

THERMAL  
RARE EARTH  
1098 GLASS COATING

THERMAL RARE EARTH X EASYTO  
RARE EARTH & COATING

EASYTO (SINGAPORE) PTE LTD

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**ONE SQUARE METER  
PER PAINT  
PLANT TWO MORE TREES**

Each Coating Of 1 Square Meter Saves CO<sub>2</sub>  
Emissions Of About 36,1kg/ Year  
Each Tree Can Absorb Or Store  
About 18kg/ Year Of CO<sub>2</sub>



\*数据来自中国建筑节能协会发布，测试地点为天津，因气候、用漆量与已测条件不同，实际节能效果会有差异



**APPLY DIRECTLY  
TO THE GLASS  
COOL IN SUMMER**

5-11°C In Summer, 40% Energy Saving In Winter

**RARE EARTH & COATING**

A MAGICAL TRANSPARENT  
RARE EARTH GLASS COATING DIRECTLY  
OATED ON GLASS



EASYTO  
1098

RARE EARTH & COATING  
250ML

**1098 TIMES**  
RARE EARTH FORMULATION DEBUGGING

**37 KINDS**  
Raw Materials And Rare Earth Elements

**> 95%**  
Red/UV Effective Super Insulation

# DEFINITION AND FORMULA

## THE TRADITIONAL DETECTION METHOD IS K VALUE

### THE DEFINITION AND FORMULA OF K VALUE

The Temperature Difference Between The Air On Both Sides Of The Enclosure (Glass/wall) Is 1 Degree (K Or C) Heat Transferred Per Unit Time Through Per Unit Area

$$\text{公式: } K = \frac{1}{(1/h_1 + \delta/\lambda + 1/h_2)} \text{ W(m}^2 \cdot \text{°C)}$$

Where  $\delta$  Represents The Thickness Of The Material,  $\lambda$  Represents The Thermal Conductivity Of The Material,  $h_1$  And  $h_2$  Respectively Represent The Air Temperature On Both Sides Of The Medium

## THE THERMAL INSULATION PERFORMANCE OF TRANSPARENT MATERIAL IS SUITABLE FOR R-VALUE (IRRADIATION HEATING)

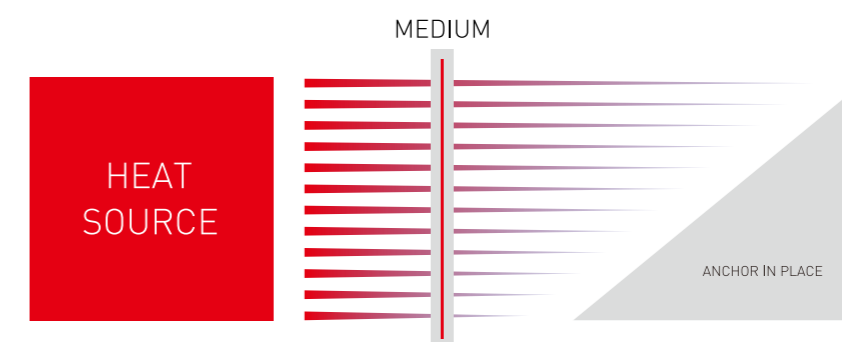
### THE DEFINITION AND FORMULA OF R VALUE

The Ratio Of A Certain Temperature To The Required Time Reached By An Anchor Through A Transparent Medium Of The Same Transmittance Under The Same Irradiation Conditions

$$\text{公式: } R = \frac{\text{升温值(°C)}}{\text{时间(t)*透光率(\%)}}$$

THE SMALLER THE R-VALUE, THE BETTER, BUT WHEN THE TRANSMITTANCE IS 0, THAT IS,  $R=0$ , IT INDICATES THAT THE MEDIUM IS NON-TRANSPARENT MATERIAL

# RARE EARTH & COATING



## CONCLUSION

- The calculation formula of K value is mainly aimed at the thermal conductivity and material thickness of non-transparent materials, rather than glass, etc Irradiation properties of transparent materials.
- The thickness of transparent materials has little correlation with irradiation temperature rise, so K value is used to test the heat insulation of transparent materials such as glass And energy saving is not rigorous.
- Heat radiation is 30 times more efficient than heat conduction! The main means of heat insulation and energy saving of transparent materials such as glass is to prevent thermal radiation
- Comparing K value or U value and other indicators are all data obtained by means of testing the performance of the glass medium itself. The testing standard is complex, and the measured effect cannot be judged. While R value is more intuitive and easy to detect, and the effect of measured data is obvious

