

(CHRYSO) CONSTRUCTION CHEMICAL

CHRYSO ARMOURCRETE

Description

CHRYSO ARMOURCRETE is an acrylic polymer used as cementitious waterproof coating and repair mortar for concrete structure. It enhances durability, reduces water permeability, and provides strong adhesion, making it ideal for roofs, basements, water tanks, and other wet areas. When CHRYSO ARMOURCRETE Polymer is mixed with cement, a liquid slurry is formed and this slurry used as waterproof coating.

Indicative Characteristics

Form	Milky white liquid
Specific Gravity at 27°C	1.03 ± 0.02
Solid content, % (w/w), as per IS13435	30±3
Mixing Ratio as waterproof coating,	Armourcrete: Cement 1:2 by weight
pH Value, as per IS 13435	7-9
Chloride content, % w/w, as per BS 5075	Nil
Coverage (Theoretical) Waterproof coating	2-2.5 m ² /kg in two coats
Coverage as polymer mortar," kg/10mm/m ²	3 (Mix Ratio Armourcrete: Cement: Sand 1:2:6)
Mixing Ratio as repair putty	Armourcrete: Cement: Fine Sand 1:2:4
Initial cure at 27°C, for pedestrian traffic	after 24hours
Slant-shear Bond Strength, at 7 days, N/mm ² ASTM	>2, (concrete failure) C882

Key Features

- **Type:** Acrylic polymer-based cementitious waterproof coating and repair mortar.
- **Form:** Milky white liquid.
- **Specific Gravity:** 1.03 ± 0.02.
- **Solid Content:** ~30% (w/w).
- **pH Value:** 7–9.
- **Chloride Content:** Nil (safe for reinforced concrete).
- **Shelf Life:** 12 months (in sealed containers).

Applications

- **Waterproof Coating:**
 - Mix ratio: Armourcrete : Cement = 1:2 (by weight).
 - Coverage: 2–2.5 m²/kg in two coats.
- **Polymer Mortar:**
 - Mix ratio: Armourcrete : Cement : Sand = 1:2:6.
 - Coverage: ~3 kg/10 mm/m².
- **Repair Putty:**
 - Mix ratio: Armourcrete : Cement : Fine Sand = 1:2:4.
- **Curing:** Pedestrian traffic possible after 24 hours at 27°C.

Recommended Uses

- **Roofs & Terraces:** Prevents seepage and leakage.
- **Basements & Foundations:** Protects against dampness and water ingress.
- **Water Tanks & Wet Areas:** Ensures long-lasting waterproofing.
- **Concrete Repairs:** Improves adhesion, impact strength, and flexural strength compared to ordinary cement mortars.
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Performance Benefits

Property	Benefit
Adhesion	Strong bond with concrete and masonry surfaces
Durability	Long-lasting protection against cracks and seepage
Flexural Strength	Reduces fragility in thin sections
Workability	Easy to mix and apply
Water Resistance	Significantly lowers permeability

Domains of Application CHRYSO ARMOURCRETE polymer modified mortar is ideal for use in new areas, as well as in renovation work for surfacing, protecting, waterproofing, bonding old concrete to new concrete, gunniting, sprayed mortar, repairs to concrete, brick work, masonry, and also as filling material for joints, grooves, etc. CHRYSO ARMOURCRETE polymer is recommended for waterproofing of basements, toilets, roof gardens, terraces, swimming pools and water tanks and general concrete repairs.

Method of Application

Surface Preparation

Prior to application of CHRYSO ARMOURCRETE, all surfaces must be prepared properly to avoid failure. The surface shall be cleaned to remove all dust, foreign materials/loose particles or any deposits of contaminants, which could affect the bond between the original substrate and the CHRYSO ARMOURCRETE system. This can be done by scarifying, grinding, water blasting, acid washing or any other approved method. Rectify depression / honey-comb (if any) in the surface, use CHRYSO ARMOURCRETE mortar before application of CHRYSO ARMOURCRETE.

