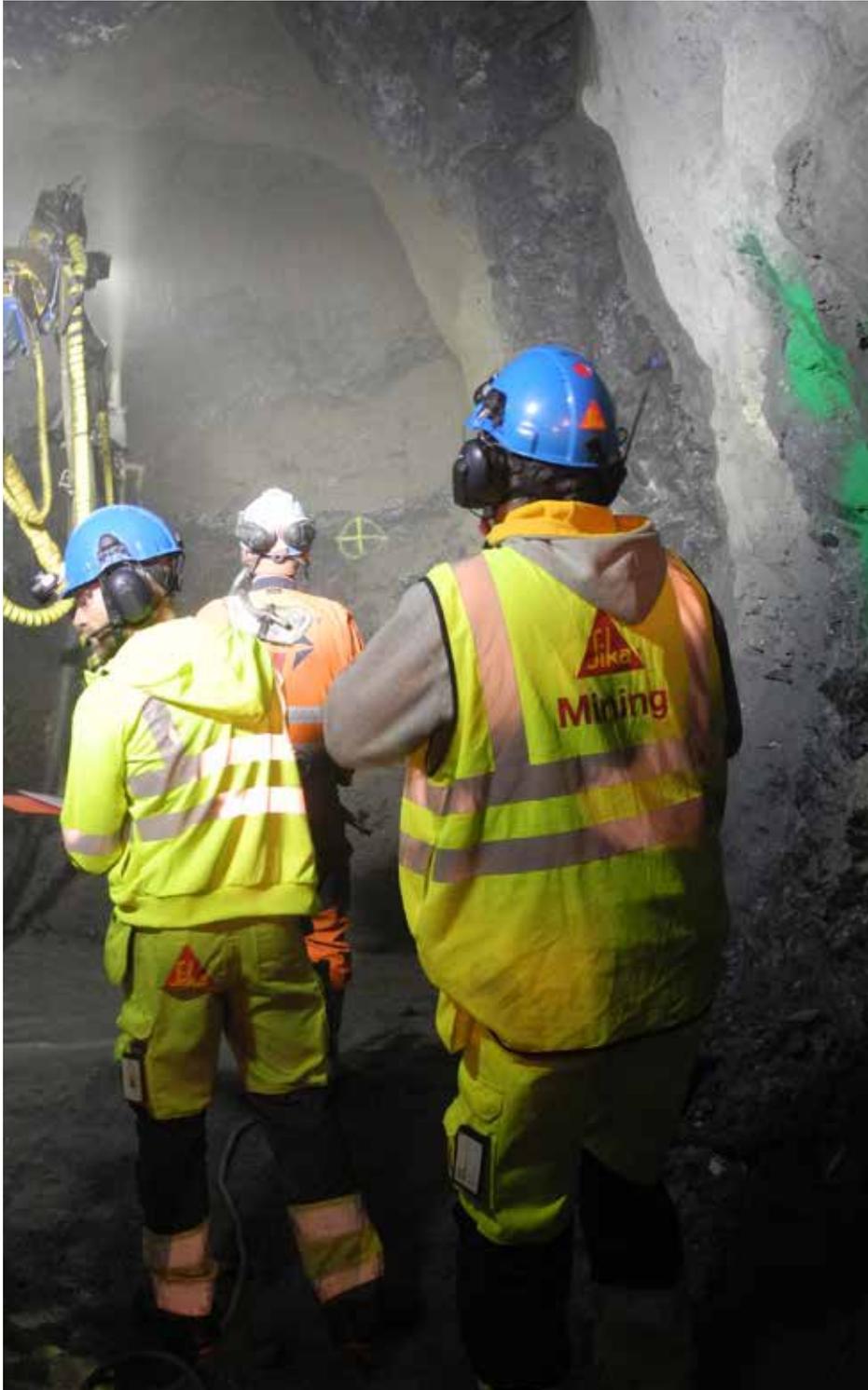
On-Site Testing

After the preselection with the MiniShot system, the findings are tested under real conditions. For this purpose, well-trained shotcrete technicians accompany the local shotcrete team to achieve best cost performance for the specific mining application.



Trouble-Free Application

High performance, speedy and interruption-free application is important for shotcrete in mining. This is achieved through the perfect shotcrete mix design and efficient and reliable admixtures.



SIKA PRODUCTS

Sika® ViscoCrete®

Superplasticizer with very high water reduction and long workability time.

SikaTard®

Set retarding admixture, especially formulated for shotcrete, to control workability time under all temperature conditions.

SikaPump®

Special pumping aids to improve pumpability in difficult situations and/or when transported over long distances.

FlexoDrain®

An easy-to-use drainage system to handle water ingress in mining.

Sika® ViscoFlow

Specially-designed admixture for long workability times under demanding conditions.

Sigunit®

Shotcrete accelerator for high early-strength requirements. Available as a liquid solution or as a powder to meet the challenging logistics of mining operations.

