

For Professional use
HYDROPROOF®

HT Series

WP Series

Civil Trust

Heritage

Media Coat

Quon

G-1 G-2

Q
E
R
N
E
X
T

Everything starts here.



CHEMIX Co.,Ltd.

2009 Vol.10

CHEMIX WORLD



HYDROPROOF®

The HYDROPROOF was produced by the research and developed under the concept of environmental improvement such as surface protection against various damages caused by wind, salt and frosting as well as aiming the control of neutralization, prevention of efflorescence.

Penetration As the surface tension of HYDROPROOF element is far lower than that of water, it can penetrate far deeper than water from the surface layer to the core and it can change the structure to reform the material to far stabilized product construction.

Reaction Deep inside penetrated HYDROPROOF reacts with free alkali inside of concrete and amorphous silica inside the aggregate that gradually reforms itself as water-insoluble inorganic compound in the water gaps and voids. As its result, HYDROPROOF becomes effective prevention measure and deterrent effect against efflorescence.

Protection In regard with the neutralization that is considered to be the major cause of concrete degradation, this action is mainly promoted by reforming of free alkali in concrete to carbonic acid and or acidification which is mainly accelerated by carbon dioxide and water. HYDROPROOF can prevent this neutralization by preventing the water absorption and changing the free alkali into stabilized material. When HYDROPROOF of highly alkaline nature is processed to concrete under extremely advanced neutralization, recovery of alkalinity becomes possible.

Waterproof Deeply penetrating HYDROPROOF HT-series into concrete can cause the chemical reaction inside the structure and moisture protection and water-repellent surface protection of crystallize-strengthened concrete are enabled by HYDROPROOF WP-series and Heritage.

Endurance Concrete and stone material processed with HYDROPROOF is protected with exact water resistant layer and it can exclude various causes of degradations and drastically improves durability and stability of buildings. Hydro-Proof can prevent the efflorescence phenomenon generated by movement of water by crystallizing of material while maintaining high alkaline nature and maintenance of nice appearance can be continued. In other words,

HYDROPROOF can reform it to the water-insoluble inorganic compound inside the water gap and the expanded voids created by sliming down of aggregate (making of voids) by neutralization. Reinforcing steel bar inside concrete starts to rust and causing activated crush when pH value falls below 11, though normal steel bar is filled by inorganic compound of high pH-value and thus it has antirust effect in the normal condition. HYDROPROOF can stop such activated crush of steel bar cause by rusting at such place where reinforcement steel bar thickness is insufficient and enables the restoration of alkalinity. It can be mentioned that this is the permanent effect of HYDROPROOF as it continues the chemical reaction inside the material. This HYDROPROOF can be mentioned as the basic material of extremely high reliability for all most all inorganic construction materials.

- ◇ Protection and waterproof of stone and its substrate strengthening
- ◇ Repair and protection of cultural asset

- ◇ Neutralization control of concrete
- ◇ Efflorescence prevention of concrete made buildings and brick masonry, Repellency, Reaction types

HERITAGE

Products offering corresponding to the construction site Deterioration protection and Water shut off resistant method by complex engineering method, Repair and protection of damaged cultural assets,

Media Coat Glass: Metal Cloth

Refractoriness
Environmental
improvement property

Long-term water-retention agent

a wetting agent at the time of removal.

G + R
H + P

PROTECTOR

Performance evaluation related to approval under building construction code Article 37-2, Inorganic solidification type internal penetration to asbestos dispersion inhibitor (2 liquid type) Registration No. MAEN-0017

Never changes texture
High performance waterproof type

Penetration

- Paper
- Cloth
- Leather
- Timber
- Automobiles
- Copper
- Iron
- Silver
- Stainless steel
- Stone
- Brick
- Tile
- Concrete Block
- Roof Tile
- concrete
- Glass
- Aluminum

Penetration, Non-penetration

G-1+G-2

Quon

Waterproof fireproof agent for timber
Fire-resistant agent for wood

Water repellence

Reactivity

HT-GT

HT-HX

HT-SP

CIVIL TRUST

WP-GS

WP-MX

WP-MX

WP-MX

WP-MX

WP-MX

Antifouling of stucco wall, Surface protection and super-water repellent agent for stone, brick, and concrete, Prevention of mold and moss

Water shut off effect, Filling effect against hair cracks (Tile joints, crack repairs for porcelain tiles)

Reinforcement for crushed concrete steel bars, recovery of alkalinity, reinforcement and washing out of tile jointed section, Optimum primers for aqueous, oil paint groundwork reinforcement paint and for adhesive waterproof agent.

Neutralization deterrent agent

This is the optimum under floor paint for drying under floor by creating 2 ply waterproof layers of silicate and silicone to protect generation of moss, bacteria and anti-aging.

Suitable to be applied on to basement WP-GS area and concrete section of the basement where become wetting again after building construction is completed. It has superior function setting priority than appearance textures by which the material can be buried again. It works also protection against cracks and hair cracks, and structural crack due to its high elasticity (Up to 300% as maximum).