**46 %**

China's Dimension Span Is Large, The Northern Winter Weather Is Cold, The Southern Region With Warm Winters And Hot Summers, China's Building Energy Consumption Accounts For 46% Of The Total Social Energy Consumption Building Energy Conservation Lag, High Energy Consumption, Serious Pollution Is Restricting China's Economy One Of The Key Issues Of Sustainable Development Is Also Building In A Carbon Neutral Context One Of The Important Topics Of Energy

**80 %**

80% Of A Building's Energy Is Lost Through Doors And Windows, And Glass Occupies The Window Surface 80% Of The Product, To Solve The Glass Heat Loss Is To Solve The Most Core Building Energy Saving The Problem Of The Heart

**95 %**

China's Annual New Housing Area Of Nearly 2 Billion Square Meters, Of Which 80% High Energy Consumption Buildings; Of The Nearly 40 Billion Square Meters Of Existing Buildings, 95% Are Energy-intensive Build

## PRODUCT PARAMETERS

### THERMAL RARE EARTH · 1098 GLASS COATING

It Is A Transparent Coating That Can Be Applied Directly To The Glass To Achieve Sun Protection And Thermal Insulation, Solar Radiation Under The Action Of The Rare Earth Material, The Near Infrared Ray And The Surface Of The Material Have Plasma Interaction Vibration Effect, Radiation Heat Energy Is Converted Into Physical Heat Energy. Heat Concentrates On The Surface Of The Glass, And Is Carried Away By Air Convection In Large Quantities To Achieve The Purpose Of Rapid Cooling.



## PRODUCT PARAMETERS

02

PRODUCT NAME	1098 Glass Coating
COLOR	Rare earth blue
DENSITY(g/ml)	0.9
AVERAGE PARTICLE(nm)	75
VISIBLE LIGHT TRANSMITTANCE(%)	≥ 67 %
BLOCKED INFRARED-LIGHT(%)	≥ 95 %
BLOCKED UV-LIGHT(%)	≥ 98 %
SHADING FACTOR	0.49
CONDUCTIVITY W/(m <sup>2</sup> · K)	2.4
DIRECT SUNLIGHT ABSORPTION RATIO	72 %
TRANSMITTANCE OF SOLAR INFRARED THERMAL ENERGY	28 %
PRIMARY INSULATING MEDIUM	Thermal Rare Earth Materials
PRINCIPLE OF HEAT INSULATION	Local Surface Plasmon Resonance (LSPR phenomenon)

# SOLAR SPECTRUM

## SOLAR SPECTRUM

### UNDERSTANDING THE SOLAR SPECTRUM, ENJOY HEALTHY SUNSHINE

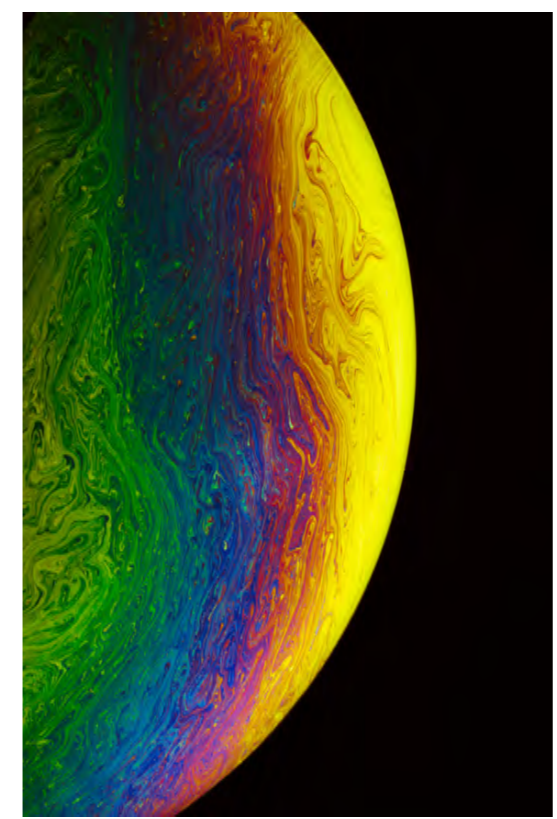
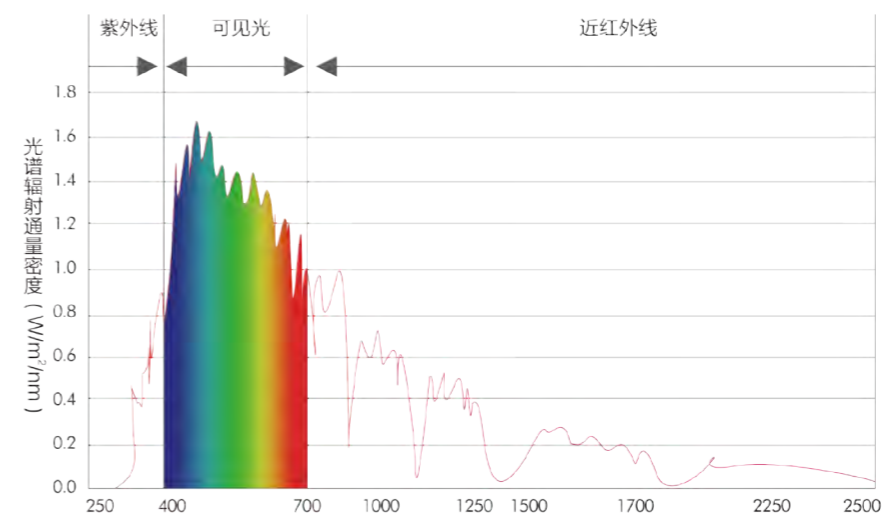
Sunlight Is A Continuous Spectrum Of Different Wavelengths Divided Into Visible And Invisible Light

