

**SPECIAL FOR METAL ROOF  
PROTECTION & LEAKAGE PREVENTION**



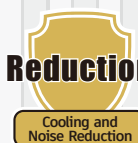
# **XINIUPI**

## **SF-CPS SELF-FUSION TYPE SPECIAL MULTIFUNCTIONAL PROTECTIVE MEMBRANE**

### **3FUNCTIONS**



**Prevention**



**Reduction**



**Resistance**

**DEDICATED TO ENABLING METAL ROOFS TO BE REUSED FOR ANOTHER 30 YEARS!**

# SCI-TECH ACHIEVEMENTS OF NATIONAL DOUBLE DEMONSTRATION ENTERPRISE

# XINIUPI

## SF-CPS SELF-FUSION TYPE SPECIAL MULTIFUNCTIONAL PROTECTIVE MEMBRANE

◎ NATIONAL DEMONSTRATION ENTERPRISE FOR TECHNOLOGICAL INNOVATION

GONG XIN BU KE. [2019] NO. 204

GONG XIN BU GONG XIN TING KE HAN. [2022] NO. 304



◎ NATIONAL INTELLECTUAL PROPERTY DEMONSTRATION ENTERPRISE

GUO ZHI FA GUAN HAN ZI. [2018] NO. 158

GUO ZHI FA YUN HAN ZI. [2022] NO. 160



**JOINTLY DEVELOPED WITH THE SCIENTIFIC RESEARCH TEAM  
OF PROFESSOR LI GUANGTAO FROM TSINGHUA UNIVERSITY**



# XINIUPI

## SF-CPS SELF-FUSION TYPE SPECIAL MULTIFUNCTIONAL PROTECTIVE MEMBRANE

**3** MAJOR FUNCTIONS **30** YEARS!  
DEDICATED TO ENABLING METAL ROOFS  
TO BE REUSED FOR ANOTHER

**Resistance**

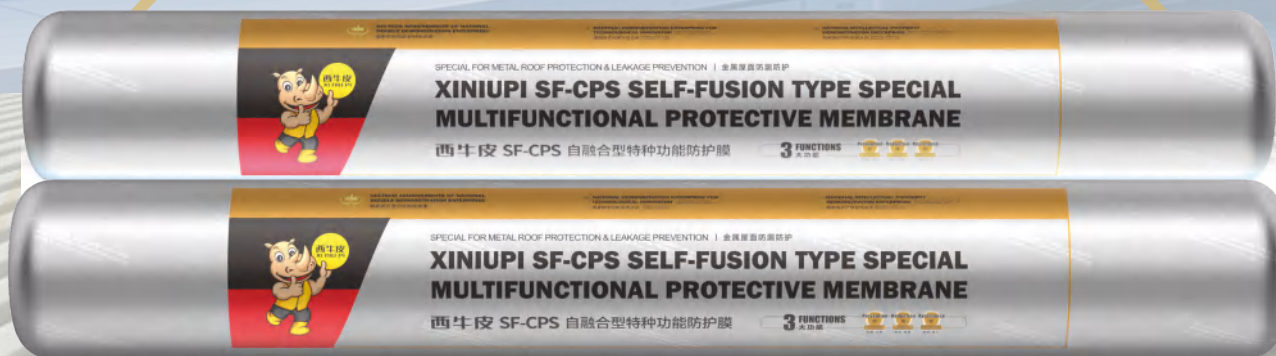
Weatherproof and  
Strong Endurance

**Prevention**

Leakage-proof  
and Antitrust

**Reduction**

Cooling and  
Noise Reduction



**THE FIRST METAL ROOF PROTECTIVE MATERIAL EVALUATED  
USING MILITARY EQUIPMENT LIFESPAN ASSESSMENT METHODOLOGY.**

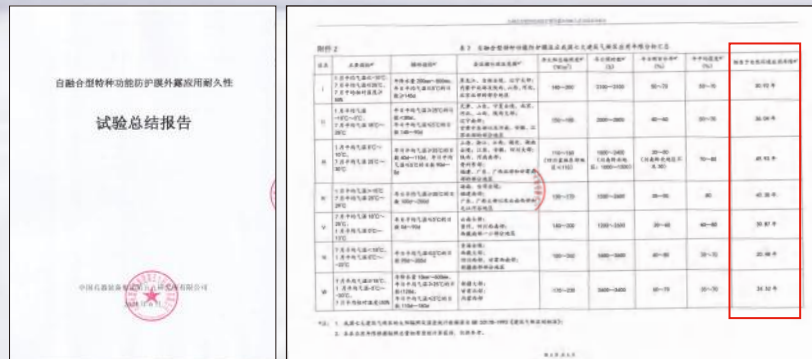
**VERIFIED THROUGH ACTUAL ENVIRONMENTAL TESTING BY THE NATIONAL DEFENSE  
SCIENCE AND TECHNOLOGY INDUSTRY NATURAL ENVIRONMENTAL TEST RESEARCH CENTER.**

**DURABLE FOR  
OVER 30 YEARS, UP TO 49 YEARS!**

(EXCLUDING FEW AREAS LIKE QINGHAI, TIBET)

**DEFENSE SCIENCE AND TECHNOLOGY INDUSTRY  
NATURAL ENVIRONMENTAL TEST RESEARCH CENTER**

China's only systematic and specialized institution engaged in material full-life-cycle and accelerated natural environmental testing research and application.



Test conditions exceed national standards: 330% higher radiation intensity, 20% increased humidity and temperature per unit time.

—Excerpt from "Durability Test Report on Self-fusing Special Protective Membranes for Exposed Applications"



# CONTENT

## XINIUPI SF-CPS SELF-FUSION TYPE SPECIAL MULTIFUNCTIONAL PROTECTIVE MEMBRANE

|           |                                                                                                                                                    |    |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------|----|
| <b>01</b> | <b>Metal roofs are inherently "afraid of 3 things":</b>                                                                                            | 01 |
|           | <b>Corrosion and leakage, which greatly shorten their service life.</b>                                                                            |    |
|           | • Metal roofs are inherently "afraid of 3 things".                                                                                                 | 02 |
| <b>02</b> | <b>There are many existing maintenance problems for metal roofs.</b>                                                                               | 11 |
|           | <b>Traditional methods treat the symptoms but not the root causes.</b>                                                                             |    |
|           | • Partial repair and overall replacement treat the symptoms but not the root cause, and the problems are not completely solved.                    | 12 |
|           | • The misapplication of traditional waterproofing materials has the opposite effect, accelerating corrosion and leakage.                           | 14 |
|           | • Protection > Waterproofing. The protection requirements for metal roofs are higher than those for waterproofing.                                 | 19 |
| <b>03</b> | <b>How can the maintenance of metal roofs be more effective?</b>                                                                                   | 21 |
|           | • Based on the 3 major objective environments of metal roofs, to achieve effective protection, it is necessary to follow the "3 Golden Standards". | 22 |
|           | • The external environment puts forward 5 major requirements for the protective materials of metal roofs.                                          | 25 |
| <b>04</b> | <b>Comprehensive protection solution for metal roofs</b>                                                                                           | 26 |
|           | • SF-CPS Self-Fusion Type Special Multi-functional Protective membrane                                                                             | 27 |
|           | • 2 major protection technologies: rust prevention and leak prevention, more weather-resistant                                                     | 30 |
|           | • 3 major protection functions: Enable metal roofs to be reused for another 30 years                                                               | 34 |
|           | • 1 step for rust fixation, 3 steps for sealing, and 4 steps for effective protection                                                              | 38 |
|           | • Product description of Xiniupi's comprehensive protection series for metal roofs                                                                 | 42 |
| <b>05</b> | <b>8-year university-enterprise cooperation for joint R&amp;D</b>                                                                                  | 50 |
|           | • Xiniupi, National Double Demonstration Enterprise.                                                                                               | 52 |
|           | • Technical cooperation with the scientific research team of Professor Li Guangtao from Tsinghua University.                                       | 62 |



# 01

**Metal roofs are inherently "afraid of 3 things": Corrosion and leakage, which greatly shorten their service life.**

- Metal roofs are inherently "afraid of 3 things".

# Metal roofs are inherently "afraid of 3 things":

The failure of protection for metal roofs will greatly shorten their service life

## 1 Afraid of Rust

**It gets rusty, greatly shortening the service life of the metal roof.**



Generally speaking, the service life of a metal roof is 15 to 25 years. However, due to long-term exposure to the outside and the erosion of rain and corrosive substances, rust occurs, resulting in a significant shortening of its service life.

## 2 Afraid of Leakage

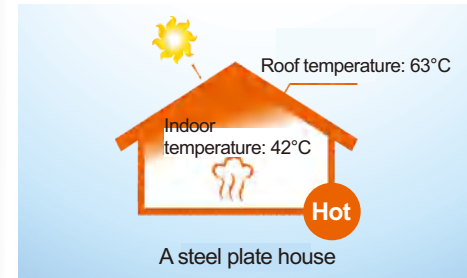
**It leaks, hindering production and life and causing significant losses.**



The leakage rate within 3 years after installation is as high as over 80%. Once it leaks, it not only affects the normal operation of the factory, causing economic losses, but even endangers personal safety.

## 3 Afraid of Sun Exposure

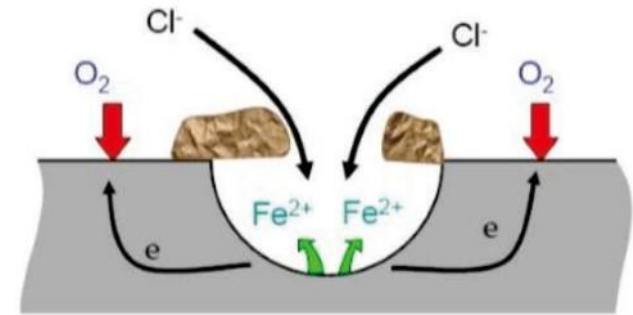
**Exposed to the summer sun, it deteriorates the indoor environment and leads to high energy consumption.**



Metal materials are extremely prone to heat absorption. Direct sunlight can cause the indoor temperature to reach over 40°C, increasing the energy consumption of machines and deteriorating the indoor storage and working environment.

# Rust

Due to long-term exposure to the outside, the protective paint film layer of the metal plate is affected by vibration and the influence of thermal expansion and contraction, and naturally ages and cracks, allowing water and oxygen to seep in. The material of the color steel tile contains a large amount of iron. Once it comes into contact with acids, alkalis and organic solvents, a chemical reaction will occur to generate ferrous dioxide and ferric oxide, Producing rust and causing corrosion.