Suitable for the applications of surface protection for soft stone, waterproof protection of exterior wall tile joints and surface protection for cast out concrete exterior wall.

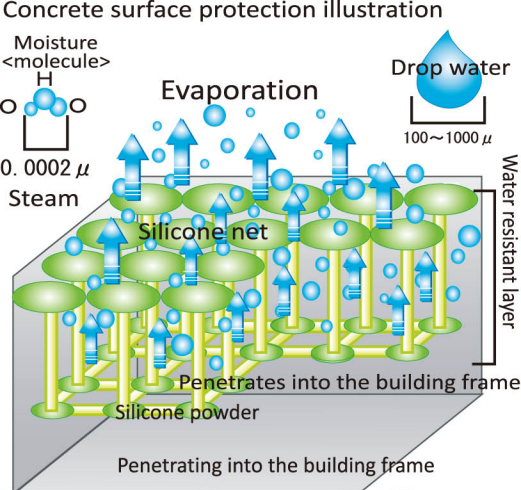
Rust prevention

Waterproof property

Surface protection waterproof agent, Custom-made

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Inside of the building frame. It is widely mentioned that silicone molecule may cause chemical reaction at its surface layer and or in the micro holes to queue itself up in the orderly manner inside the capillary. By such mechanism the original character of its can be maintained because the free alkali at silicone molecule penetrating section change into such material as silicic acid calcium for instance that doesn't melt to water. In this moment, organic group (water-repellent radical) covers surface of the inwall side and works to prevent penetration of water from outside. In this case, out-coming water cannot pass through the mesh of silicone made inside. The silicone compound reacts internally after penetrating from the surface and forms the stable silicone resin. With such working mechanism it can exert water absorption proof effect for long period. As the surface tension of HYDROPROOF is far lower than that of water which is less than half of water, and as a result, HYDROPROOF can penetrate into concrete quickly and far deeper than water penetration. HYDROPROOF can be applied as if it is painting material without any trouble even though the objected building material contains somewhat percentages of water, because HYDROPROOF(HT-SP) can be replaced with water than is penetrating later on. It can be also expected that HYDROPROOF have cleaning effect as HYDROPROOF can replace it with penetration water with contamination when moisture attack the building material. Especially, for such object that is has degradation (neutralization), HYDROPROOF can recover alkalinity by using HYDROPROOF of high degree of alkaline (pH11-13).

Major outlines of product characteristics HYDROPROOF HT-SP

It penetrates quickly into concrete, and it can change itself into water-insoluble inorganic compound in the void or cracked spaces. It is effective for the control and prevention of efflorescence, Rust preventive and recovery effect for the steel reinforcement of reinforcement steel bar explosion by the neutralization of concrete. Groundwork reinforcement for the finishing material of aqueous and oil surface finish coating material.

HYDROPROOF HT-HX

Water shut off effect against hair cracks, Water shut off effect at tile joint, Efflorescence prevention of bricks, Water repellency strengthening without changing surface texture.

HYDROPROOF HT-GT

Excellent super-repellency effect, optimum for prevention of surface growing moldy moss without changing surface texture at all; Super strengthening of internal construction frame by combination use with SP.

HYDROPROOF WP-GS

Showing super preventing performance against surface damages by wind, salt and frosting by the effect of high elasticity characteristics. Suitable for direct surface penetration applying to Building basement area, concrete constructed under water basement area (Contains seawater) and underground structures that are buried after completion of the building. Especially when the framework is protected by WP-GS which is reaction finished by HT-SP greatly improves its durability and structural force of the building. Furthermore, various surface finishing are also possible by the effect of combining different materials.

HYDROPROOF WP-MX

HYDROPROOF WP-MX offers excellent solution for the prevention of concrete surface degradation caused by frosting damage as it has high elasticity, which gives super surface protection power by improving the characteristic of WP-GS due to surface strengthening function by siloxane bonding different from silane system. Especially, this is suitable for weathering protection of soft stone.

Other applications and combined engineering method

Various types of protection effects are expected by the combination of each HYDROPROOF type and by applying such effects. Moreover, it is possible to utilize as urgent repairing method against water leakage, as well it can give various patterning effects of surface expression by the complex use of ordinary cement and with slag cement.



Ueno National Museum of Sciences



swimming pool improvement work at Kitahara residence in Sashima



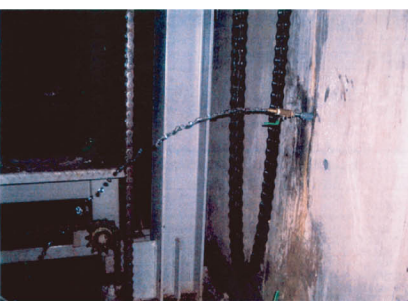
waterproofing work at brick joints



Water leak prevention work (blast-furnace slag injection) in underground pit



Wall surface waterproofing work for steel reinforcement steel bar block made residential building



Waterproofing work for building basement, Underground EV pit water stop work, Water flow blows out from the water injection plug,

CIVIL TRUST Bi-layer waterproof is enabled, and the workability is pursued by applying single liquid!