#### VISIBLE LIGHT

Wave Length 400-700nm  
Scattered Into Seven Colors: Red, Orange, Yellow, Green, Green, Blue, Purple Aggregation Is White Light

#### INVISIBLE LIGHT

Outside Red Light Is Called Infrared, Wavelength 700-5300nm  
Outside Violet Light Is Called Ultraviolet, The Wavelength 250-400nm



**1mm= 100nm**

**5% UV 300-400nm**

High UV (290-380nm)  
The Culprit Of All Objects Aging And Skin Aging.

Low UV (380-400nm)  
Promote vitamin absorption and antiseptic mildew.

**43% VIS 400-700 nm**

**Visible light:** promotes photosynthesis and good mood in plants.  
**Strong visible light:** causes dizziness.

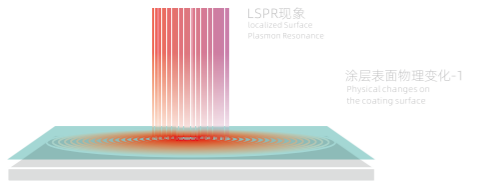
**52% Mid-IR 700-2500 nm**

**Near infrared:**  
directional, irradiation will produce a burning sensation and a lot of heat.

**Far infrared**  
(above 3900nm) improves blood circulation and enhances immunity.

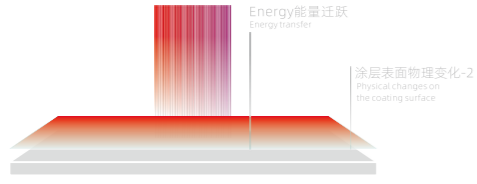
# 04 CONTENT PRINCIPLE

Traditional Low-e Glass And Solar Film On The Glass Surface Technology, Are The Use Of Metal Coating Layer To Reprocess The Glass, Through The Light Wave Reflection Principle To Achieve The Principle Of Glass Heat Insulation, While The Rare Earth Is The Use Of Rare Earth Elements Rich In 4f Electron Layer Orbit, And Red/ultraviolet Plasma Resonance Effect. Easy Coating Improves The Thermal Insulation, Sun Protection And Energy Saving Of Traditional Glass By Several Orders Of Magnitude!



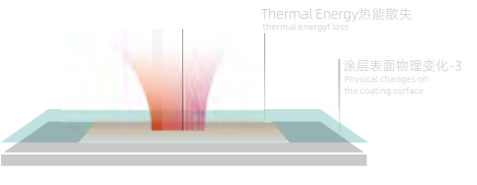
### 近红外辐射波与涂层发生等离子体共振效应

在近红外辐射波作用下，涂层材料发生表面等离子体共振效应。



### 辐射热能被转化成物理热能

辐射热能被转化成物理热能，通过热传导与对流交换，有效节能30%以上。



### 热能被空气对流大量带走

热能被空气对流大量带走，以达到快速降温的目的。

## WHAT IS THE RARE EARTH



### What Are Rare Earths ?

Rare Earth Is The Chemical Periodic Table Of Lanthanides And Scandium, Yttrium A Total Of 17 Metal Elements, Generally Exist In The Form Of Oxides, Because The Color And Earth Are Similar And Insoluble In Water, So They Are Collectively Called Rare Earth. Rare Earth Has Excellent Photoelectric Magnetic Physical Properties, And Can Be Combined With Many Materials To Synthesize A Variety Of Different New Materials To Improve The Quality And Performance Of Products. Therefore, Rare Earth Is Also Known As The Mother Of New Materials And Industrial Vitamins, And Is The Life Door Of High-end Manufacturing/laser Guidance/intelligent Manufacturing And Other Fields.