Mixing : CHRYSO ARMOURCRETE polymer is mixed with neat fresh cement in the ratio of 1:2 by weight with a help of low speed (300-400 rpm) paddle mixer. The mix has to be stirred thoroughly, until a lump free smooth slurry is obtained

Application : All concrete surfaces (flat and vertical /inclined) shall be thoroughly pre-wetted to saturated surface dry condition; at the same time there should not be any standing water on the surface prior to application of CHRYSO ARMOURCRETE system. Remix the content again with a spatula and start application by brush, roller or any suitable tools on prepared surface. Minimum two coats are recommended. More number of coats can be provided depending on job requirements. First coat should be allowed to air dry for 5-6 hours. Where more tensile strength is required CHRYSO ARMOURCRETE coating should be reinforced with non-woven glass fibre mesh

Curing : After application of CHRYSO ARMOURCRETE system, initial air drying shall be done for 3-6 hours. During this period, no water should be used for curing. If there is a chance of rain or hot (temperature above 40°C), windy atmospheric conditions within this period, protect the coating by covering with waterproof plastic sheet. After a maximum period of 6-8 hours after the final application, moist curing shall be done for the next 2-3 days, either by spraying water or by using wet burlap. During this period, the CHRYSO ARMOURCRETE coating at no point of time should be left completely dry or submerged in water. After the moist curing the CHRYSO ARMOURCRETE coating shall be allowed to air dry for 3 days before submersion in water.

Advantages

- ♣ Resistant to UV (Ultra- Violet) rays
- ♣ Develops excellent bond with most of the building materials.
- ♣ Prevents peeling and blistering
- ♣ Arrests salt petre and prevent penetration of salts into concrete and mortar.
- ♣ Unaffected by chemical attacks ranging from mild acids and strong alkalis.
- ♣ Highly durable in continuous wet service condition.
- ♣ One time application, properties improve with age.

♣ Versatile product– can be used for waterproofing, bonding agent for old concrete to new concrete and repair mortar.

CHRYSO® Cure ACP

CHRYSO® Cure ACP is an acrylic-based, white-pigmented curing compound designed to protect freshly placed concrete and mortars by forming a moisture-retaining film that prevents early-age drying, shrinkage, and cracking. It is ready-to-use, easy to apply, and allows subsequent finishing activities like painting or tiling without removing the curing layer.

Key Features

- **Type:** Acrylic-based curing agent in emulsion form.
- **Appearance:** White pigmented liquid.
- **Function:** Forms a protective film on fresh concrete/mortar surfaces.
- **Adhesive Properties:** Bonds well, ensuring uniform coverage.
- **Ready-to-Use:** No dilution required.

Applications

- **Slabs, Roads, Highways:** Ideal for large exposed surfaces with high surface-to-volume ratios.
- **Precast Concrete:** Ensures proper curing in controlled environments.
- **Trowel-Finished Surfaces:** Protects against rapid moisture loss.
- **Hot & Windy Conditions:** Prevents desiccation during early hydration.

Benefits

- **Prevents Desiccation:** Reduces water evaporation, ensuring complete hydration of cement particles.
- **Limits Cracking:** Minimizes early-age shrinkage and cracking.
- **Improves Strength:** Promotes better cement hydration, enhancing durability.
- **Surface Compatibility:** Subsequent activities like painting, tile fixing, or plastering can be done without removing the curing layer.
- **Ease of Application:** Sprayed or brushed directly onto fresh concrete.

CHRYSO® Cure ACP forms a protective film when drying, which prevents concrete and mortar from desiccation. This enables a more complete hydration of the cement particles and limits early age cracking and drying shrinkage. After initial setting of concrete, the surface is treated with this which offers a better resistance to abrasion. A surface treated with CHRYSO® Cure ACP is white in colour to easily identify the coated areas & also it reflects the light to a max extent keeping the surface less heated ensuring less evaporation of moisture from concrete. Unlike moisture curing, this has a single application – forms moisture barrier throughout the whole curing period. Also offers protection against ‘burning’ of the fresh concrete surface, which is exposed to strong solar radiation. Easy and safe to apply.



