CONCRETE WATERPROOFING BY CRYSTALLIZATION™

MAKING CONCRETE BETTER

Waterproofing • Protection • Durability • Repair
“Today, as we serve customers in more than 70 countries, I’m proud of our achievements...”

For more than 40 years, the ground-breaking crystalline waterproofing technology of Xypex Chemical Corporation has been serving concrete users worldwide. Our long established core values continue to guide every Xypex interaction and to define the conduct and behaviour that enhances the trust and confidence of our customers.

The pillars of our corporate mission have been key in the evolution and growth of the company and how we respond to the needs of our customers. Innovation, excellence, teamwork, integrity, accountability and performance are the values that have ensured solid, long-term relationships with our international team of licensees and distributors.

In thousands of applications, Xypex has fulfilled on a promise we made to ourselves right from the beginning. Our market would be global, our distributor network would be second to none, we would build an infrastructure of people who would be knowledgeable, responsive, and reliable. Our products, always, would be the best in the business.

Today, as we serve customers in more than seventy countries, I’m proud of our achievements, of the unique niche that we’ve earned, of the confidence that our customers have in our products and service – the knowledge that Xypex consistently makes concrete projects around the world better.

With technology, research, and constant testing, we’ll keep doing it. We’ll be there, where you are, with the people, the service, and the highest quality standards to ensure the job is done right.

D’Arcy Mainwaring
PRESIDENT
The Xypex Company

Xypex Chemical Corporation is one of the world’s leading manufacturers of products for the waterproofing, protection and repair of concrete structures. In 1969 Xypex fundamentally changed and improved the approach to concrete waterproofing and protection, introducing Xypex “Concrete Waterproofing by Crystallization”, a chemistry designed to work within the concrete itself instead of simply on its surface. The Xypex family of products evolved around varied applications of this unique technology and its ability to solve problems in situations where traditional barrier systems were weak or ineffective. It was a technology that made a very real difference to the integrity of concrete structures – and Xypex quickly responded to the new and diversified world of challenge and opportunity.

THE CRYSTALLINE DIFFERENCE MARKETED WORLDWIDE

The crystalline difference became the basis for the company’s branding strategy, spurred its growth, and helped shape its global marketing objectives. Over time, Xypex Crystalline Technology has become a universally recognized international standard for the concrete infrastructure in cities and wherever water threatens concrete’s integrity.
Home Base for a Global Mission
Vancouver, British Columbia, on Canada’s west coast is the corporate home and primary manufacturing location of Xypex Chemical Corporation. Our modern facility – custom designed and built solely to accommodate the specific manufacturing and marketing needs of our company – includes the latest in material processing equipment along with a state-of-the-art testing laboratory and communications system. It is here that Xypex developed the systems and products for its global expansion, including the setting up of strategically located batch plants throughout the world, training programs for a network of international distributors and applicators, and ongoing research for an evolving product line in a world of diverse concrete waterproofing applications.

Direction & Support
Xypex professionals are always available to provide a high level of technical support and project direction. Our objective is to make life easier on-site by having our knowledgeable people available when needed to provide the direction and technical advice that makes the Xypex application expedient and successful.

Quality Assurance
The ongoing consistency and resulting confidence in Xypex operations, products and services, stems from our strict adherence to these quality systems and standards. Xypex’s highly reliable position in the concrete industry has been propelled by its development of comprehensive quality systems.
Xypex Crystalline Technology

Basic to the development of Xypex Crystalline Technology was a thorough understanding of concrete’s chemical and physical makeup. Concrete is porous. Its tunnel-like capillaries are a natural part of its mass, and permit the passage of water and other liquids. Researchers at Xypex recognized the opportunity for a chemical treatment that would fill these capillaries to prevent the penetration of water and other liquids from any direction. By means of diffusion, the reactive chemicals in Xypex products use water as a migrating medium to enter and travel down the capillaries of the concrete. This process precipitates a chemical reaction between Xypex, moisture and the by-products of cement hydration, forming a new non-soluble crystalline structure. This integral structure fills the capillary tracts rendering the concrete waterproof.