The principle of corrosion

**Leaking (water) is losing (money),  
The metal roof not only leaks water but also rusts,  
Wealth is not only leaking but also evaporating and  
losing every day**

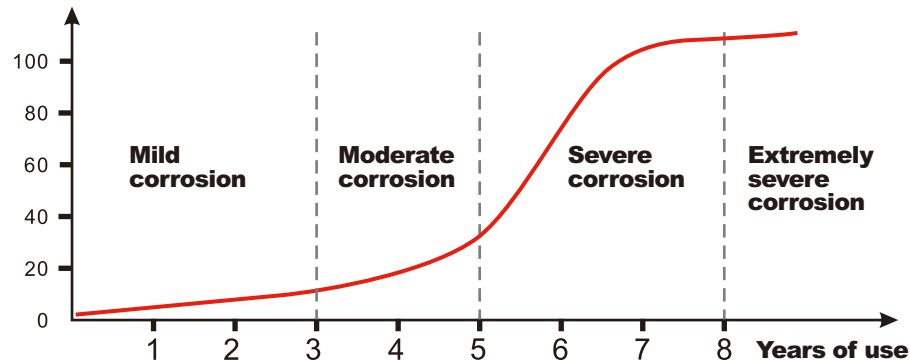
# Health index of metal roofs: Reddening rate

The metal roofs that are usually ignored have become chronically ill and rapidly corroded.

**The reddening rate of metal roofs rises sharply after 5 years, leading to severe leakage and threatening structural safety**

(kilograms/square meter/day)

**Reddening rate of the roof**



## ① Corrosion is slow in the early stage

Rust spots appear, with mild corrosion. Minor repairs are needed every 3 years, and major repairs every 5 years; Most metal roofs have rust and leakage after 5 years.

## ② Accelerated corrosion occurs in 6-8 years

If timely protection is not taken to prevent the continuation of corrosion growth, the corrosion will spread like cancer cells. The corrosion rate rises sharply, and the area will spread exponentially. Severe corrosion leads to severe leakage and increases the roof maintenance cost;

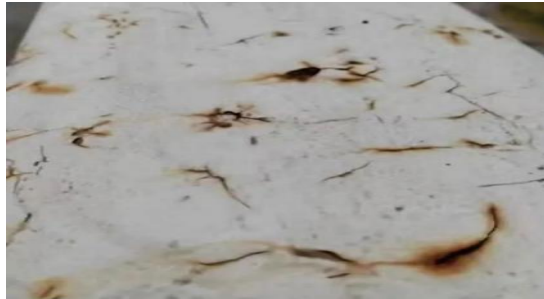
## ③ Metal roofs should be protected in time to avoid greater losses

If the metal roof is severely rusted and leaks continuously, which has endangered the structural safety. The removal and reconstruction of the roof is a very complex and expensive process. And it treats the symptoms but not the root cause. The option of roof renovation should be avoided as much as possible unless it has reached the point where it cannot be repaired any more.

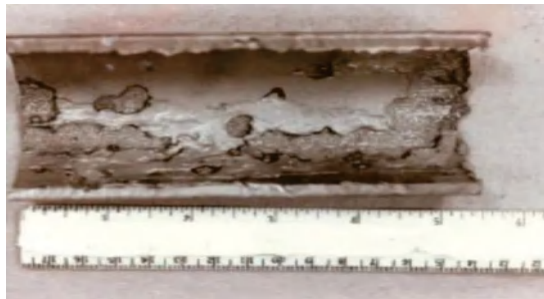
## Reasons for large-scale corrosion of metal roofs

Corrosion greatly reduces the protective capacity of metal roofs,  
Leading to leakage and even structural safety problems

### ① Corrosion caused by environmental factors



The protective paint film is damaged due to aging caused by metal tremors or acid rain, etc.



Corrosive damage is caused by rapidly flowing corrosive factors (such as wind or rainwater)

### ② Stress corrosion caused by structural factors



Brittle fracture occurs due to the synergistic effect of corrosion and stress



partialpitting has the greatest destructiveness and hidden danger, causing perforation

# The four stages of corrosion of metal roofs

## Stage 1: Mild corrosion

- ① Usually appears in 1-3 years
- ② Reddening rate: The rust area does not exceed 10%
- ③ The corrosion is in the form of partial dots and linear corrosion at the lap joints



### Protection early warning period

partial corrosion has occurred and timely protection is required

## Stage 2: Moderate corrosion

- ① Appears in 3-5 years
- ② Reddening rate: The rust area does not exceed 50%
- ③ Rust points have formed a planar shape, and rust has appeared in patches



### Protection window period

The corrosion has expanded and is in the early stage of accelerated corrosion

**"Within 5 years is the best window period for the protection of existing metal roofs."**

### **Stage 3:** **Severe corrosion**

- ① Appears in 5-10 years
- ② Reddening rate: The rust area exceeds 50%
- ③ A continuous rust surface has formed, and the corrosion rate has doubled



#### **The last rescue period for protection**

Missing this period will enter the "terminal stage of cancer" and be hopeless

### **Stage 4: Extremely** **Severe corrosion**

- ① More than 10 years
- ② Reddening rate: The rust area reaches 100%
- ③ The entire surface has rusted, with partial perforations, and the panel strength has been greatly reduced



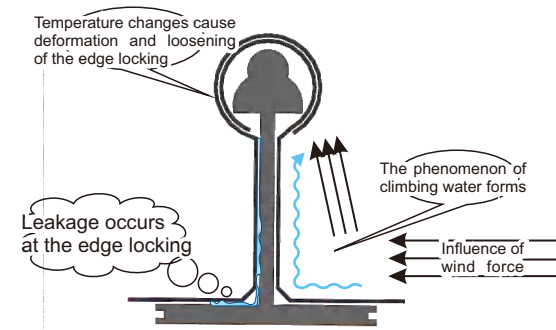
#### **The "full spread of cancer" stage**

Hopeless. The panel strength is like bean curd dregs and loses the protection value. It can only be replaced and redone, but it still only treats the symptoms but not the root cause.

# Leakage

## **Lack of sealing at rigid connection parts, reverse leakage of rainwater**

Metal roofs are highly prone to deformation and loosening due to temperature changes. Under the action of variable wind directions, water vapor or rainwater can enter through the gaps in the metal plates along the wind direction, causing rainwater to enter reversely from low to high, resulting in water leakage. Once water enters, it is not easy to be discharged. Over time, rusting begins from the inside. It may seem fine on the outside, but in fact, rusting has already started inside and is gradually



Schematic diagram of reverse leakage mechanism



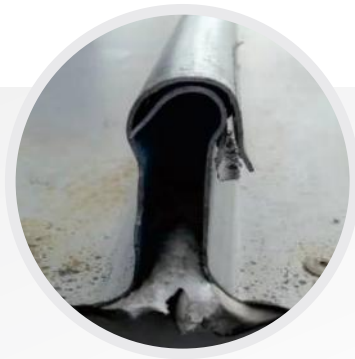
# Common causes of leakage in metal roofs



01

## Temperature difference changes and easy deformation lead to leakage

Due to the large temperature difference in the roof environment, The thermal conductivity of the metal plate itself is high. Thermal expansion and contraction cause the color steel plate to shrink and deform, creating gaps at the interfaces and causing potential leakage risks.



02

## Deformation caused by external forces leads to leakage

Because the steel frame structure itself is prone to elastic deformation under the action of external forces such as temperature changes, wind loads, and snow loads, Displacement is likely to occur at the connection parts, causing potential leakage risks.



03

## Many materials and many seams are prone to cause leakage

The use of different materials for connection at special parts is prone to generating gaps: For example, at the connection between the parapet wall and the steel plate, roof daylighting belts and other parts. Due to the asynchronous change of stress, potential leakage risks arise.



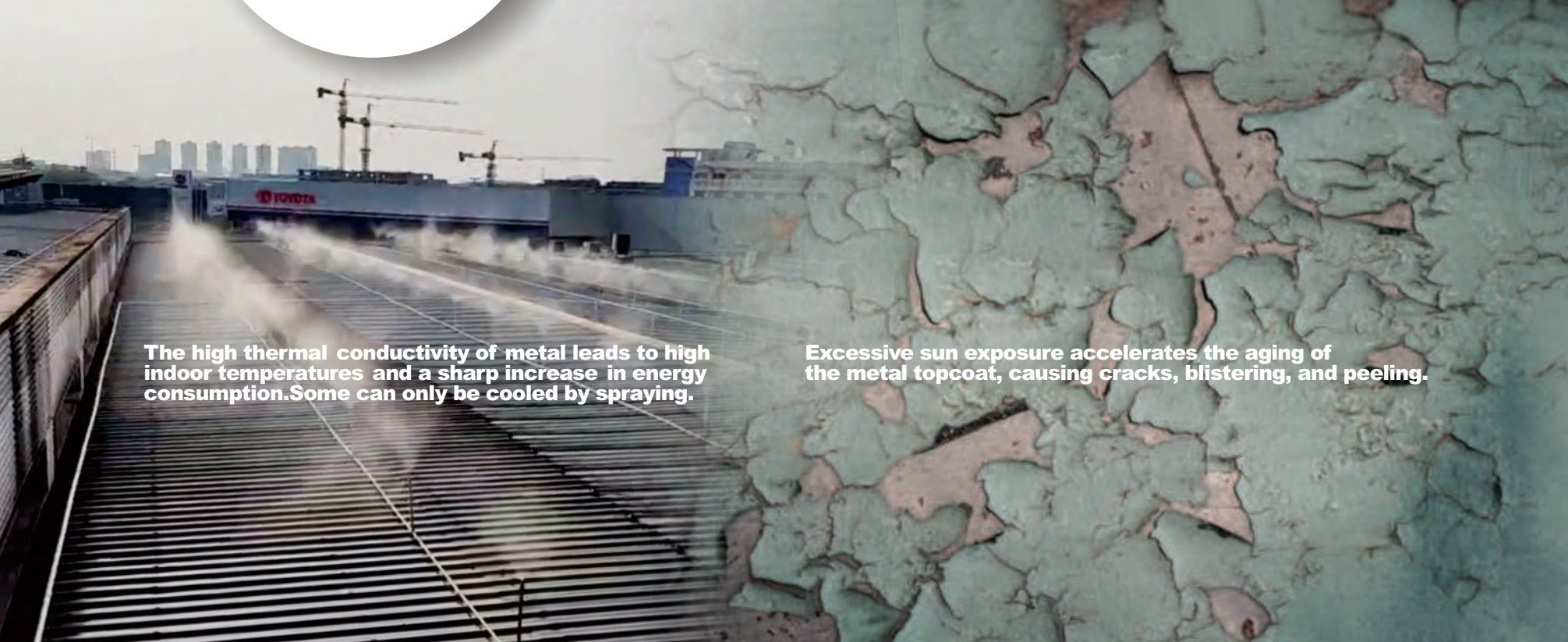
04

## Rust perforation leads to leakage

Due to corrosion, the structure of the metal roof becomes embrittled, Brittle fractures or pitting perforations may occur, resulting in water leakage.

