



World Standard in Concrete
Waterproofing by Crystallization



XYPEX.COM



Concrete Waterproofing by Crystallization

Xypex Chemical Corporation is one of the world's leading manufacturers of products for the waterproofing, protection and repair of concrete structures. For over 40 years we have followed a path that positions us today as a company whose exemplary product and service quality garners the respect of the construction world's best – the architects, engineers, contractors and concrete producers who place a premium on proven quality and reliability. Our mottos reflect our mission and objectives: *Being There* – client assurance that, not only our products, but our people are available – feet on the ground – to assist in over 90 countries. *Being Green* – our commitment to environmental concerns and the need for sustainable construction practices. *No Equal* – our claim to a superior concrete waterproofing technology and service based on independent testing and worldwide performance.



Our Company

For over 40 years Xypex crystalline waterproofing technology has been serving concrete users in over 90 countries.

In 1968, Xypex fundamentally changed and improved the approach to concrete waterproofing and protection, introducing Xypex Crystalline Technology, 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 are weak or ineffective. Xypex's global presence and commitment to excellence is bolstered by a strong network of licensees, distributors, technical representatives and installers who respond quickly to the needs and expectations of customers.

Our long established core values continue to guide every Xypex interaction and to define the conduct and behaviour that enhances the trust, confidence, and long-term relationships with our customers and our international team of licensees and distributors.



The Xypex crystalline waterproofing system has been used on a multitude of concrete structures around the world in varied climates and site conditions.



Our Mission

Vancouver, British Columbia on Canada's west coast is the corporate home and primary manufacturing location of Xypex Chemical Corporation. Our modern, custom designed manufacturing facility and state-of-the-art testing laboratory remains the setting for the development of unique systems and products, and for our global expansion, including strategically located Xypex batch plants throughout the world.

Our Standards

The ongoing consistency in Xypex operations, products and services, stems from our strict adherence to quality systems and standards, including ISO 9001:2015, British Board of Agreement, Cahier des Charges and European Union Directives.



BBA



BSI Group



CEBTP



European Union

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 90 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



