

SKETCH recommends these Verification method

When you examine Thermal barrier insulation glass coating, all manufacturer or seller said their products are No1 on HP and brochures, product information, in the technical documentation, etc. According to these materials, any thermal barrier performance looks good. Therefore, we can not determine the real good product. So you do the comparison and verification of thermal barrier insulating glass coating for each manufacturer in the following method. This can select which on is the best.

◆Apply one windowpane by each manufacturer. Verify the effect in the following ways.

①How do they apply over 3sq meter windowpane?

You can apply well if the windowpane is about One sq meter. However, large windowpane of more than 3sq meter could occur unevenness or dripping. It is better to apply a large windowpane for the verification to check the finish.

★Check① How much do you apply per 1 sqm?⇒SKETCH products need 25g per 1sqm.

Application of a spray gun is it is difficult to quantify the amount of coating. The film thickness may change by the coating amount. Application of a sponge bar coating amount is fewer, that's around 20g per sqm, it may have fallen much thermal barrier performance than the catalog value and technical data value.

★Check② How much the loss of liquid?⇒In the case of SKETCH, amount of liquid retention is 40g per one roller is the loss,

Application of a spray gun, since the liquid loss is at least 25% or more, the material cost will be higher. Application of dripping can occur many failures, coating liquid require many times when you fail and try again.

★Check③)Can I recover when I fail the application?⇒Sketch Products can modify the coating unevenness or any mistake by roller within five minutes after the application started. Also you can peel off with remover, even after curing.

In other products, it is a difficult to fix the coating unevenness and dripping partly during the application. Some cases should be reapplied from peeling off the whole window glass. Also if you peel off after curing, it will take time and effort because there is no Remover. You should compare to other products about the time of fixing and the peeling method.

②Compare the temperature difference after application.

An infrared lamp by applying from the back of the coated glass, you can experience how the glass is not hot in the palm of the hand. It can compare the difference of the thermal barrier performance.

③Compare the temperature difference in the temperature measurement gun after application.

An infrared lamp by applying from the back of the coated glass, and then measure the glass ambient temperature in the temperature measurement gun. You can compare the thermal performance by the temperature of any coated glass,

④It can compare performance by a split type of optical properties machine after the next day of application.

After the coating surface has dried, split type of optical properties machine measures, UV cut rate, infrared cut rate, and the visible light transmittance, to compare verify the performance of each manufacture products. The verification value might different from the value measured by the sample glass. Because sample glass is thicker coating film. In the case of actually painted glass, IRUV cut coat Hyper-SP can be judged that's superior performance compared with other products.

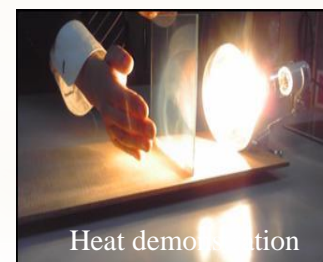
⑤Temperature measurement by Thermochron. After application, it sets up a data logger Thermochron to the test applied windowpane for each manufacturer.

After the application, we set the Thermochron in place of about 15cm inside of the window glass of each manufacture products. It can measure the temperature data for 1-2 weeks. As a result, the glass coating compares verify how much of the heat shield or performance at the actual site.

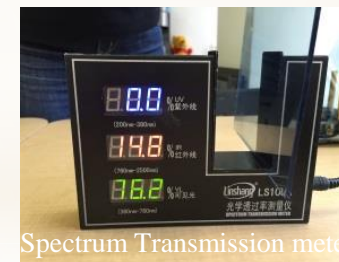
Through the above-mentioned ①- ⑤, can be compared and verified with other companies glass coating, SKETCH, IRUV CUT COAT H-SP can demonstrate NO.1 performance.



Actual construction site, World No.1 Thermal barrier performance



Heat demonstration



Spectrum Transmission meter



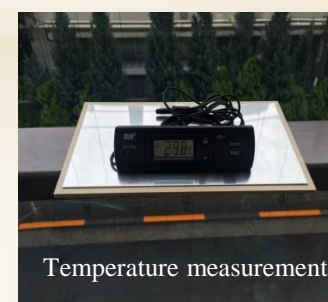
Split transmission meter



Infrared digital thermometer



Thermochron



Temperature measurement

IRUV CUT COAT H-SP Cut over 80% of Infrared rays (Other coating is about 50~60%)

We recommend to verify your thermal barrier coating to others.

