



Lease Life
to Man-Made
Structures

SUPERSHIELD

ADMIXPLUS

Self-healing Adaptive Liquid Crystalline Waterproofing
Admixture for Concrete



PRODUCT DESCRIPTION

ADMIXPLUS is a high-performance liquid crystalline admixture powered by Adaptive Crystalline Technology, developed to enhance concrete resilience and durability from casting throughout its service life. When incorporated into the mix, it activates SHIELD Adaptive Crystals, which are dynamic and multifunctional, initiating performance from the earliest stage of hydration. These crystals regulate internal moisture in hot and cold conditions, reducing premature water loss, limiting freezing-related disruption, and supporting uniform cement hydration. The system also moderates heat evolution by controlling peak temperatures and thermal gradients, reducing early-age thermal stress and shrinkage cracking while promoting a dense, stable microstructure for long-term durability.

As concrete matures, SHIELD Adaptive Crystals continue developing within pores and capillaries, refining the internal structure and reducing permeability. The crystalline network remains active over time, adapting to phase changes under varying environmental and exposure conditions and regulating internal moisture movement, vapour behaviour, and temperature. Concrete incorporating ADMIXPLUS demonstrates increased resistance to freeze-thaw cycling, chemical exposure, chloride ingress, sulfate attack, carbonation, alkali-silica reaction (ASR), and reinforcement corrosion, ensuring sustained structural performance under demanding environmental and service conditions.

APPLICATION AREAS

- Mass concrete pours
- Infrastructure such as bridges, tunnels, and elevated highways
- Water-retaining structures (reservoirs, dams, treatment plants)
- Cold and hot climate concreting
- Above- and below-ground structures
- Marine and coastal structures (ports, quays, offshore platforms)
- Ready-mix concrete and precast elements
- Foundations and basements
- Industrial floors and pavements in aggressive environments
- Transportation infrastructure (airports, railways, highways)



FEATURES AND BENEFITS

- Liquid crystalline admixture that blends easily into RMC and site mixes, ensuring consistent dispersion and performance.
- VOC-free, water-based, non-toxic, eco-friendly formulation that contributes to LEED and green building compliance.
- Enhances fresh and hardened concrete properties, enabling smooth placement and uniform finish even under challenging jobsite or climate conditions, without altering the mix design.
- Provides permanent waterproofing by sealing pores and capillaries within the concrete matrix, ensuring long-lasting impermeability.
- Regulates hydration and moisture to promote optimal strength development and minimize early-age cracking.
- Densifies the ITZ by strengthening the paste-aggregate interface, reducing porosity, and improving durability.
- Controls free lime levels through enhanced hydration, reducing efflorescence and vulnerabilities such as alkali-silica reaction (ASR).
- Prevents delayed ettringite formation (DEF) by regulating hydration temperature.
- Manages thermal gradients to reduce thermal stress and shrinkage cracking in mass concrete.
- Dynamically responds to temperature, moisture, and phase changes in concrete, sustaining durability under wet-dry cycles, freeze-thaw, and thermal fluctuations.
- Self-heals micro-cracks up to 0.5 mm, restoring integrity and extending service life.
- Protects against aggressive chemical attack from chlorides and sulfates, preventing deterioration.
- Provides freeze-thaw resistance by sealing pores and limiting permeability, reducing the risk of internal cracking.
- Resists carbonation by reducing permeability and free lime, maintaining alkalinity and protecting embedded steel reinforcement.
- Fully compatible with modern blended cements (fly ash, slag), supporting sustainable, performance-driven mix designs.