"Civil Trust" successfully combines two different characteristics of HYDROPROOF HT-SP and of HYDROPROOF WP-GS together in one product. As a result, "Civil Trust" is filled into the voids by the substitution action in which the element of Silicic acid lithium of HT-SP is drawn by the moisture distributed in the voids. The major constituents of WP-GS, silicone, and polymeric component can create tough water resistant layer on the surface layer. So-called "Solid waterproof system" is then constructed by apply 2 ply or 3 ply layers of such water resistant function. Ideal use of this waterproof system can be developed for the applications of waterproof processing of restaurant kitchen protection for lower floor grouting, water leakage prevention for swimming pool and spa bath utilizing grouting of complex agent and water leakage stop for railway alcove slab, etc. For the special application such as water leakage stop for shops where many conditions are requested, WP-GS is made to penetrate from the crack around the tile joint and water protection area is made for all the inorganic fractions except the porcelain tiles with low water permeability. Actually it makes reactive crystallization with concrete neutral element to form an exact silicate layer. In addition, it can form the silicone layer in the nearer area to the surface. As the construction is the bilayer waterproofing system, the step to form water stop layer is simplified by single liquefaction, and thus minimizing of construction work period and water stop work below the heavy building objects are enabled by constructing only the overall application. Especially, this material is best suitable for such construction work site where after-curing work is not possible or is not necessary such as the site of civil engineering work without possible curing or work site with the limited access time for deteriorating prevention and waterproof processing work.

Penetration crack developed at the railway track basement floor slab

Cross section of concrete crack



HYDROPROOF®

《Cause of concrete degradation》

The architectural culture of Japan for housing and residence is historically developed on the foundation of wood work and mortar surface lined buildings, in this sense, Japanese technical knowledge of stone built and concrete build construction work have to be mentioned as poor one compare to that of other countries, especially to European countries.

Definition of the term "Neutralization"

HYDROPROOF and neutralization deterrent effect

The major cause of concrete neutralization is by carbon dioxide existing in the atmosphere. Detailed definition of this is understood that carbon dioxide generates calcium carbonate when it is dissolved in the water (moisture) trapped in concrete and as its result the material loses alkalinity.

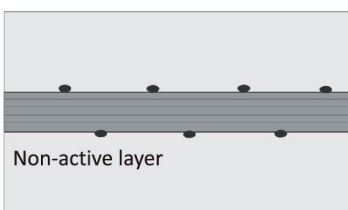
For the development of our product Hydro-Proof, we have studied the character of concrete thoroughly from the viewpoint quite different from conventional water-repellent agents and waterproof agents of concrete, and we have invented the solution to eliminate free alkali chemically which was the weak point of concrete. Hydro-Proof is the remarkable and epoch-making multi powered tool for waterproof, strengthening, and damp-proofing of concrete, stone, and synthetic stone categorized construction materials.

Three types of degradation systems we have to aware.

Neutralization Alkali-aggregate reaction Salt damage

Normal and healthy condition

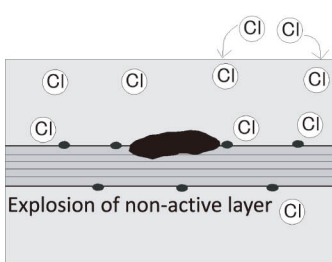
Reinforced steel bars maintaining alkalinity higher than pH12 because of abundant existence of calcium hydrate in concrete do not rust protected by non-activity layer.



Lowering down of pH value due to formation of calcium oxide produced by reacting calcium hydrate

Neutralization

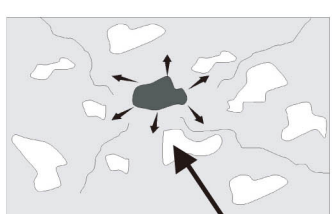
Chloride ion and chloridization ion supplied from outside by sea breeze penetrate gradually inside of concrete.



Chloride ion mixed with beach sand and others. Chloride ion penetrates gradually inside.

Alkali-aggregate reaction

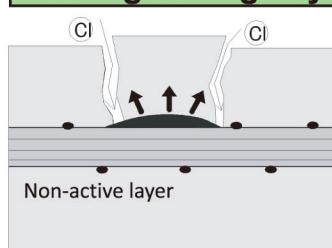
The gel (material with the water absorption to expand) is produced by the reaction of aggregate with alkaline



Tcomponent in cement and expands to generate cracks in concrete.

Following to this, the reinforcement steel bar begins to rust.