### Without Rare Earths

All The High-tech Products In The World Would Have Remained On Laboratory Drawings

# 05 INSPECTION REPORT COMPANY HONOR

## AUTHORITATIVE MEDIA REPORT

A magical rare earth heat-breaking glass coating has been developed in Tianjin. It marks a new breakthrough in the application field of rare earth with high added value in China!

GUANGMING DAILY

Yitou (China) joint Rare Earth Research Institute developed rare earth glass energy-saving products. Three technologies to fill the gap in the field of domestic energy conservation!

ECONOMIC DAILY

Easyto coat (China)& Rare Earth Research Institute's rare earth glass products. Realized China's corner overtaking of Europe, the United States and Japan in the field of rare earth high-tech technology!

PEOPLE'S DAILY



第十二届稀土国际论坛主题的七大稀土新产品之一



2020年内蒙古自治区首次新材料



国家“十三五”科技创新成就展



万吨级高附加稀土采购战略合作协议



工信部第十七届中博会专精特新小巨人企业新材料领域单项冠军



第六届中知杯天津市创新发明与设计大赛一等奖新材料领域单项冠军



## PATENTS AND HONORS

Ministry Of Industry And Information Technology  
17th China Expo Specialized Special New Small  
Giant Enterprise New Material Single Champion

National 13th Five-year Plan Scientific And Tech-  
nological Innovation Achievement Exhibition

The 12th China Baotou Rare Earth Industry  
International Forum

First Prize Of Tianjin Intellectual Property Innova-  
tion, Entrepreneurship, Invention And Design  
Competition

Innovative Smes In Sichuan Province

Science And Technology Small And Medi-  
um-sized Enterprises In Sichuan Province

Rare Earth Society Governing Unit



## FROM THE TECHNICAL LEVEL WE SOLVED THE TRADITIONAL LOW-E GLASS AND THE THREE PAIN POINTS OF THE FILM

### 镀膜金属层依靠光波反射原理 不具光谱选择性

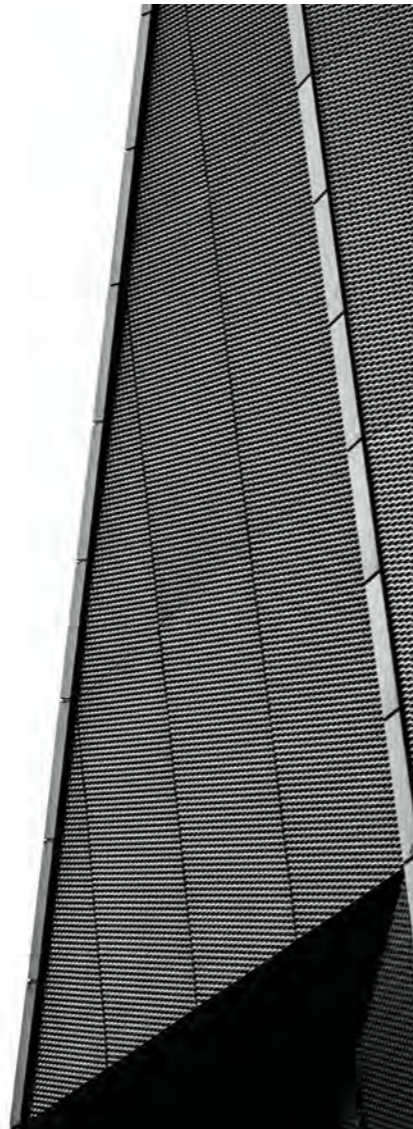
无法享受健康的阳光 甚至不能养活花草  
全波段屏蔽 致其金属物阻隔手机信号

### 光污染和节能之间 无法做到统一

如果想要取得良好的隔热节能效果  
就必须提高玻璃的折射率  
让玻璃颜色(透光率)迅速降低并出现  
巨大的光污染

### Low-e镀膜玻璃易失效 远远低于玻璃的寿命

在线Low-e耐候性好 效果差  
离线Low-e效果好 但极易老化



## ENABLING CARBON NEUTRALITY

CONTRIBUTE CHINA'S STRENGTH TO THE CAUSE OF WORLD ENERGY CONSERVATION

SUPERENERGY K VALUE  
SUPERENERGY THERMAL INSULATION FACTOR  
PERFECT TRANSFORMATIO



# WAVE ABSORPTION PRINCIPLE

The Principle Of Rare Earth Wave Absorbing Coating  
On The Surface Of Stealth Fighter Is Adopted