# Sun Exposure

- The high thermal conductivity of metal leads to high indoor temperatures and a sharp increase in energy consumption. Some can only be cooled by spraying.
- Excessive sun exposure accelerates the aging of the metal topcoat, causing cracks, blistering, and peeling.



**The high thermal conductivity of metal leads to high indoor temperatures and a sharp increase in energy consumption. Some can only be cooled by spraying.**

**Excessive sun exposure accelerates the aging of the metal topcoat, causing cracks, blistering, and peeling.**



# 02

**There are many existing maintenance problems for metal roofs. Traditional methods treat the symptoms but not the root causes.**

- Partial repair and overall replacement treat the symptoms but not the root cause, and the problems are not completely solved.
- The misapplication of traditional waterproofing materials has the opposite effect, accelerating corrosion and leakage.
- Protection > Waterproofing. The protection requirements for metal roofs are higher than those for waterproofing.

Once the metal roof rusts and leaks,

**We tend to “seek medical advice hastily when we are seriously ill and in a panic”:**

## **Partial repair: “Repair wherever it leaks”**

Partial minor repairs do not completely solve the problem. With multiple repairs, the cost keeps increasing.



### **Partial treatment of leakage or corrosion parts:**

Taking partial brushing or covering protective materials on the leakage or corrosion parts seems effective in the short term. Over time, cracking or debonding of the structural surface may occur, which treats the symptoms but not the root cause.



### **Partial replacement of components or roof panels:**

Partial replacement treats the symptoms but not the root cause. It does not change the nature of the material. Over time, the metal material is still prone to corrosion, and the rigid lap joint is still prone to leakage.

## **Overall replacement: "Keep delaying until there is no cure and have to renovate"**

Some owners miss the maintenance window period. Overall replacement is a painful decision.



*The cost of taking palliative measures instead of addressing the root cause will be even greater*



**A seriously leaking and corroded roof can only be demolished and rebuilt, and roof demolition is a very complex and expensive process:**

It affects the normal operation of enterprises, and even leads to suspension of work and production. Large cranes, dismantling machines, cutting machines, welding machines and other equipment need to be used. Project construction fillings need to be made with the safety supervision and fire departments. Demolition and replacement are carried out simultaneously, and there are certain technical difficulties during the demolition.

**Once a metal roof rusts and leaks, the misapplication of traditional waterproofing materials on metal roofs can only backfire...**

# Waterproofing ≠ Protection

Not only does it fail to play the role of waterproofing protection, but it also accelerates its corrosion and shortens its service life.

## ① Poor weather resistance and prone to aging.

### Repair with waterproofing coating

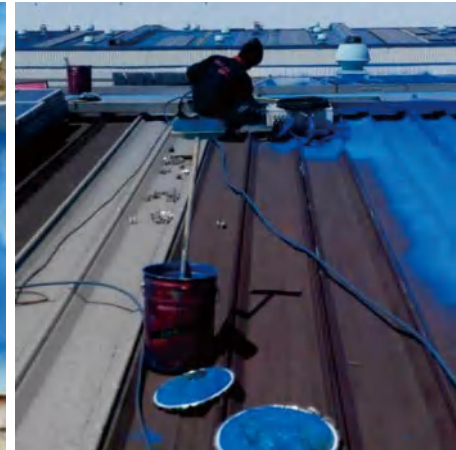
The original coating is not rust-resistant. It is even more difficult to protect with the later-applied waterproofing coating.

Ordinary coatings have insufficient ultraviolet resistance performance. When exposed to the atmosphere for a long time, it is prone to aging and tensile fatigue fracture under the effect of persistent tension, losing the protective effect on the metal surface;

The maintenance coating has poor water resistance, absorbs water and expands, and debonds from the base surface. The thickness of the coating layer is uneven, and quality monitoring is difficult.



The waterproof coating layer is not resistant to ultraviolet rays and is extremely prone to aging and cracking, with a short service life.



When using the method of manual brushing, it is very difficult to control the thickness of the coating layer, and the situation of cutting corners is likely to occur.

## Carry out repairs using regular waterproofing rolls

Insufficient weather resistance, especially insufficient ultraviolet resistance, causes the material to age prematurely and fails to play a protective role.

The temperature of the metal roof in summer can be as high as 70 or 80 degrees Celsius. The high-temperature resistance performance of ordinary modified asphalt membranes is 70°C. Exceeding this temperature, various stable phase structures inside the material undergo segregation and recombination, causing deterioration of material properties, becoming hard and brittle, and reducing strength, losing the flexible sealing effect on parts such as nail holes and joints. Eventually, phenomena such as leakage and corrosion occur.



Most waterproofing materials are not designed for exterior use. When exposed to the outdoor environment for a long time, especially under the influence of ultraviolet rays, the surface of the materials will age, showing phenomena such as yellowing and embrittlement. Even for a small number of waterproofing materials for exposed use, they are generally materials that are not inherently ultraviolet-resistant, the ability to resist ultraviolet rays is limited. It is difficult to be used for a long time in the working conditions of metal roofs.



2

## The bonding at high and low temperatures is not durable, losing the sealing and protective function.

### If the SBS waterproofing membrane constructed by the hot-melt method is used for repair

This material is not resistant to high temperatures and may be fused multiple times.

As a result, its adhesive force will be lost and sealing cannot be achieved, thus leading to water channeling.

The high temperature generated when applying the torching method for material application will not only damage the paint surface of the color steel tile but also cause harm to the thermal insulation layer beneath it.

The membrane cannot achieve a sealed bond with the base surface, and water channeling is inevitable. Moreover, after water channeling, it is difficult for the moisture to evaporate and drain quickly, which is very likely to cause the color steel tile to rust.



SBS waterproofing membrane is not resistant to high temperatures. After being melted and solidified many times, the membrane is highly prone to delamination and losing its adhesive force.



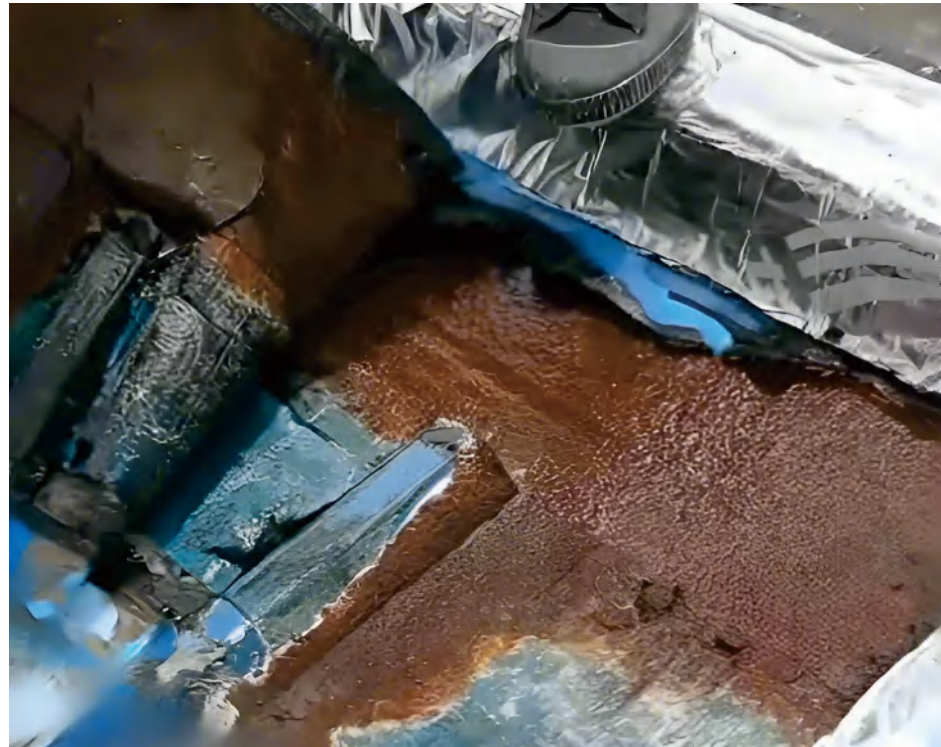
The torching/hot-melt method damages the paint surface of the color steel tile, leading to easy rusting

### **When using modified asphalt waterproofing membranes for repair and leakage plugging**

Their bonding stability is poor, they cannot achieve lasting sealing, water leakage occurs, and this leads to the accelerated corrosion of the metal plates.

In summer, the metal surface temperature is high. Phase separation is particularly prone to occur, and small molecule oil migrates to the interface between the material and the metal roof, causing a decrease in adhesion and eventually separation.

When the temperature is low in winter, the physical adsorption and mortise-tenon effect with the base surface decrease. Under the effect of the tremor of the metal roof, interface separation occurs. Then, when there is a rainstorm in summer, leakage is prone to occur. When the rainwater cannot be discharged in time between the waterproofing layer and the metal roof, it will accelerate the corrosion of the metal roof.



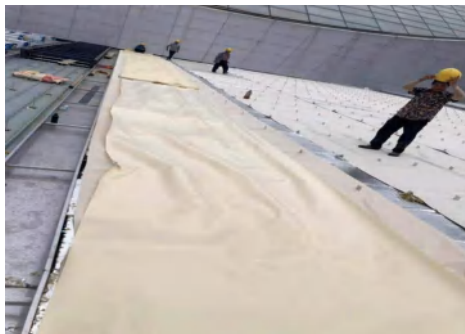
3

## Cover-type protection lacks sealing function

### When using polymer waterproofing membranes such as TPO and PVC for repair

Not only will it fail to play a waterproofing role, but it will accelerate the rusting of the roof instead, causing even greater harm of backfire.

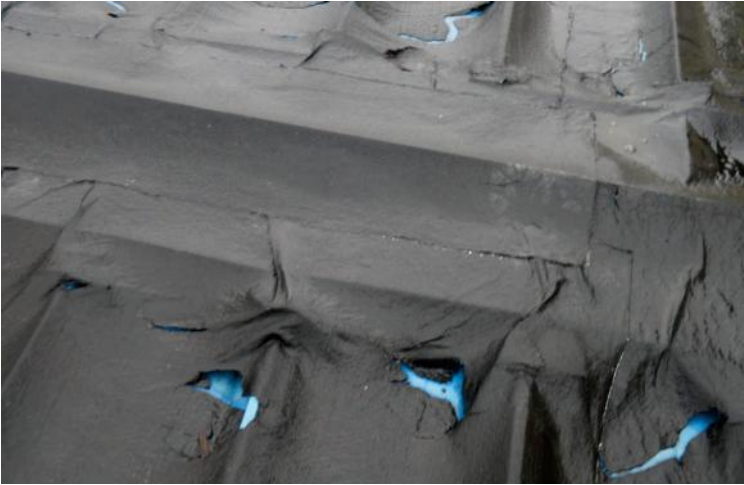
Using common exposed waterproofing membranes such as TPO and PVC for repair is a kind of "water-blocking" in a shielding way rather than real "waterproofing". The material sheets not only cannot be firmly bonded and sealed with the metal plates, but also are too stiff. It is very difficult for them to fit closely on the special-shaped metal roof, resulting in rainwater intrusion and ponding. Instead of achieving the waterproofing effect, it makes the rainwater accumulate between the waterproofing layer and the metal roof and cannot drain out. The long-term ponding and soaking of the metal plates in a water-rich and oxygen-rich environment will accelerate the rusting process.



