



**1. Product Name**

Xypex Admix C Series

**2. Manufacturer**

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**3. Product Description**

**BASIC USE**

Xypex Admix is a unique chemical treatment for the waterproofing and protection of concrete and is particularly recommended for the following applications:

- Reservoirs
- Sewage and water treatment plants
- Secondary containment units
- Tunnels and subway systems
- Underground vaults
- Foundations
- Parking structures
- Swimming pools
- Precast components

This admixture is specially formulated as an additive for concrete at the time of batching.

**CHARACTERISTICS**

The active chemicals react with the moisture in the fresh concrete and by-products of the cement hydration causing a catalytic reaction which generates a nonsoluble crystalline formation of dendritic fibers throughout the pores of the capillary tracts of the concrete. This permanently seals the concrete against penetration of water and other liquids, protecting the concrete from the deteriorating effect of harsh environmental conditions.

Xypex Admix protects concrete and reinforcing steel. The Xypex treatment is highly resistant to most aggressive substances, pH 3 - 11 constant contact and pH 2 - 12 periodic contact. By preventing the intrusion of chemicals, salt water, sewage and other harmful materials, Xypex protects concrete and rein-

forcing steel from deterioration and oxidization. The concrete is also protected against spalling, efflorescence, popouts and other damages caused by weathering, bleeding of the salts and internal expansion and contraction during any freeze/thaw cycle.

Xypex permits concrete to breathe. Its crystalline formation has fixed-size air spaces that are so small that water cannot pass through them. It does, however, allow the passage of air and vapor; thus the concrete is able to breathe and become thoroughly dry, preventing any moisture vapor buildup.

**ADVANTAGES**

- Resists extreme hydrostatic pressure from either positive or negative surface of the concrete slab
- Becomes an integral part of the substrate
- Highly resistant to aggressive chemicals
- Seals cracks up to 1/64" (0.4 mm) thick
- Allows concrete to breathe
- No surface priming or leveling is required prior to the application of Xypex
- Permanent
- Increases flexibility of construction scheduling
- Nontoxic
- Not subject to climatic restraints since it is added to the concrete at the time of batching
- Less costly than most other methods

**COMPOSITION & MATERIALS**

Xypex Admix is manufactured in the form of a dry powder compound consisting of Portland cement, very fine treated silica sand and various other active proprietary chemicals.

**TYPES**

**Xypex Admix C-500**

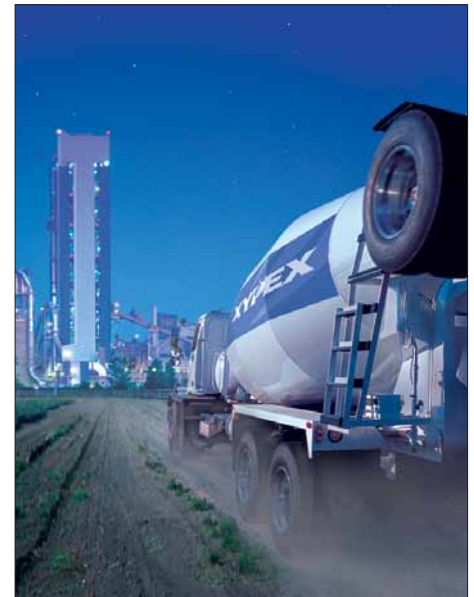
Xypex C-500 is an integral waterproofing admixture included in the concrete mix at the time of batching. C-500 is recommended for concrete mixes that include a high proportion of fly ash or slag.

**Xypex Admix C-1000**

Xypex Admix C-1000 is an integral waterproofing admixture included in the concrete mix at the time of batching. C-1000 is recommended for cold weather or where increased dosage rates are required.

**Xypex Admix C-2000**

Xypex Admix C-2000 is an integral waterproofing admixture included in the concrete mix at the time of batching.



Waterproofing concrete from the start

**LIMITATIONS**

**Storage**

Xypex products must be stored dry at a minimum temperature of 40 degrees F (4 degrees C).