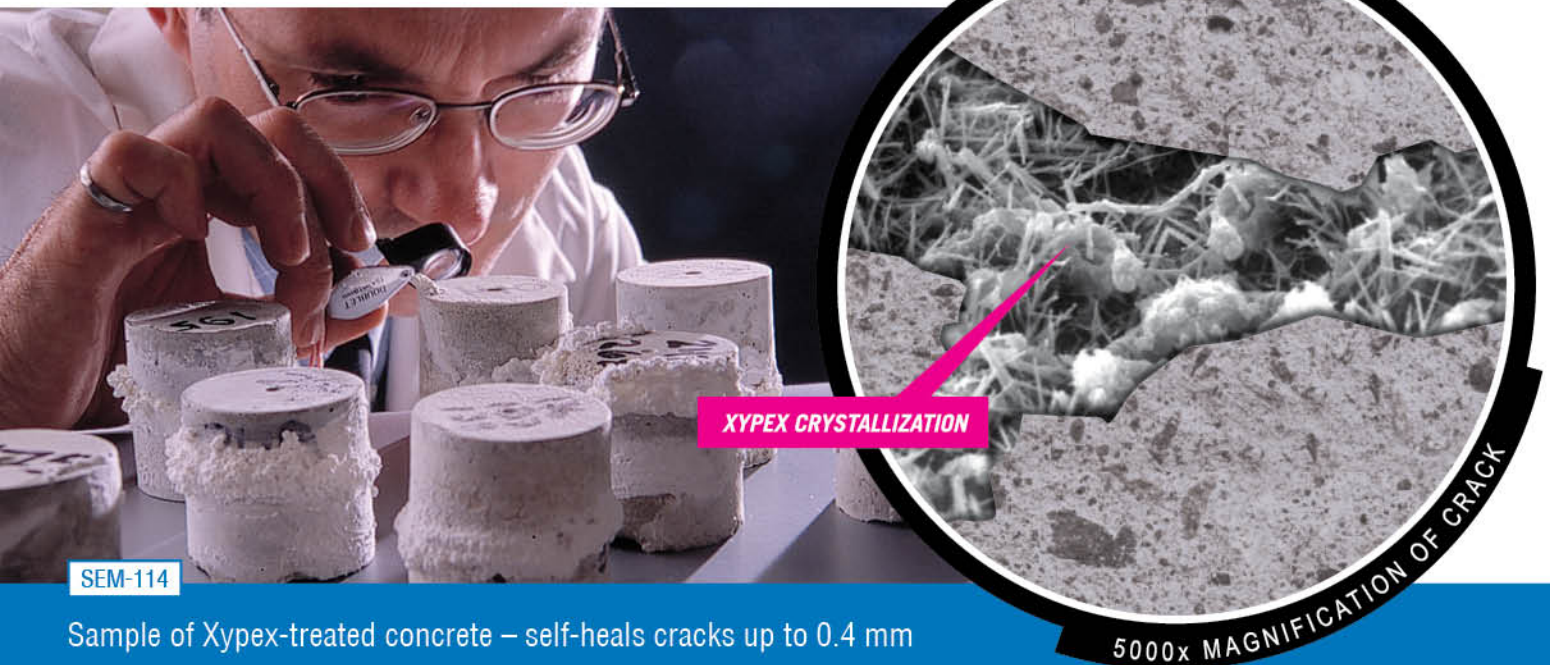
Xypex Crystalline Technology

Lifelong waterproofing and protection for concrete structures.

Xypex Chemical Corporation first coined the phrase “Concrete Waterproofing by Crystallization”, a statement and concept that represented a radical departure from traditional surface-reliant barrier products of the day. Pursuing an entirely new path, Xypex developed a unique technology that takes advantage of the natural and porous characteristics of concrete.

With water as the catalyst, Xypex’s proprietary chemicals react with the natural by-products of cement hydration, forming a non-soluble crystalline structure within the inter-connected pores and other voids in the concrete.

In this way, the crystalline formation becomes a permanent, integral part of the concrete matrix itself, preventing the ingress of water and other liquids even under strong hydrostatic pressure, and providing protection against harsh, aggressive environments.



XYPEX CRYSTALLIZATION

5000x MAGNIFICATION OF CRACK

SEM-114

Sample of Xypex-treated concrete – self-heals cracks up to 0.4 mm



Concrete is Porous

The natural porosity of concrete makes it subject to potential leaks and intrusive liquids of all kinds. Xypex Crystalline Technology capitalizes on concrete's chemistry, creating an integral reaction that permanently waterproofs and protects the concrete by plugging its pores and capillaries. The following list outlines the many advantages of our unique technology and how it is more effective than traditional barriers.

The fact that Xypex Crystalline Technology is now specified and used on thousands of diverse waterproofing projects around the globe is a testament to the original concept.

With more than 40 years of independent testing, there is still **No Equal**.



**NO
EQUAL**

The Xypex Advantage

The Xypex Crystalline process works deep inside the concrete mass to prevent the penetration of water and aggressive chemicals. By contrast, barrier-type products function only at the surface of the concrete.

Because Xypex is not dependent on surface adhesion, it is resistant to hydrostatic pressure and not subject to deterioration problems encountered by membranes.

Seals hairline static cracks up to 0.4 mm.

Permanent and reactivates whenever water is present.