The waterproofing membrane cannot be sealed and bonded with the metal plate, and the air tightness and water tightness of the system are poor.



The sheet of PVC waterproofing membrane is stiff, and it is difficult to be fully adhered and sealed on the special-shaped metal roof. Moreover, it is not resistant to aging and large areas of degumming may occur.



# "Protection > Waterproofing",

**The requirements for the protective layer are more stringent than those for the waterproofing layer.**

The waterproofing layer of buildings and the protective layer of metal roofs have similarities, but there are also significant differences. The core of the waterproofing layer is to prevent water from entering the building. The core of the protective layer is to integrate with the metal roof, bond and seal to isolate water vapor and oxygen from corroding the metal surface and extend the service life of the roof.

| Object<br>Comparison items                     | Building waterproofing layer                                                                                                        | Metal roof protective layer                                                                                                                                                                                                                                                                                                                                                                                    |
|------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Application purpose                            | Prevent water from penetrating into the building.                                                                                   | Prevent rust and leakage, protect the protected object by sacrificing itself, and extend its service life.                                                                                                                                                                                                                                                                                                     |
| Application field                              | Mainly applied to the water-facing parts such as the basement, bathroom, and roof of buildings.                                     | Specifically refers to the protective layer installed on the metal roof, mainly used for steel structure or color steel plate roofs.                                                                                                                                                                                                                                                                           |
| Characteristics of the application environment | The vast majority of waterproof layers are concealed and non-exposed.                                                               | Exposed.                                                                                                                                                                                                                                                                                                                                                                                                       |
| Influencing factors                            | The main environment in contact is the water environment, and the application environment is relatively stable and mild.            | The environment is more complex and harsh. It is necessary to consider not only the large deformation characteristics of the metal roof, but also the influence of various external factors such as wind, frost, rain, snow, water, light, oxygen, dust, and heat. More importantly, the outdoor weather resistance, especially the ability to resist ultraviolet aging, should be comprehensively considered. |
| Requirements for material performance          | Good mechanical and physical properties for blocking water, draining water and to prevent water from penetrating into the building. | Long-term bonding and sealing with the metal roofs, to isolate the metal roof from water vapor and oxygen, and be flexible and crack-resistant at the same time, especially weather-resistant, durable, and resistant to ultraviolet aging.                                                                                                                                                                    |

## Protection > Waterproofing

The value generated by protection is far greater than that of waterproofing. The performance requirements for the protective layer of metal roofs are more demanding than those for waterproofing.

## Waterproofing = No leakage

## Protection = A+B+C

- A Leakage prevention  
Rust prevention**  
Superior sealing performance, flexibility and crack resistance  
Windproof, rainproof and leakproof, with better water tightness and air tightness!
- B Reducing the temperature and noises**  
Cooling and heat insulation, energy conservation and environmental protection  
Can reduce the roof temperature by 10°C - 25°C
- C Weather resistance and durability**  
Weather-resistant and corrosion-resistant  
Avoiding minor repairs every 3 years and major repairs every 5 years



# 03

## **How can the maintenance of metal roofs be more effective?**

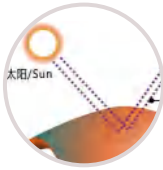
- Based on the 3 major objective environments of metal roofs, to achieve effective protection, it is necessary to follow the "3 Golden Standards".
- The external environment puts forward 5 major requirements for the protective materials of metal roofs.

There are

## "three major objective factors" for metal roofs

### ① External factor: The complex and changeable climate environment

Wind, frost, rain, snow, sun exposure



- Metal roofs are exposed to the outside all year round especially to the ultraviolet rays from the sun.
- Facing changes in temperature and humidity of the environment, being exposed to acidic substances and electrolyte particles in the atmosphere, and withstanding external forces such as wind uplift, rain erosion, and heavy snow accumulation.

### ② Internal factor: The characteristics of the metal itself

Containing iron, good heat conduction, prone to deformation



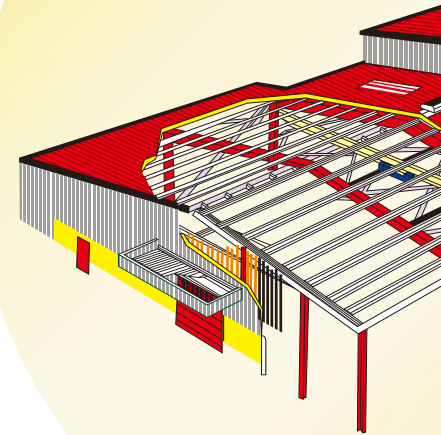
- Color steel tiles contain a large amount of iron and are prone to rust.
- The thermal conductivity of metals is high. Affected by temperature, the thermal expansion and contraction of the metal itself cause the color steel plate to be in a mobile state for a long time, resulting in deformation.

### ③ Structure: Complex structure with many detailed nodes

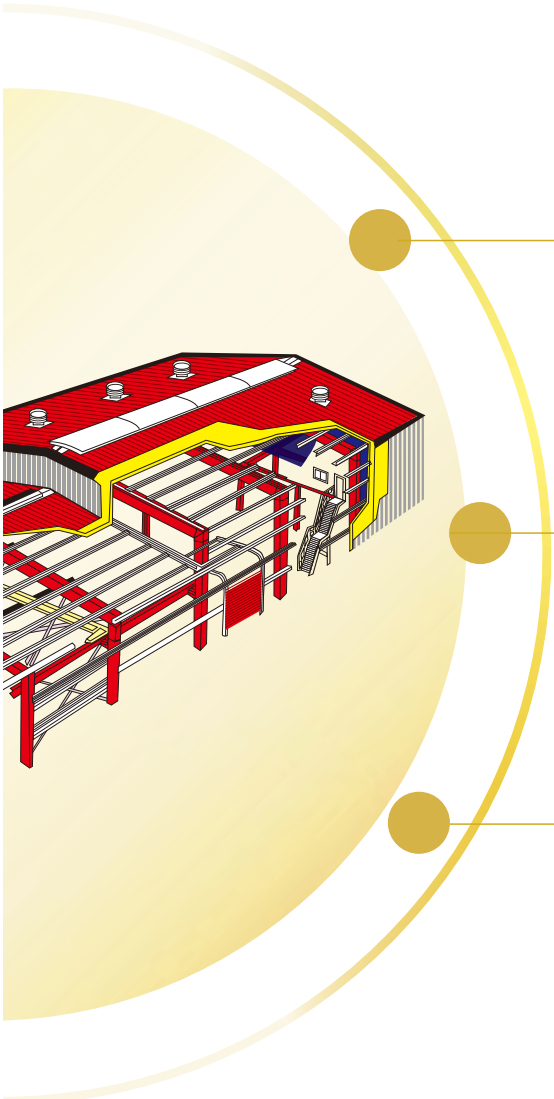
Grooves, ridges, holes, nails, lap joints



- The steel plates of the metal roof are rigidly lapped. Once deformed, the gap is large, and the backflow of rainwater causes leakage.
- Various detailed nodes are difficult to seal, and the connection of different materials with asynchronous stress is prone to generating gaps.



# "3 Golden Standards" for effective protection of metal roofs



## Golden Standard 1

### Bonding and sealing

- Can prevent corrosive substances from entering:
- The protective layer is fully adhered to the base surface without water channeling.
- It should have good tack retention, air tightness, and water tightness to play an effective role in anti-corrosion and waterproofing, and have self-healing properties.

## Golden Standard 2

### Weather resistance and durability

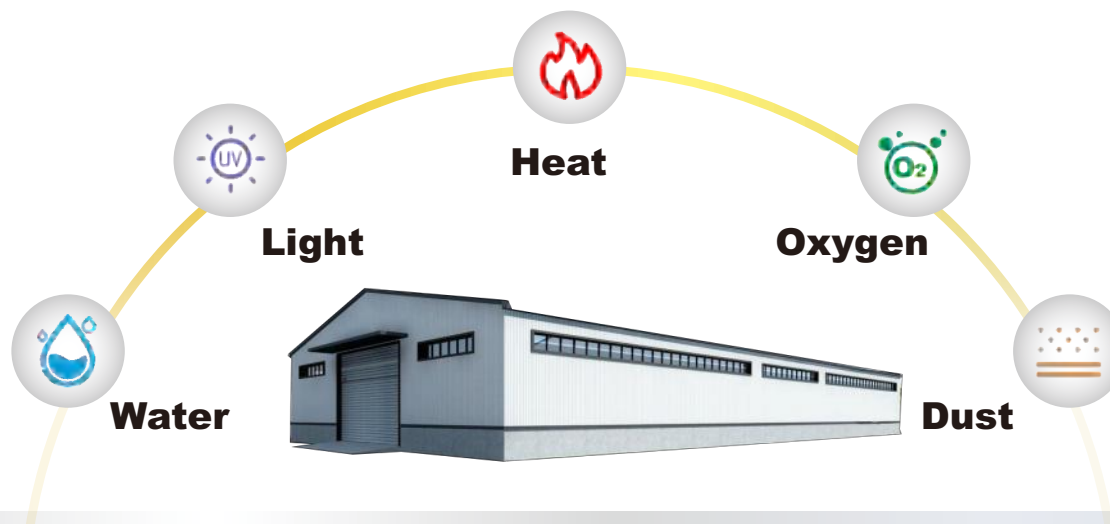
- Can avoid aging and have a longer lifespan:
- The protective layer should have good weather resistance and resistance to ultraviolet aging to resist the influence of sunlight, rainwater, and various corrosive substances on the protective layer.

## Golden Standard 3

### Conformable and crack-resistant

- Can cope with the long-term tremor and deformation of the roof:
- The protective layer should be soft and conformable, with good elasticity and anti-fracture tensile strength to adapt to various vibrations and displacements of the roof.
- The five challenging and destructive external environmental factors that metal roofs have to face

# The five challenging and destructive external environmental factors that metal roofs have to face



The surface of the metal roof is usually relatively smooth, and the adhesion of ordinary waterproofing materials may not be sufficient to firmly attach to the metal surface, resulting in weak bonding, prone to detachment or leakage.