THE CRYSTALLINE DIFFERENCE PROTECTS CONCRETE INTEGRITY

Xypex forms a non-soluble crystalline structure that is integral with the concrete. Capillaries become discontinuous and impermeable to water, even under extreme hydrostatic pressure.
Proof in the Field
Xypex products are specified on thousands of concrete structures around the world. Our high performance standards have resulted in customer expectations that are equally high. Strict adherence to quality systems, ongoing research, and highly informed on-site direction and support is our way of managing high expectations whether it be for major projects like the Panama Canal and the Pennsylvania Turnpike, or for a modest backyard swimming pool. Xypex has attained a reliable reputation and enviable position in the concrete industry because our products and service consistently live up to the project demands of our customers.

Proof in the Lab
Xypex has been thoroughly tested for permeability, chemical resistance, compressive strength, freeze-thaw durability, potable water and more, in independent labs around the world.

QUALITY TESTING

PH & BATCH QUALITY CONTROL

RESEARCH & DEVELOPMENT

University of New South Wales, Sydney, Australia

Aviles Engineering Corp.
Houston, USA

Klokner Institute of the Czech Technical University, Prague, Czech Republic

Japan Atomic Energy Research Institute, Tokyo, Japan

Metro Testing Laboratories, Vancouver, Canada

Setsco Services, Pte. Ltd, Singapore
Membranes and other traditional barrier systems are intended to work on the outside of concrete. They rely on the bond they achieve with the concrete surface. The illustration shows what can occur when the surface-bond of a membrane is broken. Whether by puncturing or hydrostatic pressure, the membrane has delaminated, opening pathways through which water and other damaging liquids can easily enter, penetrate and damage the concrete. The protection, durability and overall integrity of the concrete is weakened, and the reinforcing steel has corroded.

Xypex products are designed to work inside the concrete. Xypex chemicals penetrate the pores and capillaries of the concrete, react with the by-products of cement hydration and form a non-soluble crystalline structure deep within the slab. In this condition, the concrete becomes impermeable, preventing the penetration of water from any direction, and preventing the corrosive effects of moisture and oxidation on reinforcing steel.

The Problem with Membranes
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The Xypex Crystalline Solution
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Xypex can also be installed as an additive. In this form, Xypex Crystalline Technology becomes integral with the entire concrete matrix from the time of batching.

Resisting Aggressive Chemicals
Xypex products are used on many projects where aggressive chemicals threaten the integrity of concrete. Wastewater treatment plants, bridges, chemical containment structures, highways and marine environments all benefit from Xypex crystalline technology and its ability to prevent the penetration of a wide range of chemicals including mild acids, solvents, chlorides and caustic materials. Because Xypex is pH specific, it will protect concrete from any chemical whose pH range is 3.0 to 11.0 constant contact, or 2.0 to 12.0 periodic contact.

Resisting Hydrostatic Pressure
Reservoirs, swimming pools, aquariums, wastewater treatment plants, dams, marine and a host of below-grade structures are subject to the pressure of water and other fluids from either the inside or the outside of their concrete framework. Because Xypex is not dependent on surface adhesion but instead becomes an integral part of the concrete mass, it is capable of resisting extreme hydrostatic pressure. Independent test results have shown that a two-coat application of Xypex eliminates leakage at pressures of at least 400 ft. of head pressure.
Xypex Product Line

Xypex products are specifically designed to waterproof and protect concrete structures. Fundamental to the Xypex product line is the unique Xypex Crystalline Technology which generates a distinct crystalline structure within the pores and capillary tracts of the concrete matrix. This crystalline formation is non-soluble and permanent, sealing concrete against the penetration of water and other aggressive liquids from any direction, even under extreme hydrostatic pressure. Whether installed as a coating, a dry-shake or an additive, Xypex’s unique chemical treatment has been proven around the world, addressing a variety of demanding construction situations. Customer confidence in Xypex products is supported through extensive independent testing, numerous approvals and certifications, and a far-reaching technical support network.