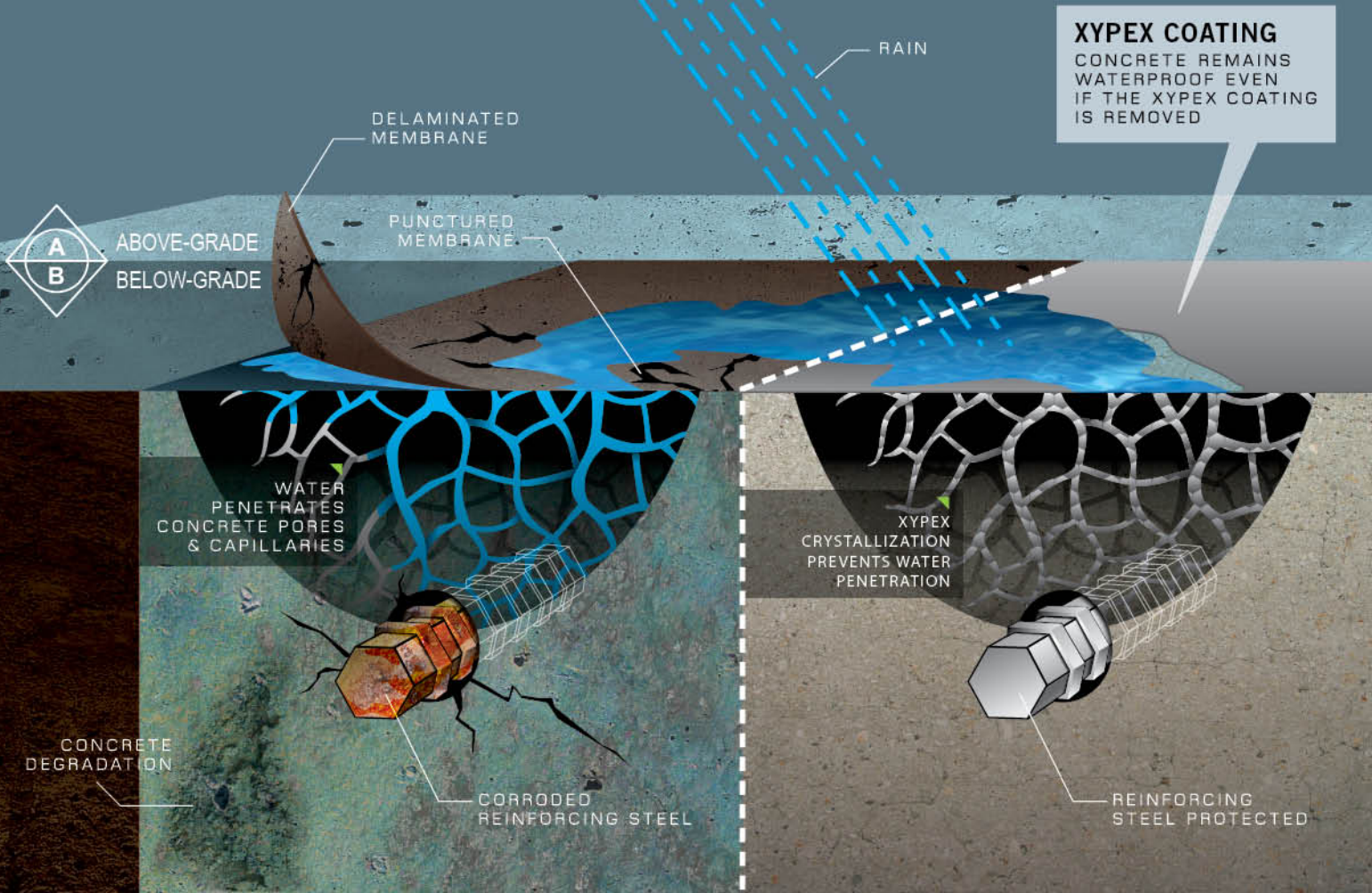
Available as a coating, dry shake or additive – a significant asset to the value-engineering process.

Xypex coatings do not require a dry surface; in fact, a wet surface is necessary.

Cannot puncture, tear, or come apart at the seams Xypex does not require costly surface priming or leveling and is less costly to apply.

