HYDRO SERIES

HYDRO CORPORATION

Hydro Products Items

① ***Hydro-Therm***

Permeable Reactivity Deteriorating Water Absorption Prevention Agent for Concrete, Wood, Stone, Brick, Tile

② ***Hydro-Surf***

Hardening of Permeability for Permeable Reactivity Deteriorating Water Absorption Prevention Agent and the form of Thin film on Photocatalyst

③ ***Hydro-Dynam***

Durable Elasticity Coating composed High Molecular Emulsion and Superfine Particles

④ ***Hydro-Philix***

Self Cleaning a pollutants by acting a thin-film formed in photocatalyst degraded by ultraviolet and hydrophilicity.

HYDRO CORPORATION

Major Achievement of Hydro-Therm

The Diet Building

Tokyo Station

Himeji Castle

The Prime Minister's Official residence

Nippon TV Broadcasting

Tokyo Station Yaesu Redevelopment Project

Tochigi Regional Government Building & Assembly Hall

Aoba Castle Wall

What is Hydro-Therm mechanism

「**FUNCTION AND EFFECT**」

Ingredients of HYDRO THERM in water solution with the surface tension which is less than half of water, permeating deeper pass through capillary tube or air gaps and water gaps of concrete, stones, bricks, wood, mortar plaster.

HYDRO THERM, having permeated, reacts with free alkali (mainly free lime) or with high reactivity silica (amorphous silica) gradually turn into **non-water soluble inorganic chemical compound** inside air gaps or water gaps.

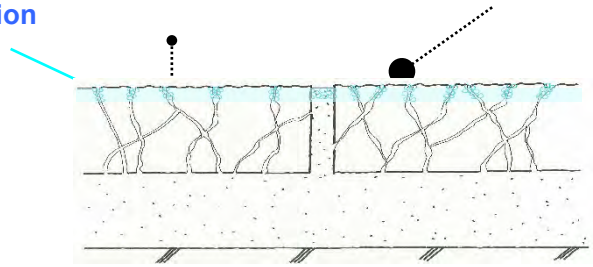
Inorganic chemical compound formed inside the structures by above function having filled air-gaps and water-gaps forms permeable water-resistant layer so as to enable to prevent water absorption of concrete itself, which is different from other organic water repellent or resin coating materials simply to be applied on the surface.

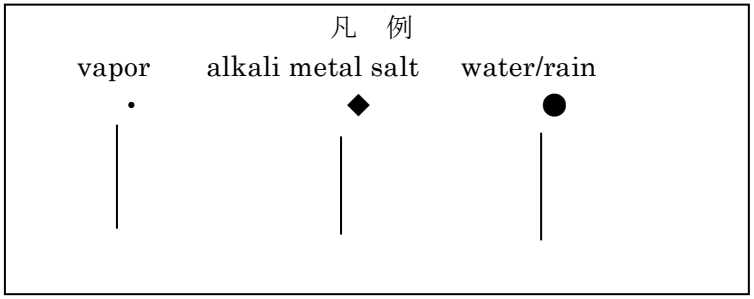
Neutralization, a major cause for concrete deterioration, is mainly due to carbonation or acidification of free alkali in concrete and this function is activated mainly by carbon dioxide and water.

To stop water absorption and transform free alkali in basic substrate into stable substances prevents neutralization and, applying treatment of high alkali HYDRO THERM is recovered and improved alkali degree of the concrete which is already under activated neutralization.

Thus, the concrete, stones and other structures treated with HYDRO THERM is able to prevent from water permeation with the stable protective layer, not only neutralization or alkali aggregate reaction but also salt damage, freezing damage, and largely improves durability and stability of concrete structures.