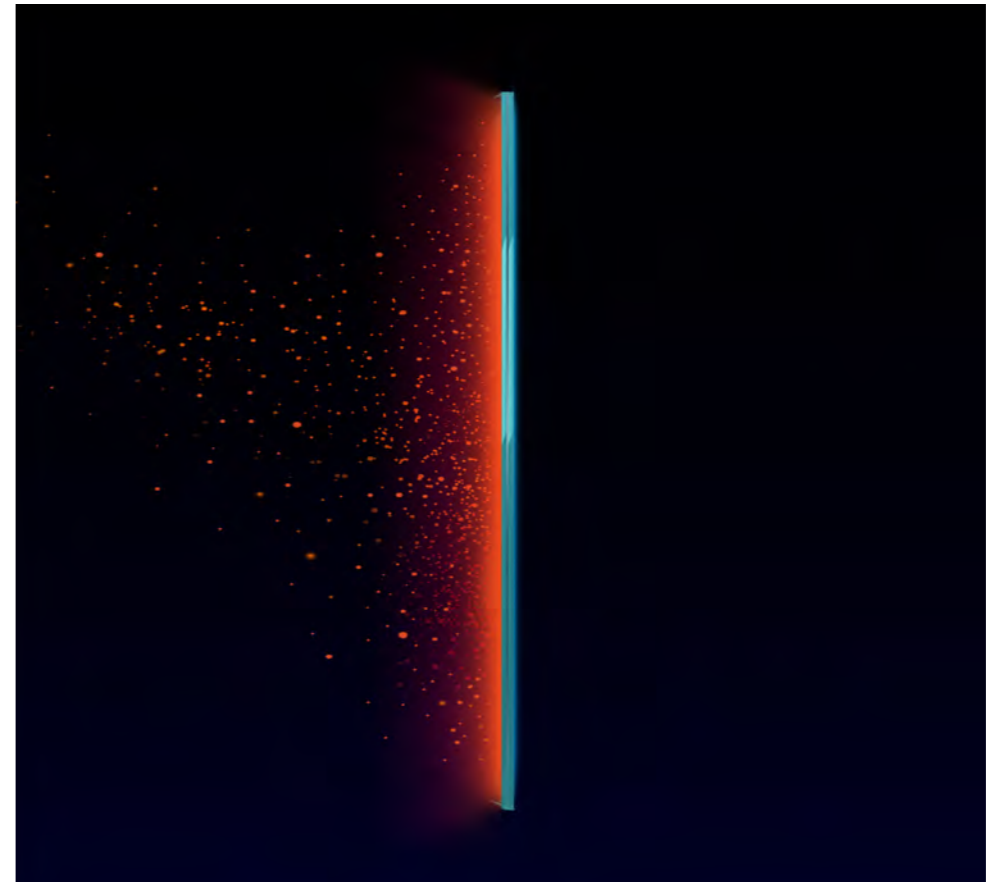
Rare earth is known as the modern "industrial vitamin", with excellent optical, electrical, thermal, magnetic and other properties, is an indispensable part of all high-tech products, products manufactured with rare earth, its durability will often be greatly improved! Rare earth is widely used, stable performance, melting point as high as 2700°C, and will not decay and produce radiation



# SUPER INSULATION

Rare Earth Materials Efficient Heat Removal

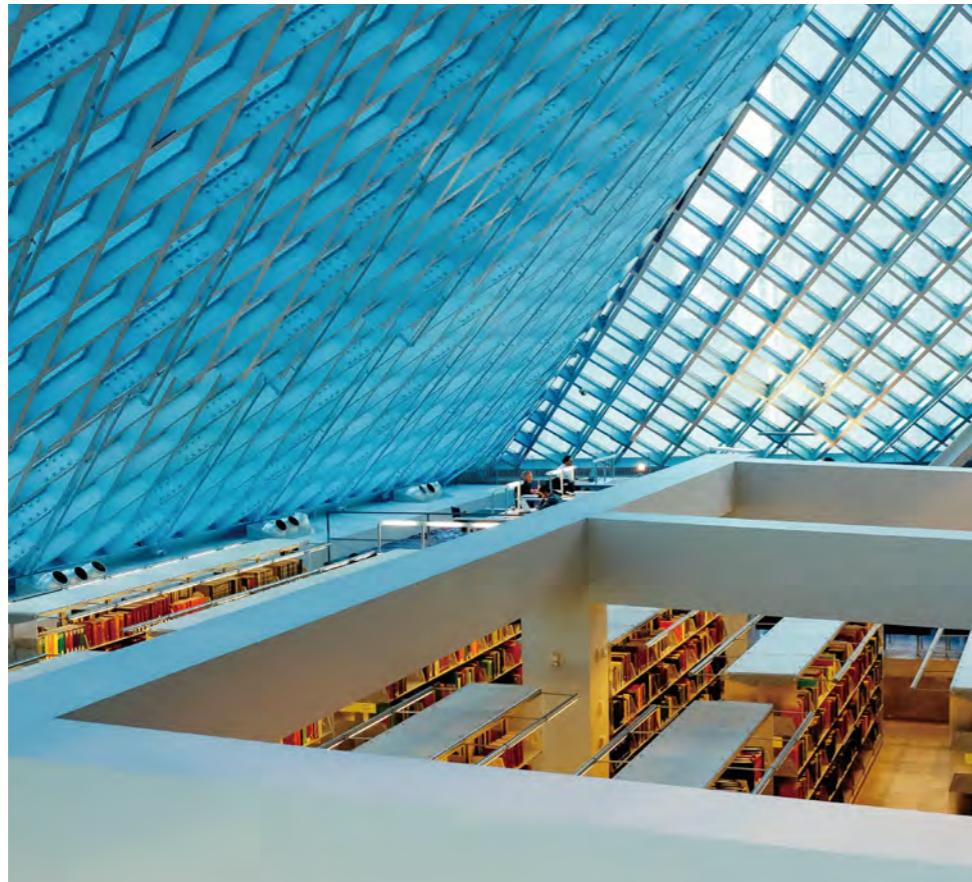
Using 4f Electron Shell Orbits Of Rare Earth Elements  
Plasma Resonance Effect With Solar Incident Photons (Lspr Phenomenon)  
Heat Accumulates On The Glass Surface  
And A Large Number Of Air Convection Away,  
To Achieve Rapid Cooling Purposes