Doesn't require sealing, lapping and finishing of seams at corners, edges or between membranes – and doesn't require protection during backfilling or during placement of steel, wire mesh or other materials.

Xypex can be applied on either side of a concrete surface – the negative or the positive (water pressure) side.



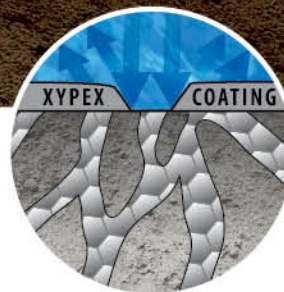
Membrane Barrier



The Problem with Membranes

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 Crystalline Technology



The Xypex Crystalline Solution

Xypex coatings and admixtures 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. The concrete becomes impermeable, preventing the penetration of water and the corrosive effects of moisture and oxidation on reinforcing steel. The concrete will remain fully waterproofed even if the coating is removed. And, by blending Xypex Admix into the concrete mix at time of batching, Xypex Crystalline Technology becomes immediately active throughout the concrete mass.

XYPEX[®] Crystalline Technology

This illustration of concrete shows how Xypex Crystalline Technology works to remedy the primary problems that concrete encounters because of its naturally porous condition. The illustration also highlights the areas where traditional barrier and membrane systems are weak or ineffective and why Xypex products provide a reliable solution.

AGGRESSIVE
CHEMICALS

XYPEX ADMIX

ADMIX IS ADDED TO
THE CONCRETE MIX AT
THE TIME OF BATCHING

XYPEX
CRYSTALLIZATION
PREVENTS CHEMICAL
PENETRATION

XYPEX
CRYSTALLIZATION
RESISTS EXTREME
HYDROSTATIC PRESSURE

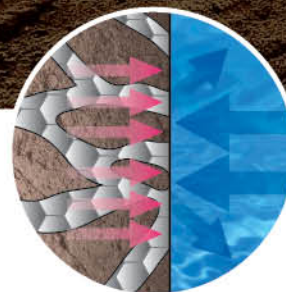
EXTREME
HYDROSTATIC
PRESSURE

ogy can be installed as a Coating, Dryshake or Admixture.



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.

Our Products

Responding to diverse, worldwide need, Xypex has expanded its line from a flagship coating to a fully integrated, highly functional family of products.

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.

To meet the challenges of changing construction practices, divergent global environments and specific customer requirements, Xypex has continually developed and expanded its line of products. The Xypex Crystalline Technology remains at the core of this line that has evolved into an integrated system of coatings for existing concrete, dry-shakes for fresh slabs, additives for ready-mix concrete and various concrete repair materials.



Xypex products and services are available in over 90 countries.





Quality Assurance

Regular quality assurance evaluations are carefully conducted by independent agencies and all of our processes satisfy the rigorous quality standards of ISO 9001:2015. The many aspects of our operation are all of the highest quality – from material sourcing, production practices, packaging, and technical literature to our thoroughly trained personnel ready to answer any technical enquiry.



"Permeability of Concrete", U.S. Army Corps of Engineers (USACE) CRD C48-73 Pacific Testing Laboratories, Seattle, USA



"Permeability of Concrete", Civil Engineering Department – Hosei University, Tokyo, Japan



"Evaluating Depth of Water Penetration Under Pressure", DIN 1048 / EN 12390-8 Klokner Institute of the Czech Technical University, Prague, Czech Republic



"Impermeability and Resistance to Various Fluids and Resistance to Pressurized Water", Institute of Civil Engineering, Technology and Testing, Bratislava, Slovak Republic



"Scanning Electron Microscopy on Xypex Admix C-2000 Modified Specimens", Setsco Services, Pte. Ltd, Singapore

Research

Our commitment to research and extensive testing worldwide is based on the demands of engineers, architects and contractors who are always looking for better ways to build. We take pride in responding to customer driven needs.

