



*Advanced nanotechnology
Antistatic, super hydrophilic car coating*

Clean Clear Carbon Coat

– CCC Coat –



From the verification of railway vehicles and buses to the private car market

Buildings



Train & Bus



Cars



More than 10 years experiences/ Application for more than 1,000,000sqm per a year

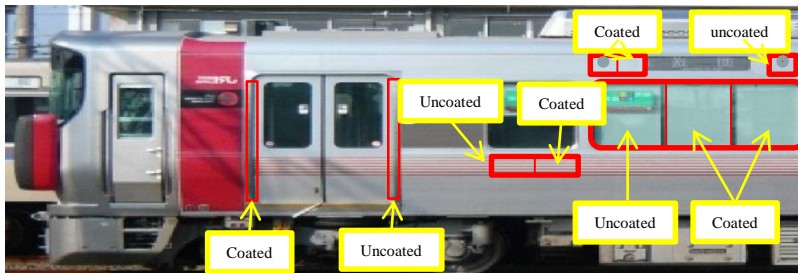
As against products of TOTO and light catalyst, SKETCH antistatic and super-hydrophilic coating for building exterior has been sold in Japan, China, and Southeast Asia. Coating for the car is not the same as the exterior material.

We succeeded to improve the adhesion and withstand washing, and eliminate the application spots to dark color car.

From 2014, we have been verified the application to JR railway vehicle and Nishitetsu. It is carried out continuously verification either withstands car wash and wear test, and it has good results.

◆Train(Painted body, Stainless, Glass etc.)

◆Bus Body



Removing oil film
by Shining Cleaner



Spraying CCC-Primer
On the cutting sheet film



Spraying CCC as finish
coating

Solve the problems, Start the new car coating market

In recent years, Asian countries have significantly economic development.

Same as previous Japan, currently Asian is hoping to own a car that symbolizes the economic affluence.

Moreover some of them will desire to own more greater performance. So car market in Asia will be required a variety of needs.

Car body coating is the mostly water-repellent coating in United States, EU and Japan where already achieved economic development.

In 1995, TOTO of Japan had announced a photocatalytic self-cleaning coat [Hydrotect] to clean the car in the rain. It became a big topic around the world.

However, it was high price and difficult application. Also photo catalyst coating was unable to decompose carbon and dirt of dust in the exhaust gas. It was not enough to demonstrate the effect which was expected. So it could not be expanded to a large market. Since then, the following problems could not be cleared.

The most important issues for car coating

- ①Applying easy and evenly.
- ②It can confirm super-hydrophilic effect after coating.
- ③Keep Shinny of car body
- ④Easy cleaning



Super hydrophilic self-cleaning coating solves issues

- ①Anyone can apply evenly with Spray Cup gun.
- ②Immediately confirm super-hydrophilic effect after coating.
- ③It can keep luster dislike photocatalyst.
- ④Difficult to adhere the dirt with antistatic function

We developed new product, **Clean Clear Carbon coat=CCC Coat** that can solve 4 issue above.

This product will be promoted to sell by ECO SHOP Co.,Ltd related company of Sketch as CCC Brand



The Car body Coating Market in Japan so far and to the future

Car body coating solution has so many type of performance and price as car advanced country in Japan.

◆The best seller product of Car Body Coating solution in the world

- 1, Easy Water repellent coat • • • Hand application, cheap by washing machine, Material cost 20L is 20000JPY Effect is 1month
- 2, Shampoo & One shot application of water repellent coat • • • After shampoo and wiping off, It already becomes water repellent
It is convenience and cheap Material cost 20L is 20000JPY Effect is 1month
- 3, Polymer coating & Wax • • • For people who like polishing gloss, Best standard product of car shop generally
Material cost depends on many grade. Performance is 3months~6months
- 4, Fluorine coating • • • Super water-repellent, Oil repellent, Luster Coat, High grade coating solution,
Material cost 1L = 10000JPY~ Effect is 6months~1year