Rusting damage by salt



Chloride ion destroys the non-active cover layer and cracks in concrete are developed by expansion pressure of rust

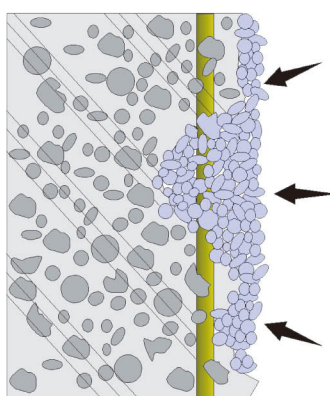
When the reinforcement steel bar starts to rust.

Deterioration of concrete

what kind of thing is this?

First of all, we have to understand that concrete must be alkalinity. Second thing we have to know is the composition of concrete is destroyed easily as neutralization advances.

specially, in the urban area it shall be noted that concrete is deteriorated remarkably by air pollution out from exhaust gases and very recent acid rain, on the other hand in the sea shore area where sea breeze blow concrete explosive crushing caused by freezing of internally trapped moisture is frequently observed. Deterioration of concrete is developed greatly when it absolves moisture.

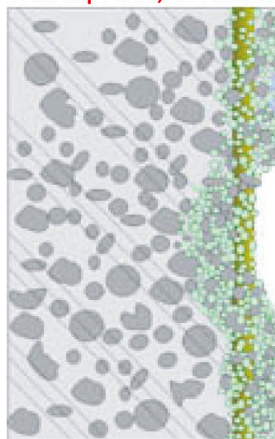


Shaving of defective places

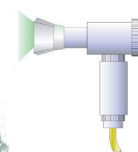
Shave such position where neutralization is progressed, and scrape away of deteriorated place on the surface. In case of extreme rusting developed on the reinforcement steel bars and partly exploded, shaving of damaged concrete shall be made to the backside of the reinforcement steel bars.

Shave away rusting on the surface of reinforcement steel bars with cutting tools or wire brush.

Beginning of HYDROPROOF penetration, reaction, strengthening, waterproof, endurance, and protective effects



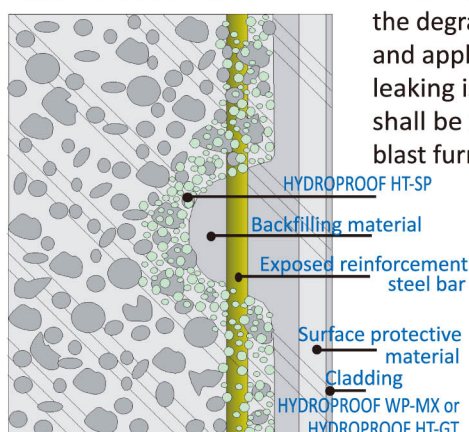
This is the HT-SP that improves strength of concrete. The penetrating HYDROPROOF element reacts with amorphous silica inside the aggregate and free alkali to become gradually to water-insoluble inorganic compound in the water voids and voids.



HYDROPROOF application

Apply HYDROPROOF HT-SP approximately 200 to 250cc per square meter. Volume to be applied shall be adjusted according to the progress situation of the degradation.

Reinforcement of concrete surface sections



Selection of the surface material according to the degradation degree of the building frame and applications. Especially, when the water leaking is observed, water shut off measure shall be made by injecting material such as blast furnace slag cement.



HYDROPROOF® HERITAGE

The exposure test to try our Heritage was conducted as the repairing protective material for repairing work of the historic landmark the Gugong Palace Museum, Beijing, China (Forbidden City). Heritage has been produced here. The etymology of Heritage is the World Heritage it was born from so-called World Heritage.

It is said that 80% of World Heritages are the buildings made of stone. Heritage enables to create the most effective waterproof protection method for stone work constructions. Most of those World Heritages are standing at such environments that are not suitable for the buildings such as in too high temperature and too high humidity and various difficult conditions. For the varieties of stone building material from soft one to the hardest, Heritage penetrates deeply to the base of the material and extends waterproof protection function for super long-period. It shall be noted as one of the unique characteristics of "Heritage" it has the special protection feature of the cracking face. In case of some accident when hardened concrete or stone has cracks after building is constructed, the interior material faces to air and moisture in the air cracking surface. Then, internally applied Heritage starts slowly to work by hydrophobic disassembling of it and which produces hydrophobic property on the surface of cracking to protect the broken-out section. The work environment of applying Heritage is considered also in which it faces severe conditions and construction even under Zero degree is also possible. Heritage is the optimal protection material in such condition where protective function is requested for long period, and not to effect any change on the surface texture.



Execution of rooftop water leaking repair work, made on the occasion when the Ueno National District Museum of Science built in 1930 was re-opened by the completion of renewal work in April, 2007.
Completion: 1931
Address: 7-20, Ueno Park, Taito Ward, Tokyo
Designed by: Tsuyoshi Ogura (Ministry of Education)
Constructed by: Obayashi Corp



The right and left side difference of the water permeability of granite is clearly appeared, which has been soaked for long time in water. After penetration of the applied Heritage into the tuff, the rocks are aligned as shown in the above figure; in this status water absorption inside the rock was started.