Being There & Being Green

Being There in more than 90 countries for more than forty years has given us a global understanding of environmental standards and expectations. We continue to support programs like LEED and other building-rating systems that reinforce 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.

Beinggreen



Coatings



Xypex coating products are applied to the surface of existing concrete structures. Xypex Concentrate is the most chemically potent of the Xypex crystalline coating products and is a grey powdered compound that is mixed with water and applied as a cementitious slurry by either brush or spray-machine. It is specifically designed to waterproof and protect existing above-grade or below-grade applications where there are high hydrostatic pressures.

For applications with aesthetic considerations, Concentrate and Modified are available in white versions. Concentrate can also be used in Dry-Pac form where a higher chemical potency is needed such as for crack sealing, treatment of construction joints and repair of structural defects. Xypex Modified can be applied as a second coat to chemically reinforce Concentrate or may be used as a single coat for damp-proofing of exterior foundation walls.

Additives



Xypex Admix is added to concrete or mortar at the time of batching. Admix C-500, C-1000 and C-2000 have been formulated to satisfy specific concrete mix designs, diverse project requirements and ambient temperature variations. All Admix products are also available in the No-Fines grade. Xypex Admix C-Series provides the construction industry with a convenient, cost-effective waterproofing solution for delivering the unique Xypex Crystalline Technology. Xypex Admix C-Series is available in a variety of conveniently sized packaging including Xypex's innovative soluble bag solution that provides ease, accuracy and a dust-free environment for installation.

Xypex Bio-San C500 combines potent antimicrobial protection with the unique crystalline technology of Xypex Admix C-500. It is designed for the integral, long-term protection of concrete in severe sewage conditions with high levels of hydrogen sulphide – the cause of microbial induced corrosion (MIC).

COATING PRODUCTS

Concentrate
Modified



ADDITIVE PRODUCTS

Admix C-500/C-500 NF
Admix C-1000/C-1000 NF
Admix C-2000/C-2000 NF
Bio-San C500



Dry Shakes



Xypex Concentrate DS-1 and DS-2 are design variations of Xypex Concentrate and are formulated specifically for dry shake installation into freshly poured concrete slabs. Concentrate DS-1 provides the equivalent waterproofing and chemical protection as a coating application. Concentrate DS-2 is used where, in addition to waterproofing, greater resistance to impact and abrasion is also required.

The DS powder is dispersed evenly by hand or mechanical spreader onto the freshly poured horizontal concrete surface, floated into the plastic concrete and power-trowelled to the desired finish. The dry shake application method reduces the risk of scaling, dusting and delamination commonly associated with coating applications to horizontal slabs. Xypex DS Series eliminates the need for additional curing and prevents any delay for the contractor in gaining access to the slab to continue the project.

Concrete Repair



Xypex has developed a number of products used in the repair and rehabilitation of concrete. Xypex Patch'n Plug is a fast-setting, nonshrink, high bond strength hydraulic cement compound enhanced by Xypex's Crystalline Technology. Patch'n Plug can stop flowing water in seconds and is also used to repair defects in concrete, including crack sealing, faulty construction joints, honeycombing and tie holes.

Megamix I is a thin parge coat for the waterproofing and resurfacing of vertical masonry or concrete surfaces and is frequently used as an architectural rendering. It also has excellent chemical durability for specific industrial applications. Megamix II is a thick repair mortar for the patching and resurfacing of deteriorated concrete. Megamix II has been specifically formulated to produce superior bond, low shrinkage, chemical durability and high strength. Megamix II with Bio-San contains bioactive mineral solids that provide antimicrobial protection for sewage environments.

DRY SHAKE PRODUCTS

Concentrate DS-1 & DS-2



REPAIR & ACCESSORIES

Patch'n Plug	Restora-Top 50, 100, 200
Megamix I & II	Gamma Cure
Megamix II + Bio-San	Xycrylic Admix
FCM 80	Quickset



Our Projects

Wherever concrete structures, big or small, need waterproofing and protection, Xypex is up to the challenge.