◆Body coating solutions that are handling in a high-grade pro shop

◆Popular Body coating solution only in Japan

- 5, Hybrid Glass Coat • • • Hybrid type of fluorine and SiO₂s, super-water-repellent coat with bright and clear.
It is less dirty than ① ~ ④ above. Material cost 1 L = ~ 20,000 yen Effect 1 - 2 years
- 6, Photocatalyst Ceramic Coat • • 100% inorganic coating solution, Application by spray is very difficult due to make unevenness easily.
(TOTO: Hydrotect and other) Only Pro shop can deal with it. Material Cost 1L=20000JPY~ Effect is 1~3years
- 7, Room temperature curing glass coat • • • 100% inorganic coating solution like Quartz glass coat(=Aquamica) in Japan
It is selling 80000~100000JPY installation price, It is popular for mainly luxury car.
Application by spray is very difficult. Only Pro shop can deal with it.
Material Cost 1L=20000JPY~. Effect is 2~5years



◆HOT Seller product from now on

• • • Anti-Static Super Hydrophilic Coat 「CCC Coat」 manufactured by ECO SHOP

《World First》

- 8, Anti-Static & Super Hydrophilic Self Cleaning Coat
 - • • Inorganic 100% room temperature curing solution. Everybody can apply by spray without unevenness and repeated application is ok. Very hard to stick dust(=Anti-Static), Very easy self-cleaning with water or rain (=Super Hydrophilic Self Cleaning)
 - Material Cost 1L is 10000JPY Effect is at least 1year



◆Development of inorganic 100% silica binder of the strong adhesion.

20 years ago, Hydrotec, the photocatalytic titanium oxide coating, which TOTO has developed. In this business, SKECH was consulted for a sales support of car film and body coating with super hydrophilic and antifouling effect. On the other hand, the liquid for a semiconductor insulation of the computer on which the Tonen has developed, SKETCH have supported to develop Tonen coating to a cold glass coating under the trade name of quartz for the automobile. After two business consulting of TOTO and Tonen, SKETCH was developed of **100% inorganic silica binder** which other companies did not have the function of antistatic and super-hydrophilic and self-cleaning.

◆The reason TOTO Hydrotec= photo catalyst, Tonen polysilazane = inorganic glass coating, and Quartz glass coating did not expand the market.

20 years ago, TOTO had developed a super-hydrophilic coating agent = Hydrotec as the world's first photo catalytic product for car body. It was promoted around the world. But when you applied to the car body, it made whiten by decomposing the car coating film with the photocatalytic function. Also the application of inorganic primer was required in advance. Because price is high and difficult application, the coating could not make the market. Results were not expected.

Then, Tonen developed and sold Polysilazane "Quartz glass coat "as inorganic 100% glass coating for car body. However, it is difficult to confirm the hydrophilic effect for a month after application. Also it was sold only pro shops, even now it is ten years from development, it does not make a big market. 。

◆The success in the development of binder which has solved the problems of above issues!

This time, we were able to solve the above two problems of coating for glass, film and the car body. So we introduce our coating(2type coating: Methanol and water based coating) with an antistatic function it was the world's first product. And two issues is resolved, it was expected to Hydrotec and quartz glass coating of TOTO. In the future, a new market for car coating industry will extend.

Two functions of Clean Self Coat

Building exterior material for antistatic and ultra-hydrophilic coat of technology evolution to the car coating