The vast majority of waterproofing materials are not for exposed use. When exposed to the external environment for a long time, ultraviolet rays will cause oxidation, yellowing, embrittlement and other phenomena on the surface of the material. The change of temperature will cause the expansion and contraction of the material, causing deformation, cracking and other phenomena. Pollutants in the atmosphere, such as acid rain and chemical gases, will react with waterproofing materials, accelerating their aging and deterioration.



The metal roof will be affected by high temperatures under the sun exposure. Ordinary waterproof materials may not be able to withstand the high temperatures on the surface of the metal roof, resulting in material softening, deformation or loss of the functions.



The metal roof is prone to erosion by factors such as the atmosphere, rainwater and chemical substances. And the corrosion resistance of ordinary waterproofing materials is usually insufficient to deal with these situations, and it is prone to corrosion or damage.

## 5 Major Criteria for Selecting Metal Roof Protection Materials

The properties and surface characteristics of metal roofs are very different from those of other materials (such as concrete, bricks and tiles, etc.). To ensure the effectiveness and durability of protection, There are five key performance requirements for materials for the protection of metal roofs:

### **Weather Resistance:**

The protective material needs to have good weather resistance, It can resist the influence of extreme climate conditions such as ultraviolet rays, high temperatures, and low temperatures on the metal roof. Ensuring its long-term stability and aesthetic appearance.

### **Corrosion Resistance:**

Metal roofs are exposed to different environmental conditions, such as humidity, salt spray, chemicals, etc. Therefore, the protective material needs to have excellent corrosion resistance. It can resist the erosion of corrosive factors/mediums and extend the service life of the metal roof.

### **Sealing Performance:**

The protective coating or other protective materials need to have good adhesion. It should be firmly bonded and sealed on the metal surface to prevent peeling or falling off, ensuring the durability of the protective effect.

### **Compatibility:**

The protective material should be compatible with the metal roof material, should not have adverse reactions or damage the metal surface, ensuring the reliability and stability of the protective effect.

### **Wear Resistance:**

Metal roofs may be affected by factors such as wind, rain, and mechanical damage. Therefore, the protective material needs to have good wear resistance, be able to resist surface wear, and maintain its original performance and appearance.



# 04

## **Comprehensive protection solution for metal roofs**

- SF-CPS Self-Fusion Type Special Multi-functional Protective membrane
- 2 major protection technologies: rust prevention and leak prevention, more weather-resistant
- 3 major protection functions: Enable metal roofs to be reused for another 30 years
- 1 step for rust fixation, 3 steps for sealing, and 4 steps for effective protection
- Product description of Xiniupi's comprehensive protection series for metal roofs

# XINIUPI

## SF-CPS SELF-FUSION TYPE SPECIAL MULTIFUNCTIONAL PROTECTIVE MEMBRANE



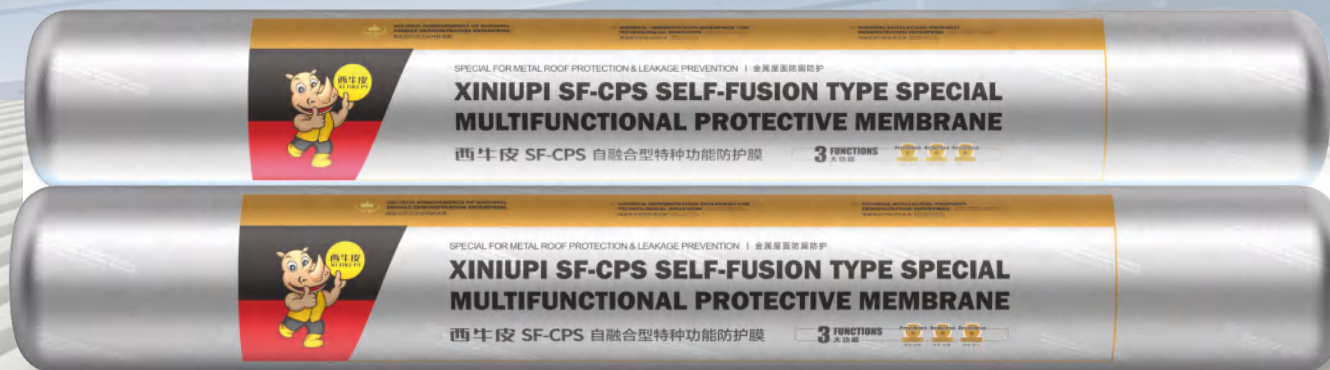
- Superior sealing performance, flexibility and crack resistance
- Windproof, rainproof and leakproof, with better water tightness and air tightness!



- Cooling and heat insulation, energy conservation and environmental protection
- Can reduce the roof temperature by 10°C - 25°C

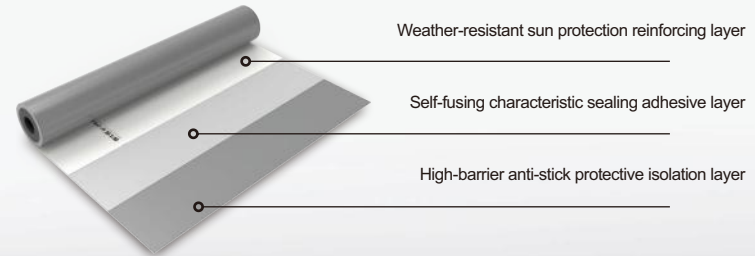


- Weather-resistant and corrosion-resistant
- Avoiding minor repairs every 3 years and major repairs every 5 years



# XINIUPI SF-CPS SELF-FUSION TYPE SPECIAL MULTIFUNCTIONAL PROTECTIVE MEMBRANE

The Xiniupi Self-Fusion Type Special Multi-functional Protective membrane is produced by using an ultra-weather-resistant special function fluorocarbon composite film as the surface sun protection reinforcing layer, grading and compounding various special function rubbers to form a self-fusing characteristic sealing adhesive layer, and using a high-barrier anti-adhesion release film as the isolation layer.



Weather-resistant sun protection reinforcing layer

Self-fusing characteristic sealing adhesive layer

High-barrier anti-stick protective isolation layer

Schematic diagram of the structure of the Xiniupi Self-Fusion Type Special Multi-functional Protective membrane

This product can be sealed and bonded to the metal surface of buildings and structures and integrated as one. It has the characteristics of blocking the penetration of water, water vapor, oxygen, acids, alkalis, salts and other corrosive factors. It can also reflect solar heat to a certain extent and reduce the noise caused by wind and rain. Preventing building leakage and rusting of metal surfaces. It can also reflect solar heat to a certain extent and reduce the noise caused by wind and rain. It is an exposed functional protective membrane that protects metal buildings from leakage and rust during long-term exposure.

This product is paved and constructed by using the fusion dry bonding method. There is no need for torching or heating, and no harmful or irritating gas emissions. It is safe and environmentally friendly.



# THE FIRST METAL ROOF PROTECTIVE MATERIAL EVALUATED USING MILITARY EQUIPMENT LIFESPAN ASSESSMENT METHODOLOGY.

VERIFIED THROUGH ACTUAL ENVIRONMENTAL TESTING BY THE NATIONAL DEFENSE SCIENCE AND TECHNOLOGY INDUSTRY NATURAL ENVIRONMENTAL TEST RESEARCH CENTER.

## DURABLE FOR OVER 30 YEARS, UP TO 49 YEARS!

(EXCLUDING FEW AREAS LIKE QINGHAI, TIBET)

自融合型特种功能防护膜外膜应用耐久性

试验总结报告

中国兵器装备集团有限公司

| 序号 | 试验项目                     | 试验结果                     | 备注                       |
|----|--------------------------|--------------------------|--------------------------|
| 1  | 1. 自融合型特种功能防护膜外膜应用耐久性试验  | 1. 自融合型特种功能防护膜外膜应用耐久性试验  | 1. 自融合型特种功能防护膜外膜应用耐久性试验  |
| 2  | 2. 自融合型特种功能防护膜外膜应用耐久性试验  | 2. 自融合型特种功能防护膜外膜应用耐久性试验  | 2. 自融合型特种功能防护膜外膜应用耐久性试验  |
| 3  | 3. 自融合型特种功能防护膜外膜应用耐久性试验  | 3. 自融合型特种功能防护膜外膜应用耐久性试验  | 3. 自融合型特种功能防护膜外膜应用耐久性试验  |
| 4  | 4. 自融合型特种功能防护膜外膜应用耐久性试验  | 4. 自融合型特种功能防护膜外膜应用耐久性试验  | 4. 自融合型特种功能防护膜外膜应用耐久性试验  |
| 5  | 5. 自融合型特种功能防护膜外膜应用耐久性试验  | 5. 自融合型特种功能防护膜外膜应用耐久性试验  | 5. 自融合型特种功能防护膜外膜应用耐久性试验  |
| 6  | 6. 自融合型特种功能防护膜外膜应用耐久性试验  | 6. 自融合型特种功能防护膜外膜应用耐久性试验  | 6. 自融合型特种功能防护膜外膜应用耐久性试验  |
| 7  | 7. 自融合型特种功能防护膜外膜应用耐久性试验  | 7. 自融合型特种功能防护膜外膜应用耐久性试验  | 7. 自融合型特种功能防护膜外膜应用耐久性试验  |
| 8  | 8. 自融合型特种功能防护膜外膜应用耐久性试验  | 8. 自融合型特种功能防护膜外膜应用耐久性试验  | 8. 自融合型特种功能防护膜外膜应用耐久性试验  |
| 9  | 9. 自融合型特种功能防护膜外膜应用耐久性试验  | 9. 自融合型特种功能防护膜外膜应用耐久性试验  | 9. 自融合型特种功能防护膜外膜应用耐久性试验  |
| 10 | 10. 自融合型特种功能防护膜外膜应用耐久性试验 | 10. 自融合型特种功能防护膜外膜应用耐久性试验 | 10. 自融合型特种功能防护膜外膜应用耐久性试验 |
| 11 | 11. 自融合型特种功能防护膜外膜应用耐久性试验 | 11. 自融合型特种功能防护膜外膜应用耐久性试验 | 11. 自融合型特种功能防护膜外膜应用耐久性试验 |
| 12 | 12. 自融合型特种功能防护膜外膜应用耐久性试验 | 12. 自融合型特种功能防护膜外膜应用耐久性试验 | 12. 自融合型特种功能防护膜外膜应用耐久性试验 |
| 13 | 13. 自融合型特种功能防护膜外膜应用耐久性试验 | 13. 自融合型特种功能防护膜外膜应用耐久性试验 | 13. 自融合型特种功能防护膜外膜应用耐久性试验 |
| 14 | 14. 自融合型特种功能防护膜外膜应用耐久性试验 | 14. 自融合型特种功能防护膜外膜应用耐久性试验 | 14. 自融合型特种功能防护膜外膜应用耐久性试验 |
| 15 | 15. 自融合型特种功能防护膜外膜应用耐久性试验 | 15. 自融合型特种功能防护膜外膜应用耐久性试验 | 15. 自融合型特种功能防护膜外膜应用耐久性试验 |
| 16 | 16. 自融合型特种功能防护膜外膜应用耐久性试验 | 16. 自融合型特种功能防护膜外膜应用耐久性试验 | 16. 自融合型特种功能防护膜外膜应用耐久性试验 |
| 17 | 17. 自融合型特种功能防护膜外膜应用耐久性试验 | 17. 自融合型特种功能防护膜外膜应用耐久性试验 | 17. 自融合型特种功能防护膜外膜应用耐久性试验 |
| 18 | 18. 自融合型特种功能防护膜外膜应用耐久性试验 | 18. 自融合型特种功能防护膜外膜应用耐久性试验 | 18. 自融合型特种功能防护膜外膜应用耐久性试验 |
| 19 | 19. 自融合型特种功能防护膜外膜应用耐久性试验 | 19. 自融合型特种功能防护膜外膜应用耐久性试验 | 19. 自融合型特种功能防护膜外膜应用耐久性试验 |
| 20 | 20. 自融合型特种功能防护膜外膜应用耐久性试验 | 20. 自融合型特种功能防护膜外膜应用耐久性试验 | 20. 自融合型特种功能防护膜外膜应用耐久性试验 |

Test conditions exceed national standards: 330% higher radiation intensity, 20% increased humidity and temperature per unit time.