SikaFiber®

To significantly improve the ductility and tensile strength of concrete.

Sika®-PM

A range of robust and reliable concrete spraying machines built for the rough underground working conditions.

Aliva® Rotary Machines

Universal applicator equipment for dry and wet shotcrete in the thin-flow process.

SIKA TECHNOLOGIES FOR MINING

CONCRETE APPLICATIONS



WALL-FACE REINFORCEMENT

Strong, fast and reliable wall-face reinforcement is key in underground mining. Concrete has to be designed to withstand the particularly demanding conditions.



ROAD CONCRETE

Transport routes, especially those experiencing high volumes of traffic and/or the concentrated loads of heavy mining equipment, are subject to high mechanical stress and strong abrasion.



BACKFILLING

Backfilling is becoming more and more important to mining operations. Thanks to the use of admixtures, various characteristics of the backfill can be positively enhanced.



SLICKLINE CONCRETE

A suitable concrete mix-design -- and the right admixtures -- are essential for transporting concrete that doesn't segregate and block lines.

MAIN REQUIREMENTS OF CONCRETE IN MINING



High Early-Strength with SikaRapid® Technology

In order to decrease cycle-times in underground operations, high early-strength is needed to achieve the required compressive strength within the required time-frames.



Long Workability-Time with Sika® ViscoCrete® and ViscoFlow Technologies

Workability-time is critical, especially for pumped concrete. Transport distances and temperature are challenging factors affecting the workability requirements of the concrete.



Good Pumpability with SikaPump®

Pumping agents reduce friction and resistance in pipes, thus reducing wear on pumps and pipes and increasing volume output. A lubricant mix is used to coat the internal walls of the pipe with a high fines layer to allow for easy pumping.



High Resistance Against Abrasion with SikaFiber®

By improving the toughness and flexural strength of concrete with fibres, its resistance against percussive and striking impact is boosted.



High Flowability with Sika® ViscoCrete® Technology

By using self-compacting concrete, the efficiency and ease with which concrete is placed can be greatly improved. The concrete flows more easily, completely filling formwork and achieving full compaction without vibration -- even in the presence of congested reinforcement structures.



SIKA PRODUCTS

Sika® ViscoCrete®

Superplasticizer to achieve very high water reduction and long workability time.

Sika® ViscoFlow

Specially-designed admixture for long workability times under demanding conditions.

SikaRapid®

For accelerated and high early-strength development.

SikaStabilizer®

For improved cohesion of the concrete mix and to compensate for variations in raw materials

SikaPump®

Special pumping aids to improve pumpability in difficult situations and/or over long distances.

SikaPump® Start-1

A pump lubricant to reduce wear and tear on pumping equipment.

SikaFume®

To significantly enhance the durability of concrete.

SikaFiber®

To significantly improve the ductility and tensile strength of concrete.

SIKA SOLUTIONS FROM ROOF TO FOUNDATIONS

Roofing Systems



Sarnafil®
Sikaplan®
Sikalastic®

Concrete Production



Sika® ViscoCrete®
SikaRapid®
Sika® Air

Joint Sealing



Sikaflex®
Sikasil®
Sikadur® Combiflex

Grouting and Anchoring



SikaGrout®
Sikadur®
Sika AnchorFix®

Concrete Repair & Protection



Sika® MonoTop®
SikaTop®, SikaRepair®
Sikagard®

Structural Strengthening



Sikadur®, Sika® CarboDur®
SikaWrap®
Sika® CarboShear

Floor & Wall Systems



Sikafloor®
Sikagard®
Sikagard® Duroplast

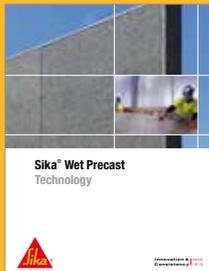
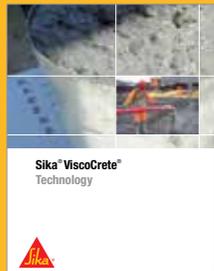
Waterproofing Systems



SikaProof®, SikaFuko®
Sika® Greenstreak®
SikaSwell®, SikaFix®

Sika Canada Inc., a member of the Sika Group, is a leader in the field of speciality chemicals, for construction and manufacturing industries. Our product lines feature high quality roofing systems, concrete admixtures, mortars and resins, sealants and adhesives, structural strengthening components, industrial and decorative flooring, as well as protective coatings and waterproofing systems. Our expertise is borne out of a global presence and served by strong, local support. Sika has earned the trust of our industries for over 100 years by delivering the highest standards of commitment and partnership.

Also Available:



The information, and in particular, the recommendations relating to the application and end-use of Sika products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions, within their shelf life. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any recommendations, or from any other advice offered. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users should always refer to the most recent issue of the Product Data Sheet for the product concerned, copies of which will be supplied on request or can be accessed in the Internet under www.sika.ca.

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