THE CRYSTALLINE DIFFERENCE

The reactive chemicals in Xypex migrate throughout the concrete matrix and react with water and the by-products of cement hydration to form a permanent, non-soluble crystalline structure within the capillary tracts and pores of the concrete to seal and render it impenetrable to water and other liquids from any direction.
Xypex Application Advantages

• Xypex is available as a coating, dry shake or additive. This is an asset to the value engineering process and to the flexibility of the construction schedule.
• Xypex coatings do not require a dry surface; in fact, a wet surface is necessary.
• Xypex coatings can be applied to either side of the concrete.
• Xypex cannot puncture, tear or come apart at the seams.
• Xypex does not require costly surface priming or leveling and is less costly to apply than most other methods.
• Xypex does not require sealing, lapping and finishing of seams at corners, edges or between membranes.
• Protection during backfilling or during placement of steel, wire mesh or other materials is not required.

Xypex is Different

✓ The Xypex crystalline process works deep inside the concrete mass to prevent the penetration of water and aggressive chemicals. In contrast, barrier-type products function only at the surface of the concrete.
✓ Because Xypex is not dependent on surface adhesion, it is resistant to extreme hydrostatic pressure.
✓ Xypex is not subject to the deterioration problems encountered by membranes.
✓ Xypex seals hairline cracks up to 0.4 mm.
✓ Xypex is permanent and reactivates whenever water is present.
**Concentrate**
Xypex Concentrate is applied as a cementitious slurry to the surface of existing above-or-below grade structures to waterproof and protect the concrete against high hydrostatic pressures.

**Modified**
Xypex Modified can be applied as a second coat to chemically reinforce Concentrate, or as a single coat for the damp-proofing of exterior foundation walls.

**Patch’n Plug**
Xypex Patch’n Plug is a fast-setting, high bond strength hydraulic cement compound enhanced by Xypex Crystalline Technology. Patch’n Plug can stop flowing water in seconds and is also used to repair defects in concrete.

**Megamix Series**
Megamix I is a thin parging coat for the waterproofing and resurfacing of vertical masonry or concrete surfaces. Megamix II is a thick repair mortar for the patching and resurfacing of deteriorated concrete.
Xypex Admix products are added to concrete at the time of batching, providing contractors with a convenient and cost-effective waterproofing solution for delivering Xypex Crystalline Technology.

Xypex FCM, with its exceptional adhesive and elongation characteristics, is used to repair cracks subject to movement, seal construction joints and waterproof and restore deteriorated concrete structures.

Xypex DS products are formulated specifically for dry shake installation into freshly poured concrete slabs providing waterproofing, chemical protection and resistance to abrasion.

Xypex Restora-Top products are designed for the repair and rehabilitation of horizontal concrete surfaces such as concrete slabs, ramps, decks and walkways where the repaired area must be returned quickly to normal service.
Xypex Projects

Xypex products for the waterproofing, protection and repair of concrete have been used on a wide range of above and below grade projects around the world. But, as strong as concrete is for endless applications, its flaw is that over time, through the tiniest pathways within its structure, concrete permits the passage of water and other potentially damaging liquids. Water can become concrete’s staunchest enemy, permitting the ingress of water and aggressive chemicals. This can result in the rusting of reinforcing steel and the deterioration of the structure. Xypex Crystalline Technology and the Xypex integrated product line have, for more than forty years, successfully challenged the damaging action of water.
Water & Wastewater Treatment
Around the world, Xypex has worked with engineers responsible for tackling the challenge of wastewater and environmental responsibility. Xypex products are well suited for use on concrete structures used for the collection, pumping and treatment of wastewater. Concrete pipe, lift stations and tanks must be protected from the water and aggressive chemicals common to sewage. The crystalline waterproofing technology of Xypex works within the concrete to make it impermeable and resistant to chemical attack. Wastewater is thereby contained, and the neighboring environment and the structure itself is protected.