Performance Advantages

Property	Benefit
Moisture Retention	Ensures full cement hydration
Durability	Reduces shrinkage and cracking
Versatility	Suitable for slabs, precast, highways
Efficiency	Eliminates need for water curing
Compatibility	Does not interfere with later finishes

CHRYSO CWA 10

CHRYSO® CWA 10 is a crystalline waterproofing admixture in powder form that protects and waterproofs concrete structures by forming insoluble crystals within pores and capillaries, making the concrete permanently resistant to water penetration and harsh environmental conditions.

Key Features


- **Type:** Crystalline integral waterproofing admixture (powder).
- **Mechanism:** Active chemicals react with moisture and cement hydrates to form crystals inside concrete pores and capillaries.
- **Effect:** Transforms concrete into an impermeable barrier against water and liquids from any direction.
- **Standards:** Conforms to **IS 2645:2003** and **ACI 212.3R-10**.

Applications

- **Foundations & Basements** – Prevents seepage and dampness.
- **Sewage Treatment Plants & Tunnels** – Withstands aggressive environments.
- **Underground Structures & Dams** – Long-term waterproofing protection.
- **Precast Structures & Bridge Decks** – Enhances durability.
- **Swimming Pools & Reservoirs** – Prevents leakage.
- **Exterior Plastering** – Provides water resistance for walls.

Benefits

- **Permanent Waterproofing:** Integral protection, not surface-applied.
- **Crack Sealing:** Can seal hairline cracks up to **0.4 mm wide**.
- **Durability:** Resistant to waterborne salts, aggressive chemicals, and corrosion of reinforcement.
- **Positive & Negative Waterproofing:** Effective against water ingress from both sides.
- **Non-toxic:** Safe for potable water applications.

 Performance Data (Indicative)		
Property	Without CWA 10	With CWA 10
Initial Setting Time (min)	131	138
Final Setting Time (min)	172	177
Compressive Strength (3 days, MPa)	38.3	38.6
Compressive Strength (7 days, MPa)	49.1	51.5
Water Permeability (% of control mix)	100	19
Free Chloride Content (% w/w)	N/A	0.02 (Max 0.1%) <small>www.adtchemical.com</small>

CHRYSO DELTA

CHRYSO® Delta is a new-generation range of polycarboxylate ether (PCE)-based superplasticizers and plasticizers designed to improve concrete workability, reduce water content, and enhance durability. It is widely used in ready-mix, precast, and high-performance concretes where flowability, pumpability, and strength retention are critical.

Key Features

- **Type:** Polycarboxylate ether-based admixture (multi-range plasticizer/superplasticizer).
- **Function:** Provides strong deflocculating action on fine cement particles, improving dispersion.
- **Dosage Flexibility:** Can be used across a wide range of concrete mixes, including those with supplementary cementitious materials (SCMs).
- **Workability Retention:** Maintains fluidity over time, reducing slump loss.
- **Pumpability:** Enhances concrete flow through pumps and pipelines.


Applications

- **Ready-Mix Concrete:** Ensures consistent workability during transport and placement.
- **Precast Concrete:** Improves compaction and surface finish.
- **High-Performance Concrete:** Enables lower water-cement ratios while maintaining strength.

- **Concrete with SCMs:** Compatible with fly ash, slag, and silica fume mixes.