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**Verification① Nano material of each manufacturer will appear a large difference in thermal barrier performance.**

**◆Type of thermal barrier nano material**

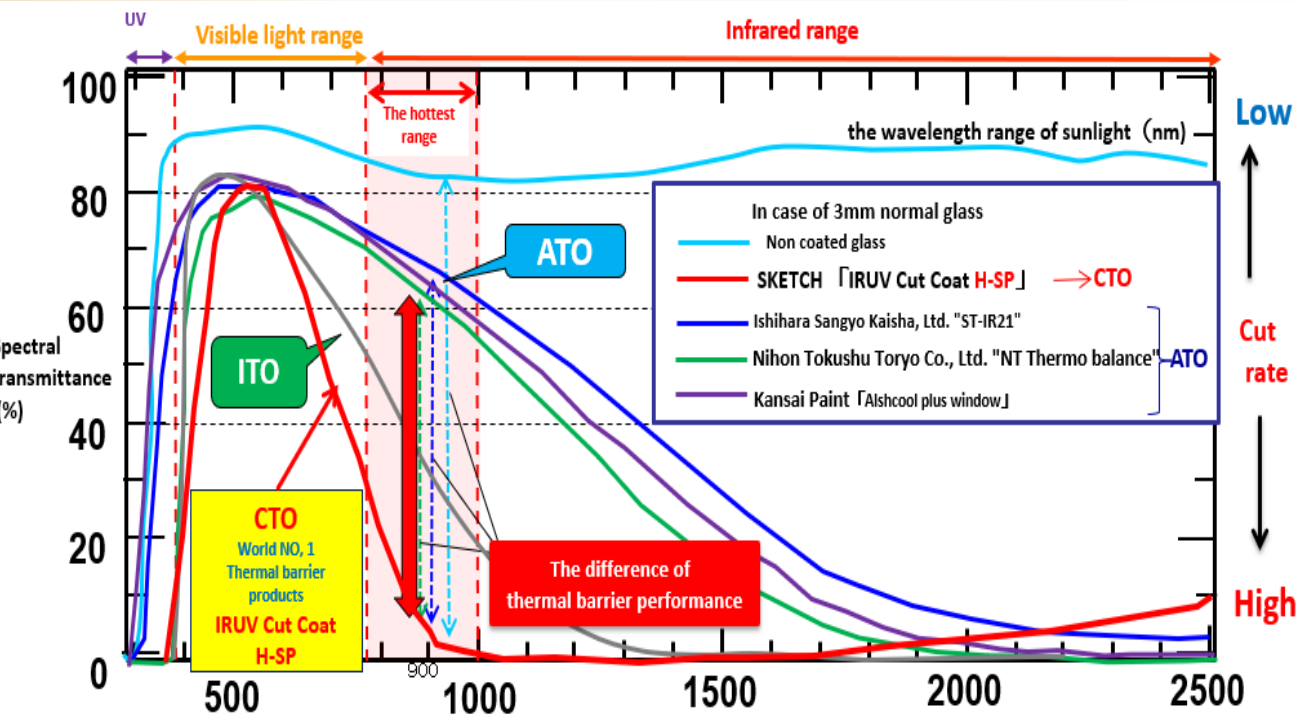
The following four type of thermal barrier nano material, **Infrared cut rate** ※ is different by each nanomaterial.

① **ATO**/Most of thermal barrier insulating glass coating manufacturer use ATO. Infrared cut rate is approximately 50%, the material type is cutting the near-infrared and far infrared rays. Heat cut and a cold measures both to the effects of winter and summer. Material fee is cheapest. 1kg is about 12,000JPY. When you use 25% to 30% for 1kg finished product, material fee is around 3,000JPY to 3,600JPY. Finished product is about 16,000 JPY.

② **ITO**/Highly transparent type of thermal barrier nanomaterials are also used for Eco-glass. Although very high material costs, the Group company, ECO Business Club Headquarter sales a 100% ITO of thermal barrier glass coating as SP type. Infrared cut is about 50% . Cut both near-infrared and far-infrared rays. It will be good for summer and winter general-purpose type. 1kg is about 80,000JPY. When you use 25% to 30% for 1kg finished product, material fee is around 20,000JPY to 24,000JPY. Finished product is about 60,000 JPY.

③ **CTO**/Near-infrared cut more than 80%. The world's best thermal barrier performance material. Ideal for summer heat shield such as Southeast Asia, India, and Middle East. Currently it on sale as **IRUV CUT COAT H-SP for SKETCH original product**. 1kg is about 36,000JPY. When you use 25% for 1kg finished product, material fee is around 9,000JPY. Finished product is about from 25,000 JPY to 30,000JPY.

※ **Infrared cut rate**•••The cut rate range is from 780nm to 2500nm. It is same range as the wavelength of the sunlight.



**Verification② There is a large difference in performance by the application method.**

Application method of thermal barrier insulating glass coating is following four ways.

① **Sponge Bar**•••There is a coating unevenness, the height of more than 3m windowpane is required to special techniques for the application.

② **Spray gun**•••Application is required specialized techniques. It takes time to cover the window frame.