# TARGETED SHIELDING

Intelligent Screening Of Sunlight By  
Paramagnetism Of Rare Earth Elements

Reject Strong Ultraviolet Light Wavelength Range 200-380nm,  
Visible Light In The Lossless Wavelength Range 400-750nm.  
Effectively Block Household Items Caused By Sun Exposure,  
Discoloration And Aging Of Clothing Floor



# CONVENIENT CONSTRUCTION

No need to replace the glass directly on the glass

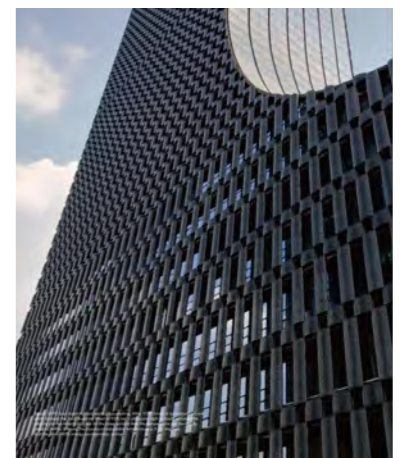
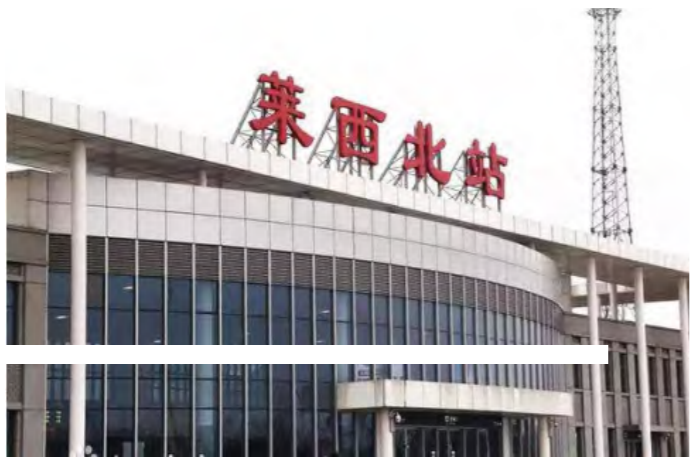
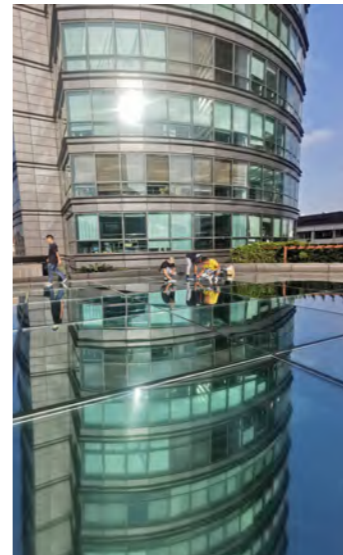
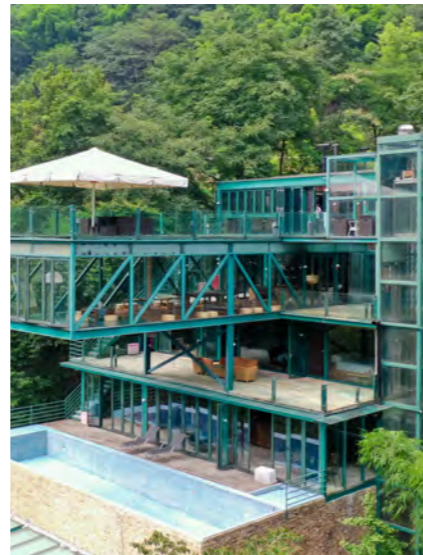
RARE EARTH & COATING