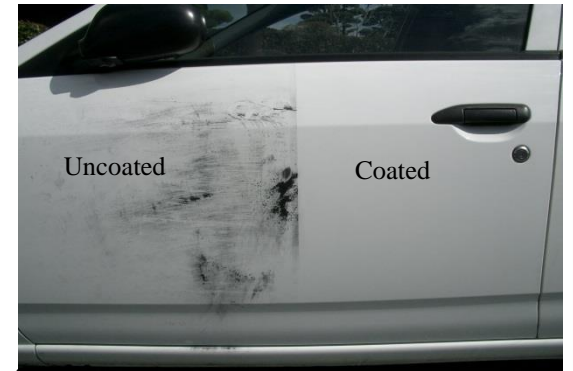


Function①Antistatic function=Reduction of dirt adhesion

Ultra-fine particles of tin oxide (SnO_2) has many free electrons, and low electrical resistance. Surface resistance value (9 to 10 square Ω / \square). It does not adsorb the fine dust or particles suspended in the air, dust and exhaust gas is less to adhere. Especially dirt of coal ash and yellow sand in China can not be decomposed with photo catalyst. Therefore, it is necessary the antistatic function to reduce the adhesion of dirt.

◆Test with Powder

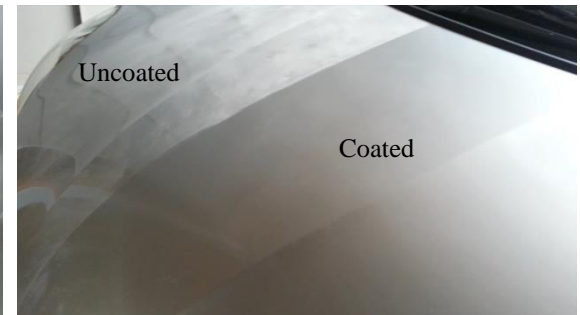
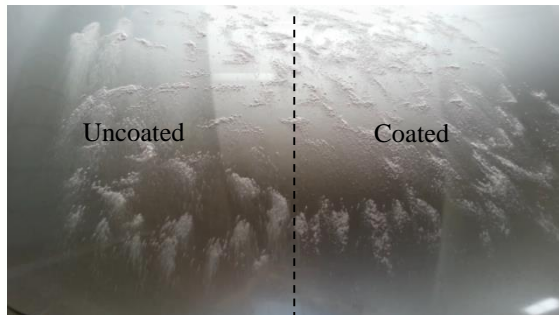
Coat only a half side of bonnet and compare the adhesion of dirt over a powder instead of dirt. When blowing air, dirt on the coated surface is blown off immediately. There are large differences in the dirt adhesion amount.



1. Sprinkle the powder

2. Blowing air

3. Less dirt on coated surface



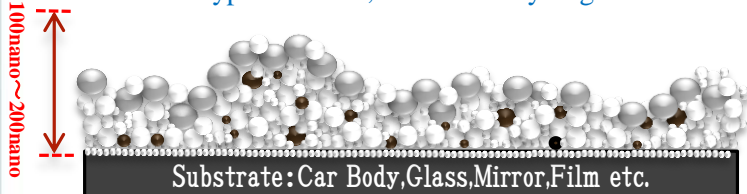
It is late to attach the dirt on the surface. It is most important to reduce the adhesion of dirt.

Two functions of Clean Self Coat

Function② Super Hydrophilic = Self-Cleaning

(Dry at room temperature, immediately super hydrophilic effect)

It uses several types of silica, and exert a synergistic effect of the fractal theory of ultra-hydrophilic particles. The expressed a strong self-cleaning



Water droplet contact angle of 5° or less

Component of CCC Coat

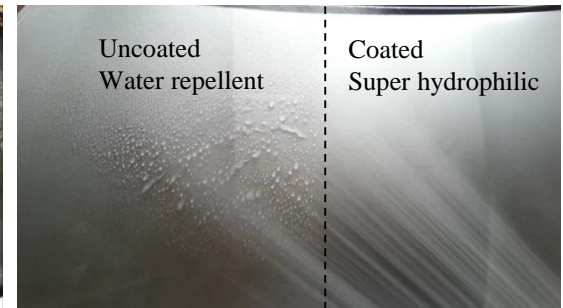
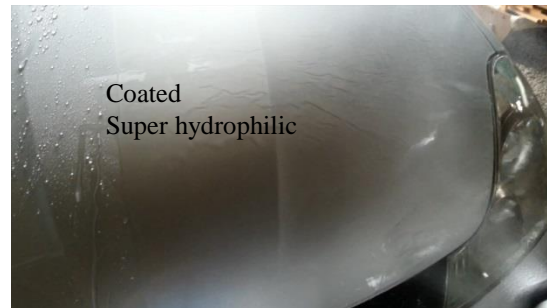
- SiO₂ (Silica) ... Super Hydrophilic
- SnO₂ (Tin oxide) ... Anti-Static
- AC (Organic Atomic Carbon) ... Adhesion and performance is improved