—Excerpt from "Durability Test Report on Self-fusing Special Protective Membranes for Exposed Applications"

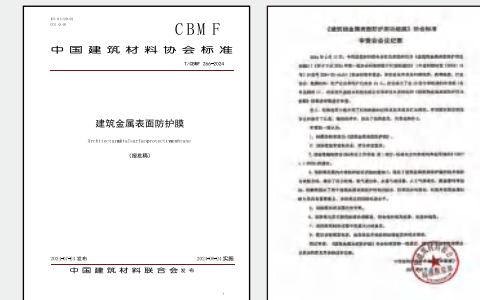
### DEFENSE SCIENCE AND TECHNOLOGY INDUSTRY NATURAL ENVIRONMENTAL TEST RESEARCH CENTER

China's only systematic and specialized institution engaged in material full-life-cycle and accelerated natural environmental testing research and application.



### DEFENSE SCIENCE AND TECHNOLOGY INDUSTRY NATURAL ENVIRONMENTAL TEST RESEARCH CENTER

Reviewed and assessed by the Standard and Quality Department of China Building Materials Federation.



# Technology 1: Self-fusing interface sealing technology

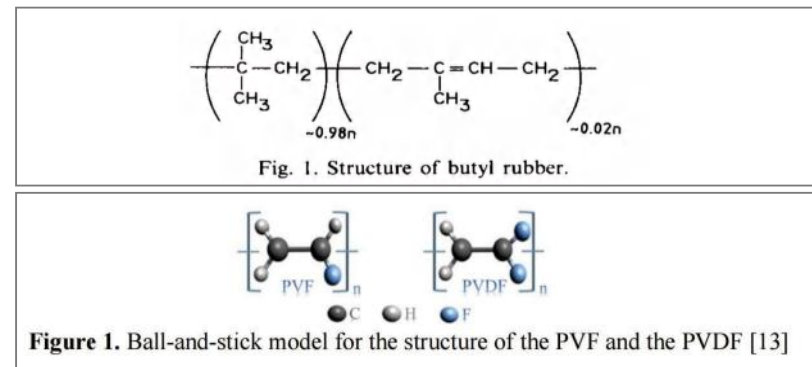
**Giving the protective membrane excellent sealing function, preventing leakage and rust**

The bonding technology was specially developed for the sealing of metal interfaces. This technology was developed and upgraded in a targeted manner by Xiniupi in collaboration with Professor Li Guangtao's team from Tsinghua University based on the CPS reactive bonding interface technology and products that won the "national double awards".

The rubber compound produced using this technology has the characteristics of stable bonding at high and low temperatures, comprehensive bonding of points, lines and surfaces, adaptive long-term bonding, strong bonding force, stronger bonding over time, and integration with the base surface, achieving long-term anti-crack sealing and solving the common problems of traditional materials in the real environment: "Unstable bonding, short-term bonding, incomplete bonding", "bonding first and then detaching" and deteriorating bonding.

## Gradation compounding:

The sealant layer of the protective membrane is a self-fusing special sealant. It is based on special functional rubber. Using the gradation compounding process, after the special functional rubbers of different molecular weights are directionally modified, they are graded and compounded, and then nanoscale or molecular-level blending is achieved through kneading and shearing, forming a special weather-resistant sealant with self-fusing function, which has excellent creep and adhesion properties at different temperatures.



Molecular structure of special functional rubber



The Xiniupi Protective membrane is fused, bonded and sealed with the base surface to prevent leakage and rust.

西安西尼普科技有限公司技术中心  
产品检测报告

编 号: XNP-2024-001  
检测日期: 2024年04月08日

|      |                                          |      |               |
|------|------------------------------------------|------|---------------|
| 产品名称 | 自融合型防水防腐密封材料                             |      |               |
| 产品规格 | 型号: XNP-1000                             |      |               |
| 执行标准 | GB 18242-2008                            | 生产标准 | GB 18242-2008 |
| 产品用途 | 适用于金属、混凝土、砂浆、石材等基材的防水防腐密封。               |      |               |
| 产品规格 | 批 号                                      | 检 测  | 100g/㎡        |
| 检测   | 检测项目: 拉伸强度、撕裂强度、剥离强度、不透水性、低温柔性、耐热性、耐老化性。 |      |               |
| 检测依据 | 依据标准: GB 18242-2008                      |      |               |
| 检测日期 | 2024年04月08日                              |      |               |
| 检测地点 | 西安西尼普科技有限公司技术中心                          |      |               |
| 检测人员 | 张小明                                      |      |               |
| 检测结论 | 该样品符合GB 18242-2008标准要求。                  |      |               |

www.xiniupi.com      电话: 029-88888888      地址: 西安市雁塔区...  
检测单位: 西安西尼普科技有限公司      检测日期: 2024年04月08日

## Fusion sealing:

The sealant has the advantages of strong comprehensive performance such as high bonding force, irreversible bonding, and multi-interface bonding ability. Especially, it has excellent bonding characteristics with the metal base surface. Therefore, it can achieve sealing protection for the metal base surface and prevent the corrosion of the metal base surface by high-pressure water vapor and other corrosive substances.

### Bonding characteristics of the self-fusing sealant:

#### 1 Stronger bonding over time:

After bonding with the metal base surface, as time goes on, it remains at a high bonding force level;

#### 2 Smart bonding:

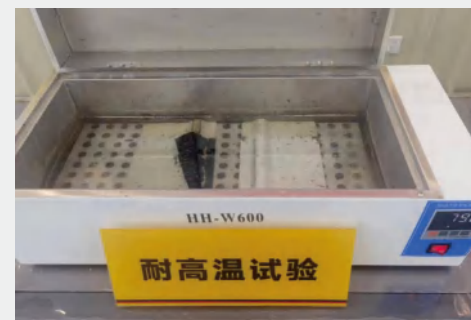
For small areas of the base surface that are not fully covered during initial bonding, it can achieve fusion bonding through self-creep and form an integral whole, Sealing and bonding;

#### 3 Durable bonding:

Compared with the bonding of traditional materials, this product, being a specially functional macromolecular rubber substance with a graded composition, does not have the phenomenon that small molecular substances are prone to segregation and migration. It can ensure a firm bond between the protective membrane and the metal substrate, and there will be no delamination due to changes in ambient temperature.

### Excellent bonding stability:

It can maintain durable bonding with the base surface at different temperatures



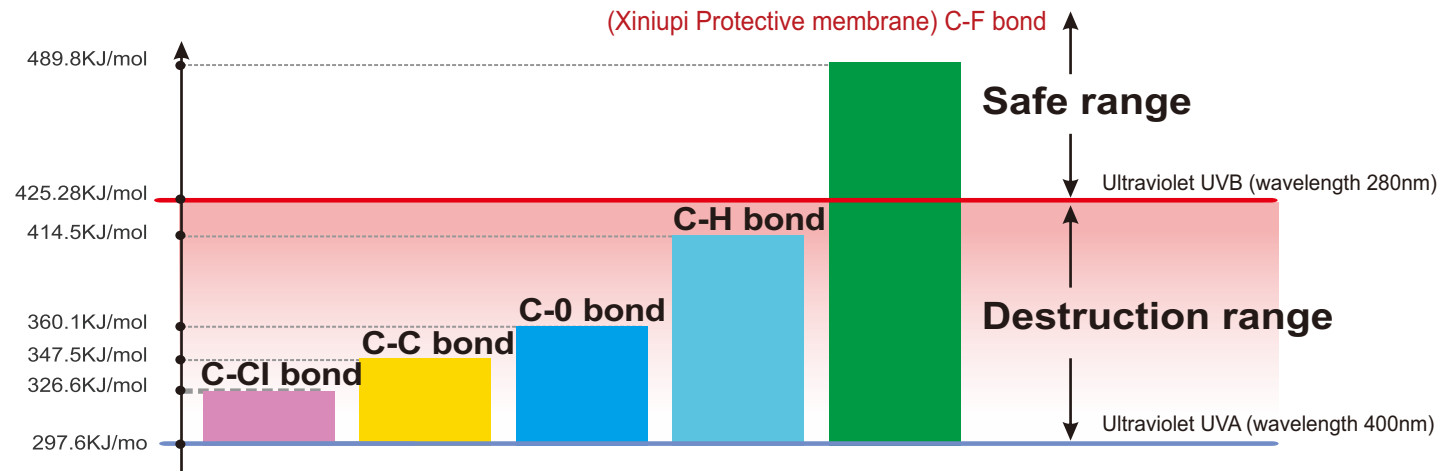
Boiling experiment:  
The Xiniupi Protective membrane is not affected by the cycle of heat and humidity, water vapor swelling, and base layer movement, and adheres persistently to the color steel tile.

## Technology 2:

### Intrinsic UV Resistance Technology

Enables the protective membrane to have excellent ultraviolet resistance performance, weather resistance and durability.

The surface reinforcing layer of the protective membrane is a special functional composite film that is intrinsically resistant to ultraviolet rays. It is flexible and crack-resistant, with a smooth and dense surface, which can reflect solar heat to a certain extent, reduce energy consumption and improve the indoor environment. At the same time, it is a material rich in fluorine elements, with excellent weather resistance and strong inherent ultraviolet resistance capability.