Crystallization





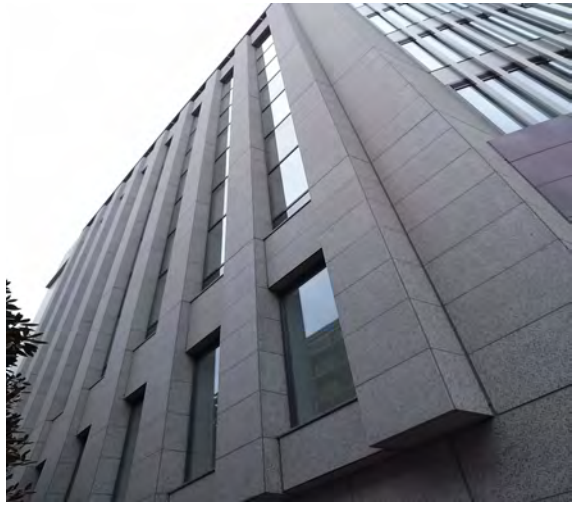
Hydro-Surf

Hardening of Permeability with Permeable Reactivity Deteriorating Water Absorption Prevention Agent and the form of Thin film on Photocatalyst

Granite Stone Outer Wall
(Kobe-city, Hyogo Japan)

Marble Stone Outer Wall
(Mie-Pref. Japan)

Terra Cotta Louver
(Machida-city, Tokyo)



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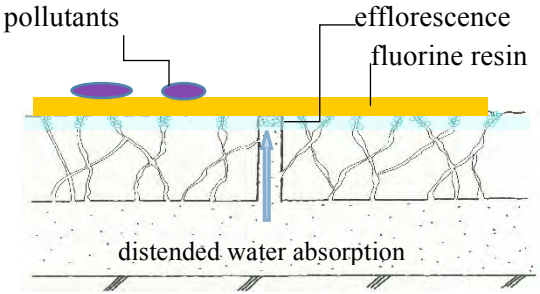
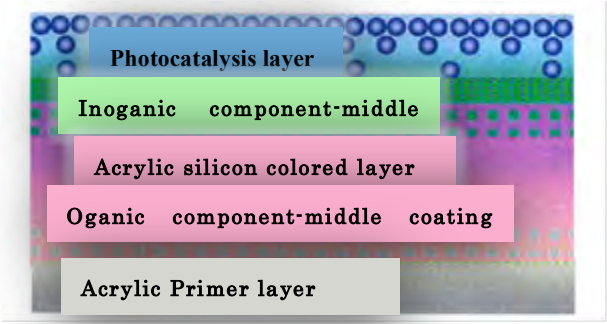
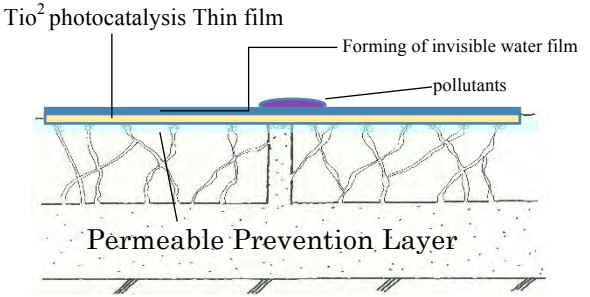
Comparison with Hydro-Surf and others

Water-based high weatherablity fluoride fluorine resin (Clear Coating Layer)	Powderized Photocatalyst (Other manufacturers)	Water dispersion Crystallized photocatalyst **(Hydro-Surf)**
		
* Primer coating: Water repellent(particular silicon) penetrate into concrete structure which form waterproof layer to keep out water from back side of concrete. * Middle coating: To keep rain water and carbon dioxide and protect water repellent and to hold not to get wetting darkly on surface with top coating. * Top coating: To protect for long time from cause the degradation of concrete as heat, ultraviolet rays, acid rain, carbon dioxide, pollution, algae, fungus	Top coating : 0.3~1.0μm Middle coating: 40~100μm Primer coating: 30~40μm * Primer coating: Photocatalyst layer are composed with the powderized particles titanium dioxide and binder but there is not completely coated on full surface by Titanuim dioxide. To increase adhesiveness with coating surface use acrlyic primer. * Middle coating use acrlyic silicon but a surface boundary with photocatalyst surface is directed a inorganic component to make difficulty a degradation of organic component by photocatalystic effect.	Permeable prevention on primer coating : 2~3mm from surface. Hydro-Therm makes reaction with silicon dioxide(SiO2) which is main component in cement and stone and, form a strong non water soluble crystal in water gap and air gap of inside cement and stone. Photocatalyst coating: 0.1~0.3μm on surface Hydro-Surf forms Titanum dioxide(TiO^2) which is very high ability to hydrophilicity and degradability formed by photocatalyst ATN-2
It is said not to be contact a pollutants because a water mixed pollutants is repelled water drop in globular shape on coating surface by hydrophilicity of fluorine resin. The pollutants is repelled as in its rolling on the surface. As it does not means that the pollutants will be disappeared from existence, it will exist spherical water dropped pollutants in its path which nearly appear foul banded pattern in its path.	How the powdered anatase-type titanium dioxide can be grinded in finely and mixed in binder shall define this performance. However, even grinded the powder in finely and adhered tightly, the internally sank powder titanium dioxide cannot be contributed in its efficiency because there is some limitation of powder which can be reacted as photocatalyst on the surface,	The surface covered by thin film titanium dioxide is not contact because of floating a pollutants as water screen hydrophilicity phenomenon by OH-base. In addition, the photocatalytic degradation excited by sunlight makes not to cohere it as pollutants is degraded on the contact surface even drying a water so that is able to always keep hydrophilicity.