断热 | 稀土涂层

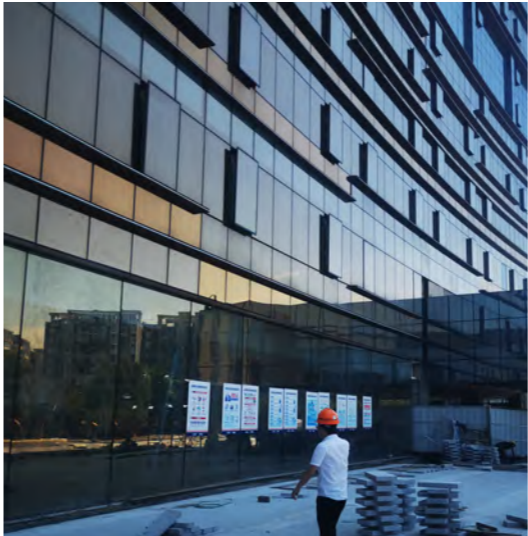
EASYTO 易涂 .1098



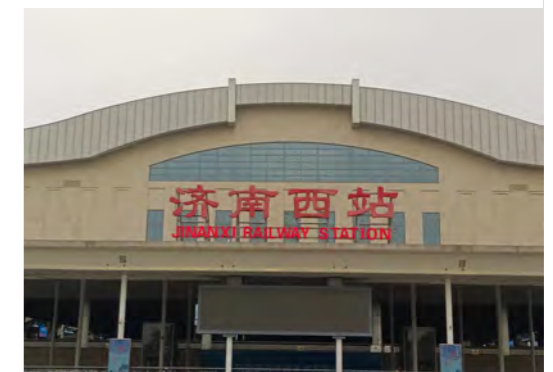
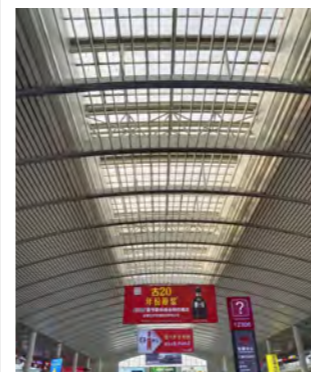
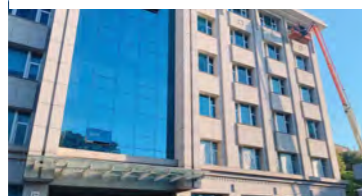
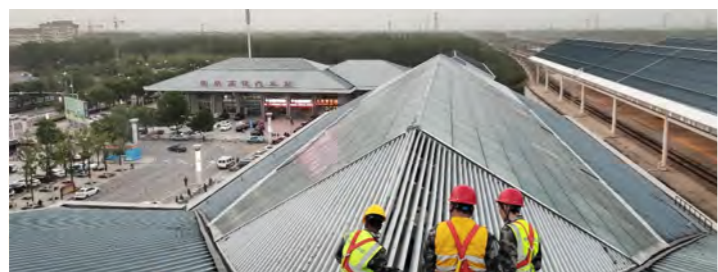
# 06 CASE SHOW (PART)



# CASE SHOW (PART)



# CASE SHOW (PART)



As Of January 2023, The Products Have Been Applied To Nearly 100 Projects

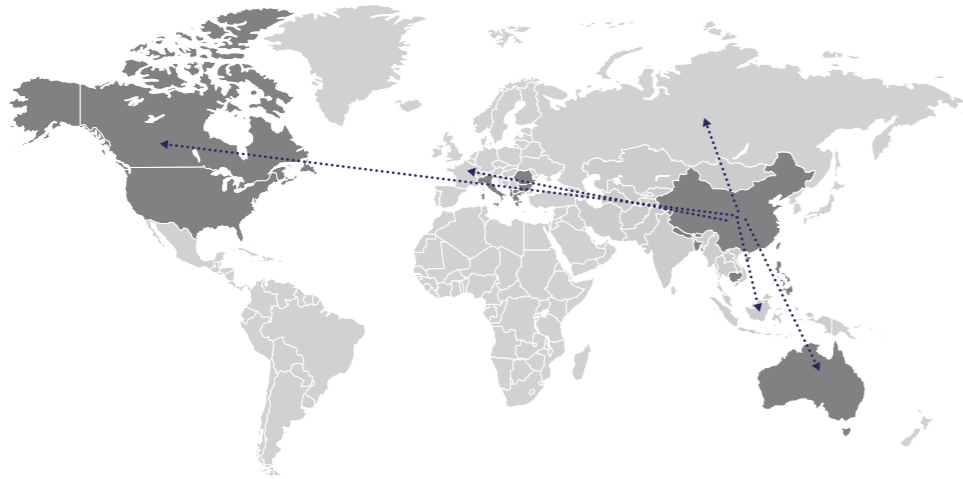
The Total Completed Area Is 120,000 Square Meters