TECHNICAL DATA

General Characteristics		
PROPERTY	VALUE	
Color and Appearance	Colourless Liquid	
Density	1.1 g/cm³	
pH Value	7 - 9	
Performance Characteristics		
TEST NAME	TEST METHOD	PERFORMANCE
Water Penetration Under Pressure	EN 12390-8	Reduced penetration depth from 36mm (control) to 13 mm (treated), 64% improvement.
Water Permeability	SIA 262/1– Annex A	4.6 g/m²·h, well below 10 g/m²·h limit.
Water Penetration Under Pressure	BS EN 12390-8	Depth reduced from 19.6 mm (control) to 11.3 mm (treated) 42% improvement.
Chloride Ion Migration	SIA 262/1 – Annex B	4.3 × 10 ⁻¹² m²/s, less than half of 10 × 10 ⁻¹² limit
Chloride Migration Coefficient	NT Build 492	2.13 × 10 ⁻¹² m²/s, within “Very Low Penetrability” class.
Rapid Chloride Permeability (RCPT)	ASTM C1202	576–820 Coulombs (Very Low Permeability), ~57% reduction vs control.
Modulus of Elasticity	SIA 262/1 – Annex G	Achieved an average modulus of 27.5 kN/mm²,kN/mm², compliant with requirements for C30/37 concrete.
Alkali Content	BS EN 480-12:2005	Na₂O equivalent: <0.1%
Chloride Content	BS EN 480-10:1997	<0.01% - Classified as non-corrosive to steel reinforcement per BS EN 934-2:2009 limits (<0.1%)
Capillary Absorption	BS EN 480-5:1997	60% reduction in capillary suction



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TEST NAME	TEST METHOD	PERFORMANCE
Carbonation Resistance	RILEM CPC-18	Carbonation coefficient KN = 2.6 mm/ $\sqrt{\text{year}}$, 48% below the 100-year design limit.
Freeze-Thaw Resistance (Scaling with de-icing salts)	UNI EN 12390-9 / SIA 262/1 – Annex C	Surface scaling only 3 g/m ² vs 200 g/m ² limit (1.5% of threshold), >97× lower than standard.
Water Absorption	BS 1881-122	1.6% absorption » minimal porosity and low moisture uptake.
Compressive Strength	EN 12390-3	7.3% higher strength at 28 days.
Potable Water Test	Italian D.Lgs. 31/2001 (EU Directive 98/83/EC)	Certified safe for drinking water contact; no harmful leaching detected.



APPLICATION GUIDELINES

Preparation And Mixing

Dosage: SUPERSHIELD ADMIXPLUS is recommended at 1% of cement weight. Under certain conditions, the dosage may be adjusted between 1% and 2%, depending on concrete requirements.

Application

SUPERSHIELD ADMIXPLUS can be introduced during batching at the plant or on-site by the ready-mix truck. It may be added to the mixing water or directly into the concrete mixer after most of the mixing water has been added, as a final ingredient. At batching plants, dosing can also be automated by integrating a pump with the existing PLC controller; for details on system integration, contact the manufacturer's representatives. The addition of ADMIXPLUS to dry aggregate or cement is not recommended. To achieve optimum performance, a minimum wet mixing time of 2 minutes, depending on mixing conditions and mixer performance, is required.

LIMITATIONS

When incorporating SUPERSHIELD DPC ADMIXPLUS, the temperature of the concrete mix should be above 40°F (4°C). If frozen and/or if precipitation has occurred, SUPERSHIELD DPC ADMIXPLUS may be used after thawing slowly at room temperature and after intensive mixing.

HEALTH AND SAFETY

SUPERSHIELD ADMIXPLUS contains chemicals that may cause skin irritation. Protective gloves and goggles are recommended during handling. In case of contact with the eyes, flush immediately with clean water and seek medical assistance if symptoms persist.

STORAGE

When stored in a dry place in unopened, undamaged original packaging, the shelf life is 24 months. The product must be protected from direct sunlight and frost. Always agitate the product before use. Do not allow the product to freeze. Repeated freezing and thawing may cause damage.

PACKAGING

Available in 25-Litre cans, 200-Litre drums, and 1000-Litre bulk containers.

WARRANTY

Supershield warrants that the products manufactured by it shall be free from material defects and comply with the specifications given in their respective technical data sheets. Should any of the products be proven defective, the liability of Supershield shall be limited to the replacement of the product, and Supershield shall in no case be liable otherwise or for incidental or consequential damages. No other warranties, express or implied, shall apply, including any warranty of merchantability or fitness for a particular purpose. The user shall determine the suitability of the product for his intended use and assume all risks and liabilities in connection therewith. Supershield reserves the right to change the properties of its products without notice.