The cross section of the material with processed Heritage, where is exposed to carbon dioxide and moisture in the air starts to create waterproof layer along with time passing and the area reaches to the whole within about 7 to 20 days. This is because the performance catalyst is hydrolysis disassembled and hydrophobic group is formed. In such case when waterproof (water-repellent) pre-coated material such as fireproof boards is cut in portion at construction site, the cut surface can have the waterproofing effect before the completion of the building. After the fixed time later (within about 7 to 20 days), in the cracked sections developed after construction, the waterproof layer is formed on the cracked surface. As the application technology of this, it is possible to eliminate penetrated moisture or water stain by taking time utilizing hydrolysis substitution action.

Reliable 7 features

1. High seepage force

Seepage force of 15mm or more for tuff, Seepage force of 10mm or more for mortar plate, Effective to the surface of high polished granite and marble, High intensity concrete can be processed.

2. High durability

The silicone layer is formed by the polymerization of high durability alkyl silicate and fluorine.

3. High generality

It is possible to apply to all inorganic construction materials such as various stone materials, tile, brick, concrete and the stone processed products. It is effective in degradation protection of concrete when it is used together with HYDROPROOF HT-SP.

4. High water absorption

Prevention power Special hydrophobic group forms high permeability until when it penetrates deep inside and secures moisture permeability effect.

5. High workability

Construction work below Zero degree is enabled by the function of water-insoluble alcohol and it results to shorten working period. Making the best use of high seepage force, groundwork can be carried out even on wet ground surface. Water resistant layer is formed by replacing it with internally remained moisture (substitution action).

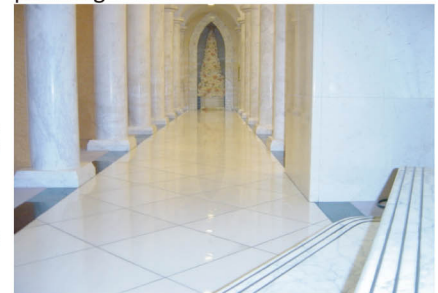
6. Strong force of pycnosis

Fluorine silicon oligomer with high permeability accelerates polymerization to form powerful water resistant layer. In addition, it can provide groundwork strengthening by supplying its strong pycnosis power into the base.

7. Applicability with high availability

Heritage can be applied to various applications of whole areas of water permeable inorganic construction materials such as mirror finished surface granite, marble, tombstone, high intensity concrete, ALC, stone processed products and ceramic using siding panels etc.

Underground flower of jeweler after marble polishing finish.



View of polish finished elevator lobby.



Terrazzo color finished entrance hall.



HYDROPROOF®

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Another type HYDROPROOF® Media Coat



Heritage is the product developed for the surface protection of glass and metal. Fluorine silicone strongly protects the surface. This prevents from adhesion of water scale and dirt by the effect of super-water-repellent performance. **Mediacoat** makes hydrolysis disassembling reacting with the moisture in the air and carbon dioxide and form hydrophobic group. After applying **Mediacoat** to glass or metal water-repellent characteristics is generated rapidly when watering to the material surfaces where **Mediacoat** was applied. Your daily repeating applications of **Mediacoat** to the surface of the objected material, fluorine silicone contained in the element begins to deposit and super-water-repellent effect is started and continued.

Applications

This product is optimal for almost all window panes of general houses and residences. Though the type of building is not specified, the glass pane of fix window or the window panes of the high rising building are especially suitable for this product. It is also optimal and widely usable for stainless steel made material used around the entrance of office building, apartment houses, hotels and shopping centers, display and glass pane for automatic doors. Besides this, **Mediacoat** is also effective to protect from generation of mold. Please wash out mold grown on the surface of bathroom wall, ceiling, tile, and joints of tiles and apply **Mediacoat** for protection. Moreover, when **Mediacoat** is similarly applied to the cloudy surface of mirrors in the bathroom, such foggy unclear surface changes immediately clear view after shower watering or warm water spraying.

This is because the hydrophobic group with high durability is formed on the mirror surface by the polymerization of fluorine and alkyl silicate. The cause why water drop falling down from the mirror surface is the surface adhered hydrophobic group stands like brush hair or as if it is the leaf of lotus plant on the glass coated surface and prevent water drop expanding on the surface of the glass. Moreover, the effect of contamination preventing and mold repelling effect are expected by the sterilizing effect of isopropyl alcohol in the element.

Cautions in handling

- Please use this product after shaking it well before using.
- Do not expose the product with bare fire.
- Please do not store the products at high temperature places such as in automobiles.
- When using the product please note for sufficient ventilation.
- Never mix water to the stock solution. (Never dilute it with water).
- Please note it that some kind of plastics and paints may be decomposed or dissolve with this product.