※ The super-hydrophilic function by fractal

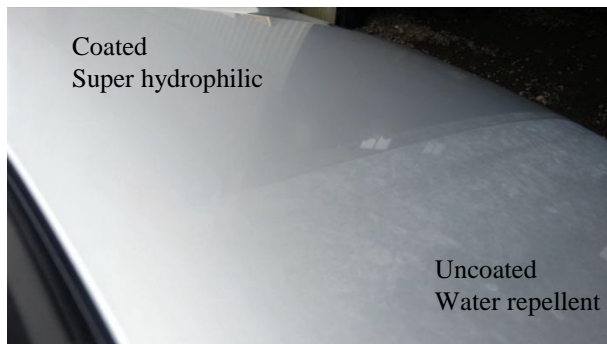
Theory that the effect of the hydrophilic becomes stronger by the minute irregularities of the surface. Unevenness becomes a super water-repellent cleanly uniform lined, it will super hydrophilic to be lined uneven.

Sketch using the material of several kinds of silica and single nano has succeeded in making the irregularities 200 nano. The photo catalyst it will form at all times regardless of super-hydrophilic film.

◆ Test of hydrophilic effect over the water



By entering the water under the dirt, it flows the adhering dirt



After Drying...

← Water-repellent coated surface shown in the picture, will remain white water spots after the rain without wiped the water. Super-hydrophilic coated surface does not remain the water spots.

Super hydrophilic coating is not dirty without wiping, cleaning is easy.

Water repellent Shiny coating market (Existing market)

➡ Change to Super Hydrophilic self coating (New Market)

◆ Super water-repellent, who like shiny coat = existing market

- ① Currently, the car owners prefer luster coating with ultra-water-repellent effect. Especially luxury cars, prefer the shiny and super water-repellent, so cars are always clean because of the constant car washing.
- ② At car shop, people buy a super water-repellent coating and apply their own.
- ③ At a gas station and car wash shop, people ask to wash whenever the car is dirty.

◆ Difficult to adhere dirt with inorganic 100%, super-hydrophilic and self-cleaning which can be Next mainstream.

① Overseas, luxury cars etc., especially the black cars, prefer a luster coating and super-water-repellent effect. In Japan, hydrophilic glass coating of inorganic has been coated from 80,000 yen to 100,000 yen for one luxury car. However, since it is difficult the underlying processing and apply with spray gun, it is not almost painted abroad.

※ Ever automotive coating agent was the organic or hybrid type of water repellent & gloss coating agent. If you want an ultra-shiny it will be organic coating. Water-repellent coating had the disadvantage of adhering dirt when it rains.

This time, we were successful of the development of **super hydrophilic self cleaning coating “Clean Self Coat”**. It is maintaining the shiny and reduces the adhesion of dirt and also washable easily with rain and running water.



② When the rain will reduce the adhesion of dirt with the self-cleaning effect. For the luxury car market of the above ①, it will be able to overcome the drawbacks of water-repellent coating.

③ For commercial vehicles, in particular company-owned cars, one box car, truck, work vehicles, to wash the car when it rains, not coating. Because shiny luxury water-repellent coating has a high application cost. Only you apply **super-hydrophilic self-cleaning coating “CCC Coat”**, it has the effect in a single application. It will lead the image up of the company.

④ Service vehicles, especially taxi, bus, car rental, train, subway, etc. require regular car wash maintenance for the passenger. Of course, **Super-hydrophilic self-cleaning coating “CCC Coat” is the best** that can easily maintenance cleaning when it is dirty.