Xypex is committed to the challenge of making an important contribution to reducing negative impacts on our climate and natural environment. Green buildings help to protect valuable natural resources and improve our general quality of life.

Having a global presence for over 40 years has provided us with an understanding of environmental standards and expectations, and we are proud of our position and contribution. We continue to support LEED and other green building rating systems that reinforce product quality, corporate responsibility and today's environmental concerns.

To Xypex, Being Green is an ongoing commitment. Extending the service life of concrete structures, providing energy efficiency, minimizing site impact, reducing VOCs and using materials that are non-toxic, ethical and sustainable – these are the 'green' benefits that Xypex products provide to the construction world and the pursuit of environmental sustainability.



Esplanade Theatre on the Bay
SINGAPORE



Panama Canal
PANAMA

When Xypex first introduced its unique crystalline concrete waterproofing technology more than forty years ago, the company knew its potential. This was technology for a wide array of project types – basements, bridges, locks and dams, water treatment plants, power plants and, in general, the infrastructure of cities. It was a product system for climates hot, cold, wet and dry. And it fit with construction practices around the world. Still, it continues to surprise even us, just how many kinds of projects involve our products that have evolved in over four decades of research and use.



The Shard
UNITED KINGDOM

Xypex Installations

Responding to diverse, worldwide need, Xypex products have been used on a multitude of projects around the world. Installations include:

- Water & Wastewater Treatment Plants
- Reservoirs
- Foundation Walls & Slabs
- Decorative/Swimming Pools
- Aquariums
- Fish Hatcheries
- Dams
- Nuclear Plants
- Power Generating Stations
- Underground Vaults
- Sump Pits
- Elevator Pits
- Manholes
- Floating Concrete Structures
- Concrete Silos
- Grain Elevators
- Food Storage
- Tunnels
- Subway Systems
- Bridge Structures
- Parking Decks
- Parkades
- Walkways
- Roof/Plaza Decks
- Above/Below Grade Concrete Walls
- House Basements
- Precast Concrete Structures
- Concrete Pipe
- Cooling Towers
- Retaining Walls
- Planters
- Ferro-Cement Boats
- Caissons



Wastewater Treatment & Collection 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 Treatment Our non-toxic Xypex Crystalline Technology has been officially approved around the globe for use with potable water, and has a vast portfolio of international project references. Whether used for new construction or the rehabilitation of water treatment structures, Xypex has gained an exceptional reputation for resisting extreme hydrostatic pressure, chemical attack and protecting the structural integrity of concrete.

General Construction – Foundations Below grade, the crystalline technology of Xypex products resists hydrostatic pressure and protects against reinforcing steel corrosion and sulfate attack. On certain projects, Xypex coatings, dry shake and additive products can all be used to facilitate an accelerated production schedule and considerable savings of time and money – a true example of value engineering.

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 (NASA's Neutral Buoyancy Tank used for the training of astronauts), and an aquarium that encloses the world's largest artificial ocean.

Bridges Concrete durability is of fundamental importance in the building and maintenance of transportation structures such as bridges, tunnels, canals, and subway systems. Xypex products will waterproof and protect the concrete against freeze thaw, chloride attack and extreme hydrostatic pressure, even in the most severe environmental conditions.

Power & Utilities 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.

SYDNEY OPERA HOUSE

Australia

The Sydney Opera House is a multi-venue performing arts centre, with a series of large precast concrete "shells", each composed of sections of a sphere of 75.2 metres (246 ft 8.6 in) radius, forming the roofs of the structure, set on a monumental podium. It is supported on 588 concrete piers sunk as much as 25 m (82 ft) below sea level. Xypex Admix was used to waterproof 200 m³ of concrete in this famous Australian landmark.