✂️ **Mediacoat** has flexible potentiality of utilizing to many applications by mixing with admixture agent and by adding other processing. It can be used not only for building but also usable for maintenance purpose, display, the adornment, clothes, and general merchandise etc.

Media Coat Glass: Metal

The mirror received **MEDIACOAT** Un-processed mirror remains process dries very quickly. many water drops on its surface.



Media Coat

For the development of automobile body shining product, we developed by adding solidifying element into **Mediacoat**, which differs quietly from the conventional wax, polymerized fluorine silicone of alkyl silicate and fluorine create surface shining durable layer on the automobile body surface to protect paintwork.



Basic applying method

After washing your automobile and wipe off all moisture from the surface, please apply **Mediacoat-super** by spraying or by wiping off with **Mediacoat-super** soaked soft cloth, please apply the liquid to the whole body of your car, which is the economical applying method. However, please note it that general use plastic made sponge cannot be used as there are cases of dissolve.

Mediacoat gets good results gradually by repeating uses.

Media Coat Cloth

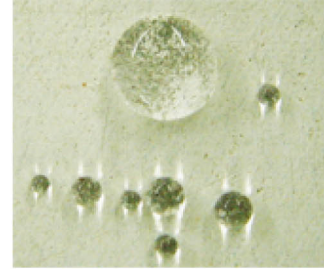
This is the aqueous emulsion. **Mediacoat cloth** is the flexible water-repellent finishing agent for fiber products that start water-repellent effect within about 2 days after using. Depends on the types of the cloth to be applied and the purpose of processing, but the optimum effect is achieved when few minutes heat-treated of generally about 160°C or 180°C is provided.



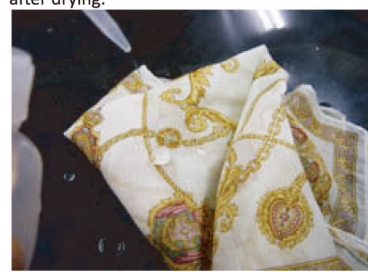
Mediacoat cloth is applied to handkerchief



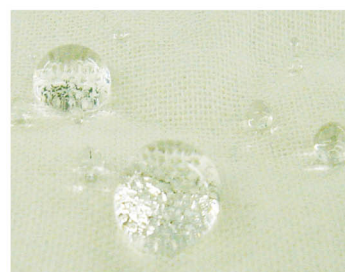
Ultra strong water-repellent effect appears after drying.



Use heating iron of about 160 or 180°C after applying.



Water absorption effect is expected even very thin handkerchief similar to the thicker one.



Glass: Metal & Super Cloth



Another type

HYDROPROOF[®] Quon

I have the precious one to be protected.

It has to be succeeded to the future generation.

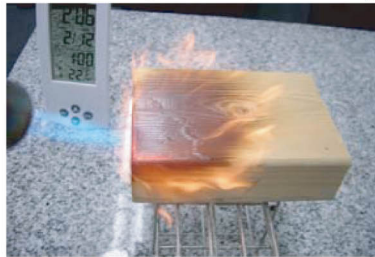
Eternal cleanness is expected.

"The misfortune comes when forgetting" Sadness of losing precious one is inscrutable. It might be caused by great natural disaster, or by own carelessness, and or by other's act. But there's no change for any miserably even if it comes from any kinds of risks. How it is wonderful if we can foresee and can protect from such risks.

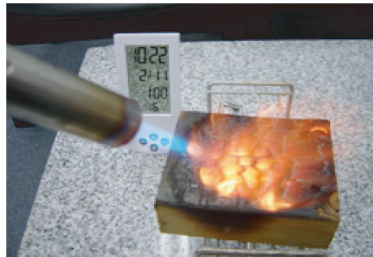
The unique characteristics of our product QUON is that it is made of water inorganic material. QUON penetrates deeply into the material and loses its own water solubility gradually and prevent from water penetration from the surface and eliminate internal moisture. As a result of this, hydrophobic property that starts to have waterproofing function has the effect of fire protection. In this connection, when fire is emergence in the building, the material applied QUON is slow to catch fire to make time to escape out or limit widening of firing area in the building. QUON contains neither the organic solvent nor the noxious matter at all. QUON produces no smell, and no poisonous gases even on fire under emergency.



QUON processed wooden chip



Igniting the chip with bare fire of about 1600°C In 5 minutes



11 minutes have passed:

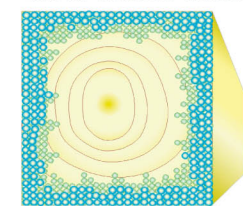


The core is showing high temperature. Gradually put the fire away from the wooden chip, but it doesn't start to burn itself.

Why does not QUON burn?