- For the film on bus and taxi, we prepare the special primer.

Luxury water repellent coating vs Super Hydrophilic coating

Subject		Water-repellent/ shinny coating		Super hydrophilic self cleaning coating	
Component			Organic (Mostly fluorine coat)		SiO2 (silica) + SnO2 (tin oxide)+AC(Atomic Carbon)
Features		◎	Water-repellent, oil-repellent, shiny	○	Super-hydrophilic, shiny
D I R T	Oil dirt	△	Easy attachment. Hard to take off	○	Remain dirt, but easy to clean up
	Iron powder	△	Easy attachment. Little difficult to take off	◎	Difficult to adhere
	Water spots	×	Remain water spots	◎	Difficult to adhere
	Droppings of birds, dead insects	△	Easy attachment. Hard to take off.	○	Remain dirt, but easy to clean up
	Sand、Dust、Carbon	△	Easy attachment.	◎	Difficult to adhere. Wash off when it rains.
	Water drops (Side)	×	Remain water drops	◎	Difficult to adhere
Drop of water contact angle			80°~100°		~5°
Maintenance		×	water stain, take iron powder, top coating	○	Easy repeated coating
Application price		×	Expensive	◎	Lower Price
Differences		×	When it rains, water spots and dirt to adhere. Always need a car wash. Maintenance cost is high. 	◎	When it rains, it can not be water spot with super-hydrophilic self-cleaning function. Easy to clean in the wash. Maintenance cost is low. 
①Difference of dirt					
②Maintenance					

Dirty when
it rains

VS

Clean up
when it
rains



Comparison for Super Hydrophilic coating

Subject		Normal Glass Coating		Famous product Quartz glass coating		ECO SHOP CCC Coat		TOTO photo catalyst Hydrotect
①Component	△	Organic solvent+SIO ₂ Hybrid type	◎	Inorganic 100%SiO ₂	◎	Inorganic 100%SiO ₂ +SnO ₂ +AC	◎	Inorganic 100% TiO ₂
②Super Hydrophilic	×	No	△	Weak Hydrophilic One month later	◎	Super hydrophilic effect in 5 to 6 min after coating	○	Super Hydrophilic with light
③Anti-static	×	No, difficult to adhere	×	Insulation properties	◎	SnO ₂ / Anti static function 10・9Ω/□	×	No
④Droppings of birds, dead insects	×	Easy to adhere/ Difficult to clean up	○	Easy to adhere/ Easy clean up	◎	Easy to adhere/ Easy clean up with rain	○	Decompose by photo catalyst
⑤Water spot Iron powder	△	no	◎	no	◎	no	◎	no
⑥Acid rain, dust	△	Easy to adhere	○	adhesion dirt is easy to clean up	◎	Less adhesion with antistatic , super hydrophilic effect	○	adhesion dirt is easy to clean up
⑦Snow Thawing	△	Hard to adhere	○	Difficult to adhere	◎	Difficult to adhere/ Thawing	◎	Difficult to adhere/ Thawing
⑧Application	◎	60~120min By hands	△	Professional application Spray gun	◎	120min Easy Tornado gun	○	120min Professional Spray gun
⑨Over wrapped coat	○	OK	△	Difficult with Spray gun	◎	Spray gun	△	Difficult with Spray gun
⑩Shinny	◎	Shinny	○	shiny	○	Shiny	△	No shiny
⑪Drying time	◎	Quickly	×	A month/ not to wash	○	Wash after one day	○	Wash after one day
⑫Base liquid		Solvent-based		Solvent-based		Solvent-based		Solvent-based
⑬Per 1car	◎	100ml	○	200ml	◎	200ml	○	200ml
⑭Material cost (1ℓ)	○	Many kinds	○	18000JPY~	◎	~10,000JPY	◎	5,000~15,000JPY
⑮Sales	○	Pro Shop	○	Pro Shop	◎	Pro Shop	○	Pro Shop

Q, Which one will get dirt luxury water repellent or super-hydrophilic self-cleaning coating?