Hydro-Dynam

A durable elasticity coating film consisted of Superfine Particles and High Molecular Emulsion

Mortar Surface Reinforcement MC2513

* Mixing a high molecular emulsion (ethylene vinyl acetate emulsion copolymerization) with a superfine particle aggregate(250~350 mesh powder) foam a durable elasticity coating-film.
* This durable elasticity coating-film is possible to widely use for putty compound or painting materials depends on its quantity of solvent(or water).
* By laminating of non-woven textile fabrics on a roof waterproofing work is able to configure a resistant to cracks and durable water-proofing layers over 10mm in thickness.
* It is also possible to water or oil based paints finish with a toning color by pigment on surface after application of this HYDRO-DYNAM MC2513.

DISTICTIVE POINTS

* **Hydro-Dynam** is friendly to human bodies and environments also safety work because of water-soluble materials.
* **Hydro-Dynam** is also applicable a very diverse as painting and plaster works because of adjustable a viscosity according to water quantities.
* **Hydro-Dynam** is possible to realize a shortened working period and a cost reduction because of higher drying speed as 20 minutes to 1 hour.
* **Hydro-Dynam** is a high workability and usable even some water remains on a coating surface.
* It is fulfill the condition of higher adhesion, water-resistant (water-resistant permeability), chemical resistance (Acid, Alkali), oil resistance, wear resistance, impact resistance, aging resistance, ozone resistance so that it is possible an effect to consistent performance for a long time.

PURPOSE

* Roof Water-proofing work of building or other structures
* Heat insulation for metal roof (sound-proofing or cooling-proof)
* Anti-slipping for walk-way
* Joint sealer for Tile and Brick
* Joint sealer for Stone materials(Marble stone or granite)
* Wood structure(improvement of fire-safety)
* Adhesive for Hume
* Painting for cement roofing tile, ceramic tile, colonial roofing tile, metal roofing tile
* Anti-rusting and Anti-slipping for Garage(metal/concrete wall)
* Surface preparation (weather joint level in stair hall)
*Back side or boarder of stone (to prevent water absorption and efflorescence)
*Fixing gravestone
*Painting in substitution for wall paper can prevent from a toxicity caused by the adhesive

Hydro-Dynam

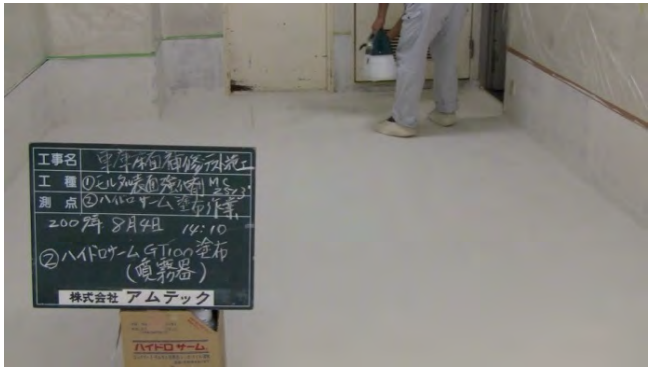
MC2513 Performance Process (I)

①Before working

②Cracking on surface

③MC2513 application

⑥Water Repellent effect



⑤Hydro-Therm work after drying

④After Hydro-Dynam work

MC2513　Performance Process(II)

①Before Working

② Hand Brush or Roller

④After

③MC２５１３(Hand Brush or Roller)