③ **Dripping**•••There is a large difference of thickness from the top and down of 2m or more bigger glass, performance is not constant. Loss of liquid is large.

④ **Roller**•••It can uniformly coat to 3m or more of the window glass. It can measure the film thickness is uniform, the construction is simple.

Because the glass is transparent, it should reapply if there is a coating unevenness. Roller application by SKETCH, is easy and well Self leveling. You can uniformly coat. The amount of coating of 1 square meter has been determined the 25g . The performance value of the actual window coating is almost same as the sample glass. Other coating is different performance of a sample glass.

**Verification③ The effect verification method in the sample glass**

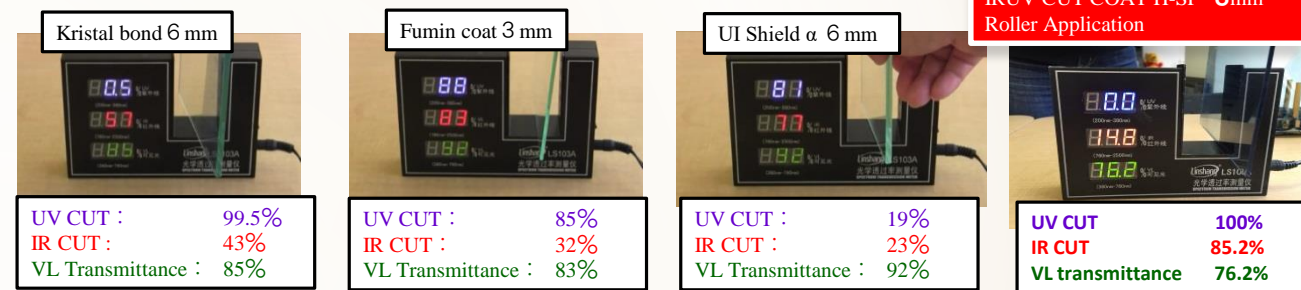
**◆How to make the sample glass**

The coated sample glass, often are made with pouring away and bar coating. Therefore, it is high heat performance barrier than the actual coated glass.If you feel alternately in the sample glass made with IRUV cut coat H-SP type and other companies sample glass, it feels like more of H-SP has cut the temperature. Temperature experience demonstration, we recommend to compare the IRUV H-SP and Non coated glass , also other companies coated glass.



**◆How to check the Optical measurement**

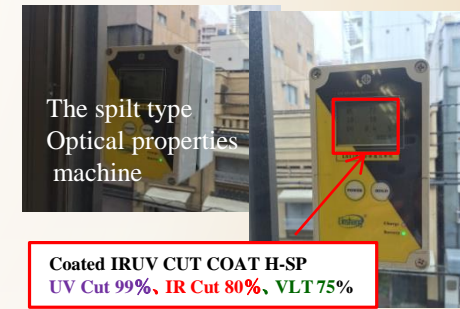
Temperature experience demo of sample glass, use the optical properties instrument to evaluate objectively performance. We will verify the infrared, ultraviolet and visible light transmittance. And the sketch of the sample and compare it to the sample glass that was created in pouring away of other companies glass coat. IRUV CUT COAT H-SP has demonstrated an superior performance.



**Verification③ The effect verification method in actual glass**

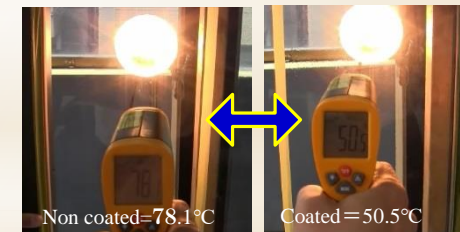
**◆How to check using the split type of optical properties machine**

On both sides of the machine to the front and back of the coated glass surface, you can measure the ultraviolet, infrared and visible light transmittance of the glass surface that is sandwiched between. In this measurement method, you can compare the sample glass performance and actual application performance. As our IRUV CUT COAT H-SP can display approximately the same performance as the sample glass.



**◆How to check using Infrared digital thermometer**

From the back of the glass it will light the lamp. There to fit the measuring instrument and press the button. Lamp of heat is transmitted through the glass, it will be able to measure the temperature of the surroundings In this measurement method, which coating agent can cut infrared rays.



**◆How to temperature measured using "Thermochron"**

Data logger "Thermochron" is only installed in the location where you want to measure the temperature, you can measure the temperature for 10 minutes to 30 minutes and 0.1 °C unit. Therefore, Thermochron is placed in a location from the inner window 10 away 15cm of glass of uncoated and coated glass, then measuring for 1 to 2 weeks. When the temperature measured by Thermochron with other companies and has been rated as our best thermal barrier effect is high.



**Note:** When the thermometer to measure on iron and stainless steel, The temperature difference is greater than 10 degrees. However, please note that different is not same as the actual case.