A, Most of the luxury water-repellent coatings are organic, the rain becomes water drops. Especially after the rain, the dirt of yellow sand and dust and carbon are noticeable. When the bird feces and insect carcasses adhere the windshield, it is difficult to take off. The iron powder is also easy to adhere, even the time passes there will be water stain. The regular maintenance is required. In contrast, CCC Coat of ultra-hydrophilic cleaning coating is completely inorganic 100%. Since the antistatic function is attached, dirt is difficult to adhere. Even it gets the dirt, it is widely and thinly because of super hydrophilic performance, It would not attach the hardened dirt such as water-repellent.

A, CCC Coat is iron powder does not adhere because of the inorganic film, also water stain. In ultra-hydrophilic film, water enters the bottom of the dirt, washed off the dirt in rain or water.

A, The biggest difference is, luxury water-repellent coating is easy to get dirt when it rains. On the contrary, super-hydrophilic self-cleaning coating takes off the dirt when it rains. After the rain, Luxury water-repellent coating requires a car wash. . In the past, because there was no super-hydrophilic self-cleaning coating that can be easily applied, so water-repellent coat was popular. However, Super-hydrophilic self-cleaning coating is popular.

Q, What is the difference from other glass coating?

A, Other glass coatings, are mixed with an organic solvent and the vitreous = SiO_2 silica. Famous inorganic 100% glass coatings are Quartz glass coating and photo catalyst coating. CCC Coat is completely inorganic 100% of the glass coating of the best performance of antistatic function and super-hydrophilic. It represents the super-hydrophilic property immediately after the application. And High performance of self-cleaning.

A, Inorganic glass coating with a hard film, is easy to take off the dirt during the car wash. it is characterized water stain, oil dirt and iron powder are less. Among them, CCC Coat water droplet contact is less than angle 5° , so the water wash the dirt easily to enter the interface. Since the coat film is hard, the car body will protect from acid rain. In addition, it is a big advantage that water droplets would not adhere.

A, Quartz glass coat and CCC Coat are both inorganic 100%. However, CCC Coat has antistatic function, so sand and dust adhesion is less. It also has an excellent super-hydrophilic, and self-cleaning function. No, 1 of antifouling can take of the dirt with rain and water.

Q, What is the difference between the photocatalytic glass coating and Hydrostat?

A, Unlike the photo catalyst coating of TiO₂ titanium oxide is the main material, CCC Coat can demonstrate the super-hydrophilic performance within 5 minutes after the application if there is no light. Unevenness theory = fractal theory. In addition, because of the photo catalyst effect, it can be easily applied without the damaging of the organic coating film of car body.

A, CCC Coat can decompose the dirt. It will reduce the adhesion of dirt. In addition, adhered the dirt can rinse easily with super hydrophilic function. Photo catalyst coating without antistatic function, is easy to get the dirt because the particle size of porous is large. So it can decompose the dirt, oil stains and organic stains, but can not decompose yellow sand and carbon.

A, CCC Coat can be applied by spray gun. The other hand, photo catalyst coating has uneven coating, especially black or dark-colored car, shiny falls. CCC Coat doesn't lose shinny gloss.

Q, What are the biggest difference between Quartz glass coat and CCC Coat?

A, Since the CCC Coat has antistatic function, it is hard to adhere the dirt. After application, it exerts immediately super hydrophilic performance, and water droplet contact angle of 5° or less of the super-hydrophilic self-cleaning function. Therefore, it gets the difference in the antifouling performance. Immediately after the application, that the super-hydrophilic property can be confirmed, there is a high sales appeal to customers. The condition attached dirt after the application, the big difference will come out.

Cleaning before application

◆ Step 1 Process of removing iron powder

① Preparation in advance

The clay surface of Nender Buff for five minutes, leave to soak in water.