Benefits

- **Water Reduction:** Moderate to high water reduction, improving strength and durability.
- **Cement Optimization:** Allows reduction in cement dosage while achieving target strength.
- **Improved Compactness:** Reduces capillary absorption, enhancing impermeability.
- **Durability:** Better resistance to shrinkage and cracking.
- **Versatility:** Single admixture suitable for multiple concrete types

 Performance Advantages	
Property	Benefit
Water Reduction	Enables lower water-cement ratio
Workability Retention	Maintains slump for longer periods
Pumpability	Smooth concrete flow in pipelines
Strength Optimization	Achieves desired strength with less cement
Durability	Reduces permeability and shrinkage

CHRYSO® Premia

CHRYSO® Premia is a new-generation polycarboxylate ether (PCE)-based superplasticizer designed for high-performance concrete. It delivers excellent water reduction, superior workability retention, and enhanced strength development, making it ideal for ready-mix, precast, and self-consolidating concrete applications.

Key Features

- **Type:** High-range water-reducing superplasticizer (PCE-based).
- **Function:** Provides strong dispersion of cement particles, reducing water demand while maintaining workability.
- **Workability Retention:** Keeps concrete fluid and pumpable for longer durations.
- **Strength Development:** Enhances both early-age and long-term compressive strength.
- **Compatibility:** Works with all cement types and supplementary cementitious materials (SCMs).

Applications

- **Ready-Mix Concrete (RMC):** Ensures consistent slump retention during transport and placement.
- **Precast & Prestressed Concrete:** Improves compaction, surface finish, and dimensional accuracy.
- **Self-Consolidating Concrete (SCC):** Provides high flowability without segregation.
- **Highly Reinforced Structures:** Facilitates placement in congested reinforcement zones.
- **High-Performance Concrete:** Enables low water-cement ratios for durability and strength.

Benefits

- **Water Reduction:** Achieves significant reduction in water/cement ratio.
- **Strength Optimization:** Increases compressive and flexural strength by up to **30%** compared to conventional mixes.
- **Durability:** Reduces permeability and shrinkage, improving long-term performance.
- **Efficiency:** Allows cement content optimization while meeting strength requirements.
- **Adaptability:** Suitable for hot climates and demanding construction schedules.

Performance Advantages

Property	Benefit
Water Reduction	Lower water-cement ratio, higher strength
Workability Retention	Maintains slump for extended periods
Strength Development	Boosts early and ultimate strength
Pumpability	Smooth concrete flow in pipelines
Durability	Reduced permeability and shrinkage

CHRYSO Optima

CHRYSO® Optima 1000 is a high-performance polycarboxylate ether (PCE)-based superplasticizer designed to deliver exceptional water reduction, extended workability retention, and superior strength development in concrete. It is particularly suited for ready-mix, precast, and high-performance concretes where consistency, pumpability, and durability are critical.

Key Features

- **Type:** Advanced PCE-based superplasticizer.
- **Function:** Strong dispersion of cement particles, reducing water demand while maintaining fluidity.
- **Workability Retention:** Keeps slump stable for extended periods, even in hot climates.
- **Strength Development:** Enhances both early-age and long-term compressive strength.
- **Compatibility:** Works with all cement types and supplementary cementitious materials (SCMs).

Applications

- **Ready-Mix Concrete (RMC):** Ensures consistent slump retention during transport and placement.
- **Precast & Prestressed Concrete:** Improves compaction, surface finish, and dimensional accuracy.
- **Self-Consolidating Concrete (SCC):** Provides high flowability without segregation.
- **High-Performance Concrete:** Enables low water-cement ratios for durability and strength.
- **Highly Reinforced Structures:** Facilitates placement in congested reinforcement zones.

Benefits

- **High Water Reduction:** Achieves significant reduction in water/cement ratio.
- **Strength Optimization:** Increases compressive and flexural strength compared to conventional mixes.
- **Durability:** Reduces permeability, shrinkage, and cracking.
- **Efficiency:** Allows cement content optimization while meeting strength requirements.
- **Adaptability:** Suitable for demanding construction schedules and hot climates.

Performance Advantages

Property	Benefit
Water Reduction	Lower water-cement ratio, higher strength
Workability Retention	Maintains slump for extended periods
Strength Development	Boosts early and ultimate strength
Pumpability	Smooth concrete flow in pipelines
Durability	Reduced permeability and shrinkage