Water Holding
Water holding structures are about keeping water inside and Xypex Crystalline Technology, with its ability to resist extreme hydrostatic pressure, has been used extensively to waterproof and protect the concrete of a wide variety of water holding structures: reservoirs for potable water, filtration plants, swimming pools – including NASA's Neutral Buoyancy Tank used for the training of astronauts, and an aquarium that encloses the world's largest artificial ocean.

Below Grade
More often than not, Xypex waterproofing takes place underground where concrete requires protection against any number of potentially invasive water forces. Below grade, the crystalline technology of Xypex products resists hydrostatic pressure and protects against reinforcing steel corrosion and sulfate attack.
**Tunnels**

Tunnels serve many purposes such as transporting people or goods, accessing minerals from deep in the earth, or providing conduits for electrical and telecommunications services. Proper waterproofing of tunnels is one of the most cost effective ways to enhance safety and function as well as increase the service life of these structures. From bored roadway tunnels to subways, water seepage and resulting problems caused by hydrostatic pressure and freeze/thaw are always a concern. Xypex Crystalline Technology, and its ability to resist extreme hydrostatic pressure, aggressive soils and traffic contaminants, is used world-over to waterproof, protect and enhance the durability of tunnels.

**Bridges**

Concrete durability is key in the building of bridges. The unique Xypex Crystalline Technology of Xypex products addresses the many problems that age and/or aggressive environmental conditions such as harsh weather and constant traffic impose on these concrete structures.

**Marine Structures**

Xypex Crystalline Technology protects concrete structures in marine environments – structures that are exposed to the damaging effects of seawater, chlorides and other aggressive elements. Preventing corrosion of reinforcing steel and resulting concrete degradation has made Xypex an important treatment for a variety of marine installations including wharfs, bridge pilings, locks, desalination conduits and seawalls.
Dams
Dams, whether for hydroelectric production or water management, are all about water – keeping it secure and protecting the unique components that are engineered into every dam structure. Hydrostatic pressure is, of course, common to all dams and Xypex Crystalline Technology with its proven ability to resist even extreme hydrostatic pressure has been the answer to the waterproofing problems faced by some of the largest dams in the world. Xypex is used to waterproof and protect many features of dams including the upstream and downstream faces, pipe galleries, spillways, wall joints, and discharge chambers.

Power Generating Facilities
Ensuring the integrity of concrete structures and, at the same time, protecting the surrounding environment is critical in the power industry. Xypex Crystalline Technology products have made an important contribution in waterproofing and protecting hydroelectric facilities, desalination plants, thermal and nuclear power stations and cooling tower basins.

Precast
Using the Xypex Admix C-Series of products, precast manufacturers can add value to their products. Xypex Admix is blended into the concrete at the time of batching enabling companies manufacturing precast products such as manholes, box culverts, pipe, architectural panels and highway median barriers to waterproof and protect their products before they leave the plant.
Being green™

We don’t always wave our green, environment-friendly flag, but Xypex, and its family of crystalline concrete waterproofing products have always had a warm relationship with their surroundings. Being There in more than seventy countries for more than forty years has given us a global understanding of environmental standards and expectations. We continue to support programs like ISO and building-rating systems like LEED that reinforce product quality, corporate responsibility and today’s environmental concerns. To Xypex, Being There and Being Green are ongoing commitments. Energy efficiency, material selection, minimizing site impact, and VOC reduction – these are the ‘green’ benefits that non-toxic Xypex products provide the construction world and the pursuit of environmental sustainability.

XYPEX PRODUCTS PROTECT CONCRETE & THE ENVIRONMENT

✓ No VOCs (volatile organic compounds)
✓ Enhances durability for longer building life
✓ Innovative ‘green’ technologies
✓ Concrete with Xypex can be recycled
✓ Produced globally. Distributed locally.
✓ Energy efficient