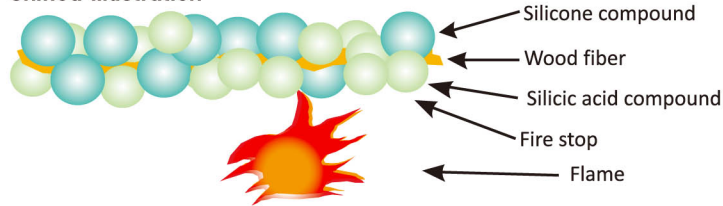
The contents of our product QUON, which is processed from waterproof agent, are the resin called "Organo siloxane" and inorganic catalyst of silicone. This silicone resin has its internally built-in alkoxide of silicon in its structural part and this alkoxide is hydrolysis disassembled by moisture in the air to generate siloxane bond (-Si-O-Si-). As the siloxane bond is oxide product, and thus it is not oxidized any further and thus it is nonflammable. It is the same thing that stone and sand are not burnable.

Cross section illustration of the wooden section



The silicic acid compound and the silicone compound penetrate deep inside the wooden section, and the siloxane bond that unites inside forms hydrophobic property. The siloxane bond stops the expansion of firing area, and inhibits combustion of the fiber.

Unified illustration



Environmental improvement type and long-term humectants G-1 G-2

Prototype of wood piece (pellet)



Long-term water-retention by G-1+G-2



Completely dried (for one year) wooden piece to which G-1+G-2 is applied: Water-retention effect appears again when the piece is watered.



G-1 fixes heavy metals and it induces the pozzolanic reaction, and provides insufficient calcium. As the stabilization agent of soil stabilization, G-1 generates gel like compound in the space of improvement soil and crystallize itself while combining with peripheral moisture. Therefore, the space or void that cannot be filled with conventional crystallizing agent is saturated with the gel, and thus water content capacity is high, and vapor phase is very low. G-1 can maintain wet in super long-run by using together with G-2. It can penetrate G-2 after G-1 is penetrated. Rapidly G-1 becomes gel form and can maintain water retentivity. As the base material of the test, a piece of wood chip was used; Neither corrosion nor generation of mold occurs and water-retention effect continues keep test piece wetting for 14 months by small amount of water drop. The silicic acid compound and the performance catalyst contained in the product G-2 absorbs carbon dioxide gas in the air and moisture to reform itself as gel to maintain moisture for super long-term. For example, when moisture preserved base material is piled on the building roof, strong sunshine beam is intercepted. Although it depends on the thickness of the base material to be placed, about 70-90% strong sunshine beam is intercepted. Moreover, moisture preserved base material has the effect of lowering the peripheral temperature by the total evaporation, and thus it is effective for Global warming control such as the application for gymnasium, factories, and warehouses and for all the buildings that have large roof area. The greening promotion and operation can be expanded by this moisture preservation effect by selecting suitable base material to expand various applications such as environmental improvements, and desertification control. As its excellent cost performance, there is no limitation for using market not only domestic use but for the world, such as for underdeveloped countries and developing countries for effective operation of the product. We have tried water-retention test to place the wooden pellet in the net made of nonwoven fabric. "Left side wooden pellet", it seems to be sufficient with half of this quantity.

The application other than this might be our future tasks. It is considered that thermal control is also possible which may contribute much to reduce heating measures in summer time and to control global warming when it allocated onto the building rooftop.



Since the year 1985, HYDROPROOF has been adopted and applied for various construction sites, building repair works, newly-built constructions, recoveries works for historical cultural assets and other places. However, recently HYDROPROOF is focused again for its remarkable permeability as water absorption inhibitor. This is because its water shut off effect of its component reacted in concrete which is produced by repeating of reaction is working for stopping of newly invading water flow. In addition to HYDROPROOF many other products are in our product line, WP-series for surface protection, Civil trust, QUON that pursued fireproof property of timber, Heritage for protecting stone and for preservation of cultural heritage and Mediacoat which has varieties of applications.

The combination of these products together with conventional and standard material, workable ranges, workable applications and product corresponding potentiality was strengthened and reinforced so much. Not only from domestic market but also from overseas market, our products are now becoming as the center of attraction.

●Product background

This is the most suitable material for the repairing of construction, surface protection of stone material from degradation, ageing resistance effect, especially this is optimum for preservation of historical cultural asset buildings because the applied surface has long year lasting protective function without changing any surface texture. Especially, our product Heritage has immediate effect of waterproofing immediately when it is applied and the effect prevail the whole range of the applied area within 7 to 20 days after its installation work. This special effect is explained that the performance catalyst is hydrolysis disassembled to produce hydrophobic group in the area. In such case when waterproof (water-repellent) pre-coated material such as fireproof boards is cut in portion at construction site, the cut surface can have the waterproofing effect before the completion of the building. For such places that are cracked and broken after completion of building, the cracked surface can have the waterproofing effect in fixed time period (within 7 to 20 days). Besides these products on our product line, we are in a position to supply any material required for the research of work site suitable product and or material for environmental improvement.