**Shelf Life**

The shelf life is 1 year when stored under the proper conditions.

**4. Technical Data**

**APPLICABLE STANDARDS**

American Concrete Institute (ACI) - ACI 308 Standard for Curing Concrete

**ASTM International**

- ASTM C39 Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
- ASTM C666 Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing

Reed Construction Data - 03050 Concrete Admixtures, BuildSelect data sheet for Xypex Chemical Corporation, BuildSelect Catalogue, 2000, Vol 1

Din Deutsches Institut Fur Normung e.V. (Germany)

- DIN 1048-1 Testing Concrete Testing of Fresh Concrete
- DIN 1048-2 Testing Concrete Testing of Hardened Concrete (Specimens Taken In Situ)
- DIN 1048-4 Test Methods for Concrete - Determination of the Compressive Strength



A better solution

in Hardened Concrete in Structures and Components - Application of Reference Lines and Evaluation with Special Methods

- DIN 1048-5 Testing Concrete - Testing of Hardened Concrete (Specimens Prepared in Mould)

Japanese Institute of Standards (JIS) - JIS A6204 - Chemical Admixtures for Concrete

Osterreichisches Normungsinstitut (Austria) - ONORM B-3308 Testing of Concrete

NSF International (National Sanitation Foundation) - NSF 61 Drinking Water System Components Health Effects

US Army Corps of Engineers (USACE)

- CRD C-48 Permeability of Concrete
- USA Standard No. N6.9
- Protective Coatings for the Nuclear Industry

**APPROVALS**

Xypex products are nontoxic. They have been approved by Agriculture Canada, the U.S. Environmental Protection Agency (EPA), the NSF International (National Sanitation Foundation) NSF Potable water approval, and many other domestic and foreign government health agencies throughout the world for use on concrete structures that hold potable water or are in contact with foodstuffs.

**PHYSICAL ATTRIBUTES**

**Permeability**

- USACE CRD C-48 Testing - Xypex treated, concrete samples were pressure tested up to

a 1350' (412 m) water head of 150 psi (1.03 MPa) which was the limit of the testing apparatus. Results showed moisture and permeated water throughout the untreated sample after 24 hours. However, the Xypex Admix samples showed no leakage, and penetration of only 3/64" (1.2 mm) after 5 days

- DIN 1048 Testing - 4 23/32" (120 mm) thick Xypex Admix treated concrete samples were pressure treated up to 700 kPa (7 bars) 230' (70 m) water head for 10 days to determine water impermeability. While the reference specimens were totally penetrated with water, the Xypex Admix treated samples measured water penetration of zero

**Chemical Resistance**

Concrete samples containing Xypex Admix were tested against control samples, as well as other products, to determine resistance to corrosion and deterioration caused by contact with aggressive chemicals. The samples were soaked in a 5% solution of sulphuric acid at 68 degrees F (20 degrees C) for 6 months. Although the Xypex Admix samples were subjected to acid conditions well outside their published ranges, the results confirmed that the Xypex had the best performance of the samples tested.

**Freeze/Thaw Durability**

- ASTM C666 Testing - Xypex Admix treated samples indicated 94% relative durability after 300 cycles

**Compressive Strength**

- ASTM C39 Testing - Concrete samples containing Xypex Admix at various dosage rates (1, 2 and 5%) were tested against an untreated concrete control sample in accordance with ASTM C39. Compressive strength test results after 28 days indicated a significant strength increase in the samples incorporating Xypex Admix. The compressive strength increase varied between 5 and 20% (depending on the Xypex Admix dosage rate) over that of the reference sample. At 28 days, the compressive strength test of the concrete containing Xypex Admix measured 7160 psi (49 MPa) as compared to the reference sample at 6460 psi (45 MPa), a 10% increase

**5. Installation**

**APPLICATION PROCEDURES**

Xypex Admix C-1000 must be added to the concrete at the time of batching. The sequence of procedures for addition will vary according to the type of batch plant operation and equipment:



Living up to expectations

**Ready-Mix Plant - Dry Batch Operation**

- Add Xypex Admix in powder form to the drum of the ready-mix truck
- Drive the truck under the batch plant and add 60 - 70% of the required water along with 300 - 500 lb (136 - 227 kg) of aggregate
- Mix the materials for 2 - 3 minutes to ensure the Xypex Admix is distributed evenly throughout the mix water
- Add the balance of materials to the ready-mix truck in accordance with standard batch practices

**Ready-Mix Plant - Central Mix Operation**

- Mix Xypex Admix with water to form a very thin slurry (i.e., 15 - 20 lb (7 - 9 kg) of powder mixed with 3 gal (11 L) of water)
- Pour the required amount of material into the drum of the ready-mix truck. The aggregate, cement and water should be batched and mixed in the plant in accordance with standard practices (taking into account the quantity of water that has already been placed in the ready-mix truck)
- Pour the concrete into the truck and mix for at least 5 minutes to ensure even distribution of the Xypex Admix throughout the concrete

**Precast Batch Plant - Pan-Type Mixer**

Add Xypex Admix to the rock and sand, then mix thoroughly for 2 - 3 minutes before adding the cement and water. The total concrete mass should be blended using standard practices. It is important to obtain a homogeneous

mixture of Xypex Admix with the concrete. Therefore, do not add dry Admix powder directly to wet concrete as this may cause clumping and thorough dispersion will not occur.

**SETTING TIME & STRENGTH**

The setting time of concrete is affected by the chemical and physical composition of ingredients, temperature of the concrete and climatic conditions. Retardation of set may occur when using Xypex Admix. The amount of retardation will depend upon the concrete mix design and the dosage rate of the Admix. However, under normal conditions, Admix C-1000 will provide a normal set concrete. Concrete containing Xypex Admix may develop higher ultimate strengths than plain concrete. Trial mixes should be carried out under project conditions to determine setting time and strength of the concrete.

**PRECAUTIONS**

- Xypex Admix is a highly alkaline substance. Avoid contact with skin or eyes
- Protect hands with rubber gloves when handling dry powder or wet mixture. If skin comes into contact with Xypex material, wash immediately and thoroughly with water for 15 minutes. If discomfort continues, seek prompt medical attention
- Wear eye protection. If dry powder or wet mixture gets into eyes, flush immediately and thoroughly with water and seek medical aid
- Wear a suitable mask where there is potential for generating dust. If Xypex Admix is ingested, do not induce vomiting; have affected person drink 2 glasses of water and obtain immediate medical attention

**6. Availability & Cost**

**AVAILABILITY**

Xypex products are available through a global network of factories, regional distributors, dealers, construction apply outlets and retail building supply outlets. Contact Xypex Chemical Corporation for the name of the nearest supplier.

**COST**

The Xypex Admix C Series products are less costly to apply than most other methods. Contact Xypex Chemical Corporation for the name of the nearest supplier.

**7. Warranty**

Xypex Chemical Corporation warrants that the

products manufactured by it shall be free from material defects and will be consistent with its normal high quality. Should any of the products be proven defective, the liability to Xypex shall be limited to replacement of the product ex-factory. Xypex makes no warranty as to merchantability or fitness for a particular purpose. This warranty is in lieu of all other warranties, express or implied. The user shall determine the suitability of the product for the intended use and assume all risks and liability in connection therewith.

**8. Maintenance**

When properly installed by an applicator experienced in the installation of crystalline waterproofing, Xypex is permanent and requires no maintenance.

**9. Technical Services**

Technical assistance, including more detailed information, product literature, test results, project lists, assistance in preparing project specifications and arrangements for application supervision, is available by contacting Xypex Chemical Corporation or the nearest Xypex distributor.

**10. Filing System**

- Reed First Source®
- MANU-SPEC®
- Additional product information is available upon request from manufacturer.