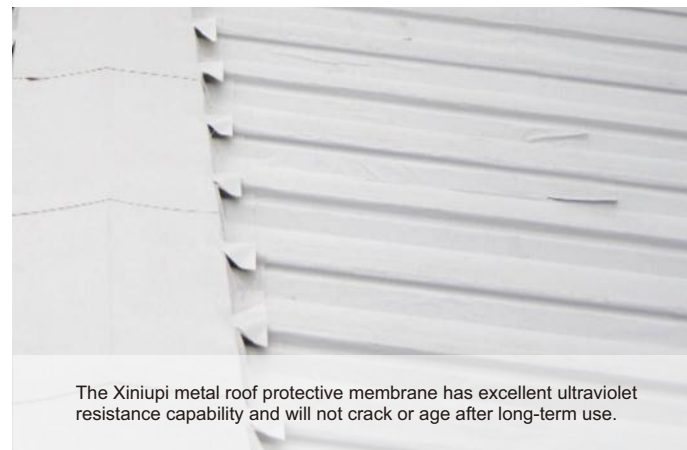


Schematic diagram of the destruction range of ultraviolet rays on different chemical bonds

## The Xiniupi Protective membrane adopts the Intrinsic UV Resistance Technology:

Rich in C-F bonds, it has excellent ultraviolet resistance. Ultraviolet rays cannot destroy its structure, and it is weather-resistant and durable.

The solar radiation that can reach the Earth's surface contains 6.8% ultraviolet rays, 38.9% visible light and 54.3% infrared radiation. Among them, ultraviolet rays have the most serious damage to organic substances. The ultraviolet rays that can reach the Earth's surface are mainly concentrated in the wavelength range of 280-400nm. It has a strong destructive effect on organic substances with chemical bond energy lower than 425.28KJ/mol. However, organic substances with bond energy higher than this range, such as special functional composite films, because the bond energy of the F-C bond is as high as 489.8KJ/mol, it has strong inertness to ultraviolet rays. Ultraviolet rays cannot open its chemical bonds to cause damage to it. Therefore, it has excellent ultraviolet resistance. This ability is called inherent ultraviolet resistance.



The Xiniupi metal roof protective membrane has excellent ultraviolet resistance capability and will not crack or age after long-term use.

## Other materials are not intrinsically ultraviolet-resistant:

They resist the damage of ultraviolet rays to their structure through external additives, and their lifespan is limited.

Many materials, in order to form or increase their ultraviolet (UV) resistance capabilities, attempt to achieve the UV resistance effect by injecting additives such as UV absorbers or shielding agents. However, their UV resistance capabilities and durability are related not only to the types and amounts of the external additives but also to the formulations and processing techniques of the materials.

Deficiencies of non-intrinsic ultraviolet-resistant materials:

- 1、 If the ultraviolet absorbers or converters are not evenly distributed in the substrate, it will lead to local aging of the material, resulting in a decline in the overall performance of the material.
- 2、 Ultraviolet absorbers themselves contain many active functional groups and are at risk of being oxidized in the environment, thus losing their functions of absorbing and converting ultraviolet rays. As a result, the substrate is completely exposed to the action of ultraviolet rays and ages rapidly.

Therefore, its ultraviolet resistance duration is relatively limited. For example, the coatings related to metal roofing may experience phenomena such as aging, cracking, and peeling, losing their protective functions. The conclusion is that materials with inherent ultraviolet resistance are more durable and reliable than those without.



Ordinary metal coatings have aged, cracked and delaminated under the action of ultraviolet rays.

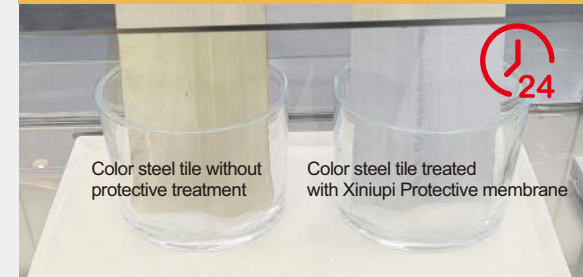


## Leak prevention and rust prevention

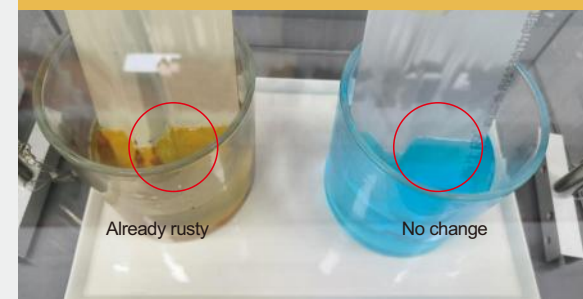
- The protective membrane and the metal roof panel are self-fusing and bonded, integrated, sealed and crack-resistant with reliable air tightness and water tightness.
- It can effectively prevent substances such as water, vapor, acid, alkali, salt, etc. from invading the metal panel, ensuring that the metal roof does not rust or leak.
- Ensuring structural safety and realizing the long-term use function of the roofs.

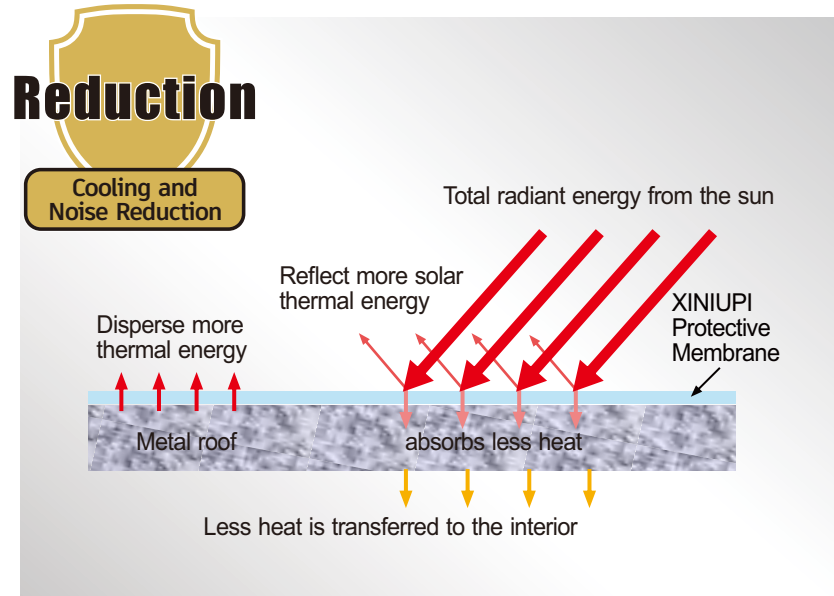
Put the color steel tile without protective treatment and the color steel tile treated with the Xiniupi Protective membrane into a container with an appropriate amount of rust accelerator at the same time. After a 24-hour test: The surface of the color steel tile treated with the Xiniupi Protective membrane has no change.

### Rust accelerator corrosion test



### Corrosion test result





## ■ Cooling:

**The protective membrane has excellent solar light reflection function**

It greatly reduces heat accumulation on metal roofs due to direct sunlight, thereby reducing the use of cooling equipment such as air conditioning and saving energy, lowering operational costs.

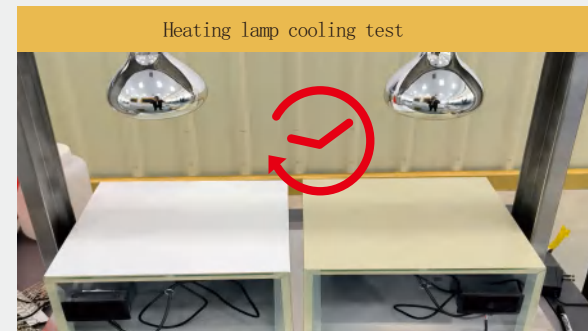
## ■ Noise reduction:

**The protective membrane has excellent damping performance**

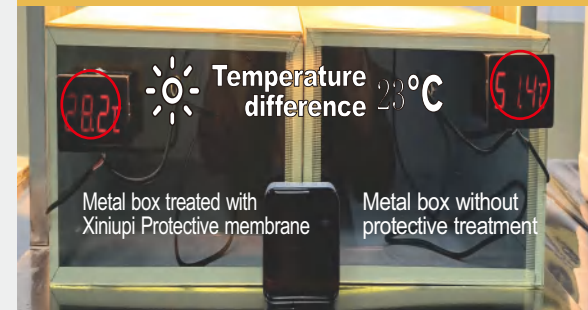
During rainy days, the protective membrane can absorb the energy of rainwater hitting the roof, effectively reducing the vibration amplitude of the roof, thus fulfilling the functions of shock absorption and noise reduction.

Put the metal box without protective treatment and the metal box treated with the Xiniupi protective membrane under the heating lamp for irradiation at the same time. After testing:

The surface temperature of the metal box treated with the Xiniupi Protective membrane is lower.

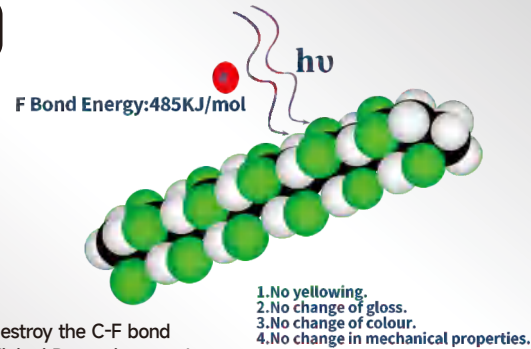


**Test result of the inner surface temperature of the top of the metal box**



# Resistance

Weatherproof and Strong Endurance



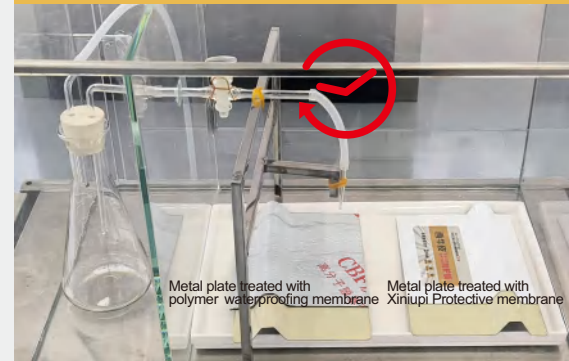
Ultraviolet rays cannot destroy the C-F bond molecular chain of the Xiniupi Protective membrane

- The protective membrane is composed of a special functional composite film that is intrinsically resistant to ultraviolet rays and a self-fusing special functional rubber adhesive layer. It is the first building material evaluated using the life assessment concept of military equipment. It can be durably applied in various environments and enable the metal roofs to be used for another 20 years.
- The molecular structure of its surface layer film material determines its inherent ultraviolet resistance. It can work in environments such as ultraviolet light, oxygen, water, acid, alkali, salt, etc. for a long time. The performance is stable and unchanged, and the weather resistance is extremely strong.
- The self-fusing special adhesive is based on special functional rubber and adopts a gradation compounding process to compound various functional rubbers and functional additives, making it have stable bonding and sealing performance and excellent weather resistance.