●Features and performance

- ①Improves moisture-proof and waterproof
 - ②Prevents and protects the surface from deterioration
 - ③Minimizes penetration of grease, oil, and acid.
 - ④Prevents cracks caused by freezing.
 - ⑤Prevents mold and alga from being produced
 - ⑥Hardens from the surface to the inside.
 - ⑦Improves heatproof low temperature resistance
 - ⑧Facilitates deicing.
 - ⑨Increases the elasticity of concrete.
 - ⑩Effects on the surface of inorganic construction materials for waterproof and protection.
 - ⑪Demonstrates high performances as a primer, and increases the durability of paints and finishing material .
 - ⑫Enables various constructions according to the application of materials and machine, such as composite application
- Application of this product will not affect the permeability of the surface of building frame. HT type and Heritage type will not cause to change the hue and texture.
 - HYDROPROOF can be combined with other products. Such combination brings various effects and expression techniques which will improve civil engineering and architecture as well as environment and provide wider variation in applications.

Procedures for application

Preparation of base surfaces

- Flush thoroughly the surface to be applied before initial application or repairing. Paints, efflorescence, and grease, etc. Remove them using a wire brush or scraper, etc.
- Caulk any crack, honeycomb, and hole, etc. with mortar or mortar-sealing material, etc.
- Cure adequately because Hydro-Proof HT-SL has a property to strongly adheres to glass and aluminum.
- Be sure it not to adhere to a plant etc. Avoid to use any water-paint or finishing material (topcoat) other than HT-SP.

Application

- Apply the HT type and Heritage after enough putting and cooling water when the temperature of the formation level is 50°C or more.
- Apply enough applicator tools with the brush, the roller or the spray gun according to the construction situation.
- Wear an appropriate protector before work.
- To acquire the protection gloves protection glasses and the respirator so as not to touch directly by using the equipment material to which the spark such as the impact and static electricity doesn't ignite and to undertake work, let's bear it in mind.

Post-treatment

Some crystals may be produced depending on the applied material or base surface. Wipe off the crystals using a cloth wet with water when they reached the leather hard stage.

- Usage (on the surface of concrete or mortar)
4-8㎡ per liter, 0.12-0.25 liters per ㎡(Depend on the material).
Usage (Heritage) 6-10㎡ per liter, 0.05-0.15 liters per ㎡
(Depend on the material).
- Notes Be sure to read through the attached Application Instructions before using this product. In case of swallowing or contact with eyes, rinse with plenty of water and consult a doctor.

●Comparison and evaluation of performance (◎ Excellent ○ Very good △ Good X Poor)

Properties	HYDROPROOF (inorganic reaction and high elasticity waterproof type)	HYDROPROOF Heritage (silane coupling agent)	Silicon water repellent agent (organic solvent type) (silane/polysiloxane resin)	Permeation type waterproof agent (Synthetic resin separate using type) (polyester resin)
Ingredients	◎ Inorganic compound	○ Coupling compound	△ Polymer	○ Polymer
Solvent	Water	I P A	Petroleum solvent (Class 2 petroleum oil)	Petroleum solvent (Class 2 petroleum oil)
Salt damage	◎ Long-term effect	◎ Super long-run effect	△ Initial effect only	△ Initial effect only
Frost damage	◎ Long-term effect	◎ Super long-run effect	Effect is limited only on the surface; X there is no long lasting effect though it is effective during the initial stage.	Effect is limited only on the surface; △ there is no long lasting effect though it is effective during the initial stage.
Waterproof	◎ It is excellent in long-term effect as elastic waterproof agent.	◎ It is excellent in long-term effect with high seepage force silicate by fluorine	△ There is no long lasting effect though it is effective during the initial stage.	△ There is no long lasting effect though it is effective during the initial stage.
Durability	◎ It is excellent in long-term effect by the chemically-reacting.	◎ It is excellent in long-term effect with silicate in the pycnosis power with the pycnosis power with the fluorine silicane	X Effect is limited during the initial stage. There is no long lasting effect.	△ Deterioration of organic contents is inevitable with the lapse of time, poor durability.
Construction groundwork	◎ It is acceptable even in case of dampness or dried.	◎ It is acceptable even in case of dampness or dried.	X The surface to be applied must be dried.	X The surface to be applied is necessary to have proper moisture.
Working efficiency	◎ It is very convenient.	△ Air Ventilation	Fire prevention measures shall be taken because large volume of solvent is contained.	X Applying process required more than 2 steps processing that is complicated.
Expression in effect	△ Immediate effect (1-14 days)	There might be difference (3-20 days) according for immediate effect and depend on building frame	◎ Quick	○ Rather slow in speed.
Other characteristics	It is effective in the prevention of ◎ hair crack, efflorescence, and mold. Various effects according to the combination	It is effective in prevention of the hair crack, efflorescence, and mold. ◎ Various effects is possible according to the combination and admixture. Various effects is possible according to the combination and admixture.	○ Effective for initial efflorescence prevention	○ Applying work surface adjustment is possible.

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