② Removing Iron powder

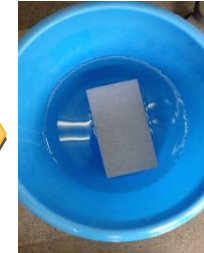
It wash away iron powder and dust on the body surface by Nender buff spraying water. The state of Nender buff always wet.

Notes is always to wash iron powder and dust on the buff surface.

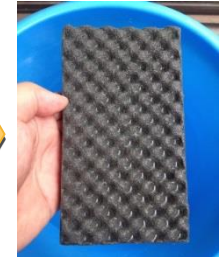
The clay surface
Of Nender Buff



Dipping the clay surface
in water



The state after 5minutes



For about 5minutes

The surface becomes smooth

Moving vertical and horizontal



Always wet



◆ Step 2 removing oil film

① Shake Shining Cleaner in advance, put 5ml/m² on the polisher

It spreads shining cleaner by polisher and polishes to remove oil film

② Shining cleaner can remove oil without scratch body surface due to use fine oxide cerium

After cleaning, It washes away with large amount of water because the powder of Shining cleaner is easy to enter the car body.

③ Wipe off car body by clean cloth. Blow the remaining water entered into clearance of body by air blow gun

※If water remains inside clearance of body, Water flows out on the body surface and adhesion of coating solution becomes bad during the spray application of coating solution.

◆ Notes of Shining Cleaner

Please use in shade place or interior because it gets to dry as powder very fast before getting coating film in sunny place.

Using Shining Cleaner for removing oil film



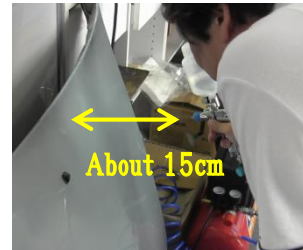
Blowing the extra water



Air Blow Gun

Application notes of Spray Gun

◆ Step 4 Spraying Primer = 「CCC Coat (or Primer)」 (Solvent base coating solution)



Estimated amount of coating

We repeat to apply 2 times for $10\text{g}/\text{m}^2$
When you apply it, the surface will wet with fine particles. The coating surface will dry within 5 seconds after the application.

◆ Notes

- ① If CCC coat can't stick on the body surface, Please apply Primer at first then apply CCC Coat
- ① Please apply after it confirms temperature of body surface is less than 35°C
Never apply on the hot surface more than 35°C so as not to volatilize before forming film.
- ② Coating solution is dry very fast at room temperature but it takes about 12 hours to complete cure
If, coating film gets wet by rain or water within 12 hours, Durability becomes short compared with normal coating film

1. Washing with Shampoo



2. Removing iron powder



2. Removing oil film



4. top coating



Test application package for the first order

180,000JPY Clean Clear Carbon Coat application package

20171124

Products	unit/Price		Target
① 「Shining Cleaner」	5L	30,000JPY	150pcs of Private car
② 「CCC Coat」	5L	50,000JPY	16pcs of private car
③ 「CCC Refresh」	5L	30,000JPY	30pcs of Private car
④「CCC Coat Primer」	1 L	10,000JPY	Only for the car body surface of the strong water repellent state
④「Low pressure spray gun」		40,000JPY	
⑤「Surface resistance meter」		20,000JPY	
Total 180,000JPY + Shipping Cost by EXW-JAPAN			

Sales conditions below(We will only sell to customers who meet the following conditions.)

- ① Customer can have technical application skill for polishing and cleaning car body.
- ② Customer already has an experience of spray gun application for car body.
- ③ Customer can apply only by watching website, youtube without training support.
- ④ Customer will buy test package as business for becoming solo distributor of each countries in the future.

Price condition of solo distributor

- ① Shining Cleaner 7,500JPY/L \Rightarrow 2,500JPY/L
- ② CCC coating solution 10,000JPY/L \Rightarrow 3,500JPY/L
- ③ CCC Refresh 7,500JPY/L \Rightarrow 2,000JPY/L
- ④ CCC Primer 10,000JPY/L \Rightarrow 3,500JPY/L