The Application Projects Are Distributed To Zhangjiagang In Jiangsu Province

In The East And Kashgar In Xinjiang In The West

South To Sanya, Hainan, North To Urumqi, Xinjiang

It Has Good Performance In All Kinds Of Climatic Zones In China.



## COOPERATING ORGANIZATION

# 07

COMMAND BUILDING OF AN AIR BASE OF THE PEOPLE'S LIBERATION ARMY

SHENZHEN NATIONAL GENE BANK

BAOTOU STEEL GROUP COMPANY INFORMATION BUILDING

SHANGHAI SHUN YUAN MANSION / HILTON SUZHOU / WUXI COAST CITY

GUANGZHOU TAIKOO HUI/GUANGZHOU OCT / GUANGZHOU POLY FISH PEARL PORT

GUANGZHOU FORTUNE CENTER

KUNMING GOVERNMENT AFFAIRS SERVICE CENTER / ZHENJIANG PHOENIX SQUARE, XINJIANG

JINAN WEST RAILWAY STATION / PINGDU HIGH-SPEED RAILWAY STATION

CHANGYI HIGH-SPEED RAILWAY STATION

TENGZHOU HIGH-SPEED RAILWAY STATION / LAIXI HIGH-SPEED RAILWAY STATION



扫码关注“易小涂”

# EASYTO

**CHINA'S FIRST HIGH-TECH ENTERPRISE FOCUSING ON THE INNOVATION AND DEVELOPMENT OF RARE EARTH FUNCTIONAL MATERIALS INVENTOR OF THERMAL RARE EARTH**

A Set Of Research And Development, Production, Promotion, Sales As One, Focusing On Rare Earth Application Research And Development, Military Conversion To Civilian New High-tech Enterprises Sichuan Province Innovative Small And Medium-sized Enterprises, Sichuan Province Science And Technology Small And Medium-sized Enterprises, Rare Earth Society Director Unit Its Wholly-owned Subsidiary "China Thin Industry Development (Tianjin) Group Co., Ltd." Focuses On The Transformation Of Rare Earth Industry Achievements Its Holding Subsidiary "Zhongxi Easy Coating (Wuxi) International Trade Co., Ltd." Focuses On The Global Promotion And Sales Of Rare Earth Products A Joint Laboratory Was Established With Brire Rare Earth Research Institute Of Northern Rare Earth The Basic R&d Center Is Located In Tianjin, The Application R&d Center And The National Brand Operation Center Are Located In Chengdu, Sichuan Province



## “THE MIDDLE EAST HAS OIL, CHINA HAS RARE EARTHES”

The position of China's rare earth resources can be compared with that of Middle East oil, which has extremely important strategic significance We must do a good job in rare earth affairs and give full play to China's advantages in rare earth

摘自《邓小平语录》

Chairman Deng

**GLOBAL PATENT, RARE EARTH IS KING**  
ONE OUT OF EVERY FIVE INVENTION PATENTS IN THE WORLD IS RELATED TO RARE EARTHS

**RARE EARTH APPLICATION, NO NEED TO WORSHIP THE OCEAN**  
CHINA HAS MORE RARE EARTH INVENTION PATENTS THAN THE REST OF THE WORLD COMBINED

**BASED ON RARE EARTH, THE POTENTIAL IS EASY**  
YITU IS COMMITTED TO THE APPLICATION, RESEARCH AND DEVELOPMENT, PROMOTION AND ACHIEVEMENT TRANSFORMATION OF RARE EARTH FUNCTIONAL MATERIALS IN THE CIVIL FIELD FOCUS ON RARE EARTHS, NEVER DIVERSIFIED



**JOIN US IN CONTRIBUTING TO  
GLOBAL ENERGY CONSERVATION**

INNOVATIVE INSULATION TECHNOLOGY FOR  
CARBON NEUTRALITY JOIN US IN CONTRIBUTING TO  
GLOBAL ENERGY CONSERVATION



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