Industrial Industrial concrete structures are constantly exposed to hydrostatic pressure, sulphates, chlorides, and other aggressive chemicals. Without proper protection, the structural integrity of the concrete is soon compromised, leading to expensive remediation efforts and a shortened life span. Once the moisture and chlorides have reached the reinforcing steel, an expansive oxidation process begins to take place causing the formation of cracks and spalling in the concrete.

Tunnels Concrete durability is of fundamental importance in the building and maintenance of transportation structures such as bridges, tunnels, canals, and subway systems. Xypex products will waterproof and protect the concrete against freeze thaw, chloride attack and extreme hydrostatic pressure, even in the most severe environmental conditions.

Precast Structures 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.

Dams & Irrigation Inadequate waterproofing, cracking, joint failure, chemical attack, alkali aggregate reaction and abrasion are problems that will result in the deterioration of concrete in both the short term (water loss) and long term (overall structural integrity). Xypex Crystalline Technology's proven success in protecting dams and irrigation structures from extreme hydrostatic pressure, chemical attack and abrasion reduces maintenance costs and extends the service life in both new and rehabilitated concrete.

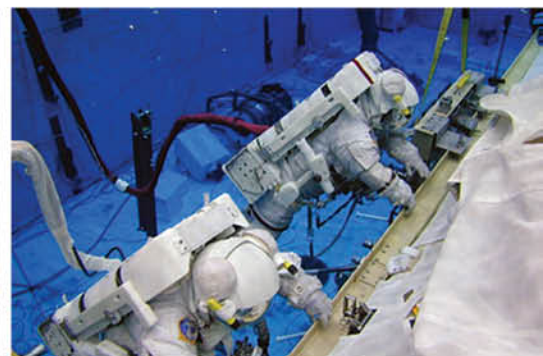
Marine Structures Reinforced concrete marine structures are constantly under attack by the destructive effects of moisture and chloride-induced corrosion. Once the moisture and chlorides have reached the reinforcing steel, an expansive oxidation process begins to take place causing the formation of cracks and spalling in the concrete. Xypex Crystalline Technology has been used in marine structures to waterproof, protect, repair and enhance the durability of concrete subject to water and chloride attack.



ION Orchard, Singapore



Feitsui Dam, Taiwan



NASA Neutral Buoyancy Lab, USA



New Orleans Concrete Manholes, USA



Aomori Bay Bridge, Japan



Allegria WWTP, Brazil

- Albania
- Argentina
- Australia
- Austria
- Bangladesh
- Barbados
- Belgium
- Bermuda
- Bolivia
- Bosnia & Herzegovina
- Brazil
- Bulgaria
- Canada
- Chile
- China
- Colombia
- Costa Rica
- Croatia
- Cyprus
- Czech Republic
- Denmark
- Djibouti
- Dominican Republic
- Ecuador
- Egypt
- Estonia
- Ethiopia
- Finland
- France
- Georgia
- Germany
- Ghana
- Greece
- Guam
- Honduras
- Hong Kong
- Hungary
- Iceland
- India
- Indonesia
- Iran
- Ireland
- Israel
- Italy
- Japan
- Jordan
- Kenya
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- Latvia
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- Morocco
- Nepal
- Netherlands
- New Zealand
- Nicaragua
- Nigeria
- Norway
- Pakistan
- Panama
- Paraguay
- Peru
- Philippines
- Poland
- Portugal
- Puerto Rico
- Qatar
- Romania
- Russia
- Rwanda
- Saudi Arabia
- Senegal
- Serbia
- Sierra Leone
- Singapore
- Slovakia
- Slovenia
- South Africa
- Spain
- Sri Lanka
- Switzerland
- Taiwan
- Tanzania
- Thailand
- Tunisia
- Turkey
- Uganda
- United Arab Emirates
- United Kingdom
- Uruguay
- USA
- Venezuela
- Vietnam
- Zimbabwe



Xypex products and services are available in over 90 countries.
Find a distributor at www.xypex.com



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