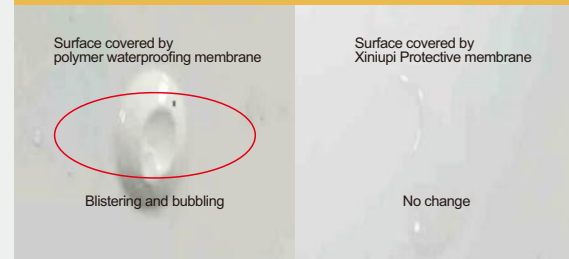
Drop concentrated sulfuric acid (concentration 98%) on the surface of the metal plate covered with polymer waterproofing membrane and the metal plate treated with Xiniupi Protective membrane. After a 24-hour test:

The Xiniupi Protective membrane is resistant to oxidation and corrosion, and the covered surface has no change.

## Concentrated sulfuric acid weather resistance and corrosion resistance characteristic test



## Test results of weather resistance and corrosion resistance characteristics



# XINIUPI COMPREHENSIVE PROTECTION SOLUTION FOR METAL ROOFS

## 01/ XINIUPI SF-CPS SELF-FUSION TYPE SPECIAL MULTIFUNCTIONAL PROTECTIVE MEMBRANE



02/

## SPECIAL PURPOSE INTERFACE TREATING AGENT



03/

## JOINT SEALING TAPE



04/

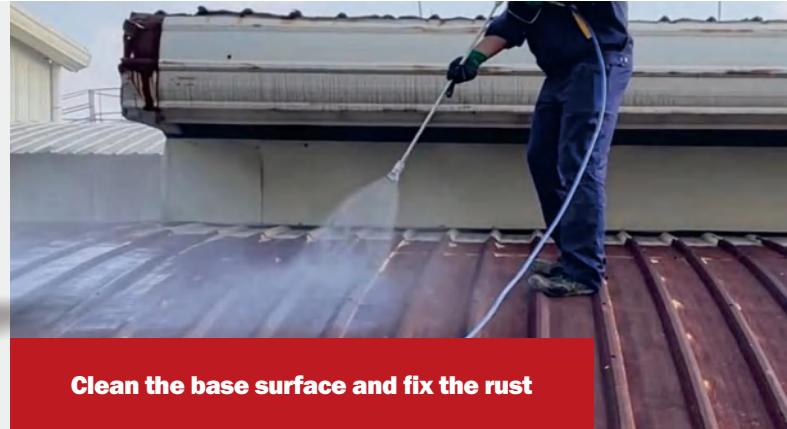
## JOINT SEALANT



# 1 rust fixation and 3 sealings 4 steps for metal roof protection

## 01/ **Base treatment** **Special Purpose Interface** **Treating Agent**

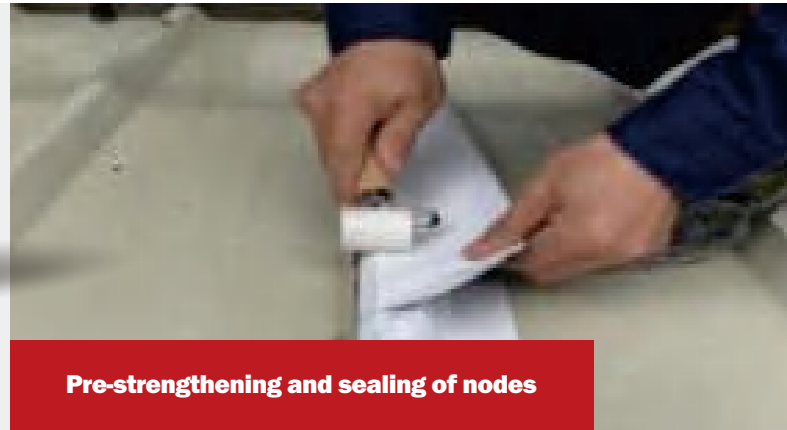
Rust removal and rust fixation on the base surface to enable better integration of the protective membrane and the base surface



**Clean the base surface and fix the rust**

## 02/ **Post-node** **strengthening** **Sealing tape**

Before laying the protective membrane on a large surface, the essential parts such as nail holes and seams of the metal roof should be pre-strengthened with sealing tape to ensure the sealing performance and reliability of the joint areas.



**Pre-strengthening and sealing of nodes**

03/

## Large surface laying Xiniupi sf-cps Self-fusion Type Special Multifunctional Protective Membrane

Use the self-fusing special function protective membrane to seal the large surface of the metal roof.

Fusing and bonding with the base surface to form an overall continuous seal and achieving overall protection effect.



Large surface self-fusing seal

04/

## Post-node strengthenin Joint sealant

Strengthen the weak links and relevant points to provide an extra layer of protection for the nodes and joints.



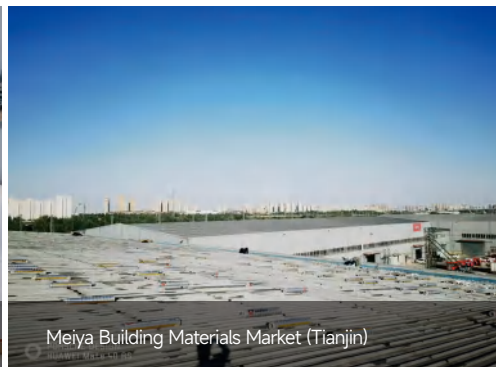
Post-node strengthening and sealing

# Engineering application cases of Xiniupi metal roof protective membrane (partial):





Changsha Boda Industrial  
Park Factory Building (Changsha)



Meiya Building Materials Market (Tianjin)



Jinwo Industrial Park  
Center (Qinzhou)



Production Workshop Factory Building  
of Rishengda (Changzhi, Shanxi Province)



The Forbidden City (Beijing)

# XINIUPI SF-CPS SELF-FUSION TYPE SPECIAL MULTIFUNCTIONAL PROTECTIVE MEMBRANE

## Product Introduction



The implementation standard of Xiniupi Self-Fusion Type Special Multi-functional Protective membrane is:

- 0.4mm Thickness: "Protective membrane for Building Metal Surfaces"(T/CBMF 266-2024). • 0.6mm Thickness: "Protective membrane for Building Metal Surfaces"(Q/XNP 34-2024).

| Serial Number                         | Performance                         | Classification Item                   |                                                                                     |                           | Classification Item                                |         |
|---------------------------------------|-------------------------------------|---------------------------------------|-------------------------------------------------------------------------------------|---------------------------|----------------------------------------------------|---------|
|                                       |                                     |                                       |                                                                                     |                           | Type I                                             | Type II |
| 1                                     | Basic Performance                   | Tensile Performance                   | Tensile Force/(N/50mm)                                                              |                           | ≥450                                               | ≥180    |
| Elongation at Maximum Tensile Force/% |                                     |                                       | ≥50                                                                                 | ≥180                      |                                                    |         |
| Phenomenon during Tension             |                                     |                                       | There is no separation between the bonding adhesive layer and the covering material |                           |                                                    |         |
| 2                                     |                                     | Tear Force/N                          |                                                                                     |                           | ≥20                                                | ≥25     |
| 3                                     |                                     | Peel Strength<br>(N/mm)               | protective membrane and protective membrane (Lap Edge)                              | Without Treatment         | ≥1.0                                               |         |
|                                       |                                     |                                       |                                                                                     | Water Immersion Treatment |                                                    |         |
|                                       |                                     |                                       |                                                                                     | Heat Treatment            |                                                    |         |
|                                       |                                     |                                       | protective membrane and Metal                                                       | Without Treatment         | ≥1.0                                               |         |
|                                       |                                     |                                       |                                                                                     | Water Immersion Treatment |                                                    |         |
|                                       |                                     |                                       |                                                                                     | Heat Treatment            |                                                    |         |
| 4                                     |                                     | Oil Permeability/Number of Sheets     |                                                                                     |                           | ≤1                                                 |         |
| 5                                     |                                     | Tack Retention Time/min               |                                                                                     |                           | ≥45                                                |         |
| 6                                     |                                     | Heat Resistance (100°C, 2 h)          |                                                                                     |                           | No flowing, dripping, slip ≤ 2 mm                  |         |
| 7                                     |                                     | Water Resistance (23°C×14d)           | Appearance                                                                          |                           | No cracks, delamination, blisters or fragmentation |         |
|                                       |                                     |                                       | Water Absorption Rate/%                                                             |                           |                                                    |         |
| 8                                     | Hot Water Resistance (98°C×24h)     | Tensile Force/(N/50mm)                |                                                                                     | ≥450                      | ≥180                                               |         |
|                                       |                                     | Elongation at Maximum Tensile Force/% |                                                                                     | ≥50                       | ≥180                                               |         |
| 9                                     | Low Temperature Flexibility (-40°C) |                                       |                                                                                     | No cracks                 |                                                    |         |
| 10                                    | Dimensional Change Rate/%           |                                       |                                                                                     | ±1.0                      | ±2.0                                               |         |

| Serial Number                                                                                                                                                    | Performance                                       | Classification Item                                                            |                                                                                        | Classification Item                                                                                                      |         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|--------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|---------|
|                                                                                                                                                                  |                                                   |                                                                                |                                                                                        | Type I                                                                                                                   | Type II |
| 11                                                                                                                                                               | Basic Performance                                 | Thermal Stability                                                              |                                                                                        | No bulging, flowing, and the maximum curling of the edge of the covering material does not exceed 1/4 of the side length |         |
| 12                                                                                                                                                               |                                                   | Stress Relaxation/%                                                            |                                                                                        | ≤35                                                                                                                      |         |
| 13                                                                                                                                                               | Barrier                                           | Performance Oxygen Permeability[cm <sup>3</sup> /(m <sup>2</sup> ·24h·0.1MPa)] |                                                                                        | ≤50                                                                                                                      | ≤150    |
| 14                                                                                                                                                               |                                                   | Water Vapor Transmission Rate[g/(m <sup>2</sup> ·24h)]                         | Thickness Specification < 1.2mm                                                        | ≤20                                                                                                                      |         |
|                                                                                                                                                                  |                                                   |                                                                                | Thickness Specification ≥ 1.2mm                                                        | ≤6                                                                                                                       |         |
| 15                                                                                                                                                               |                                                   | Water Impermeability (0.3 MPa, 120 min)                                        |                                                                                        | Water Impermeable                                                                                                        |         |
| 16                                                                                                                                                               | Aging Resistance Performance                      | Thermal Aging (80°C, 14d)                                                      | Tensile Force Retention Rate/%                                                         | ≥90                                                                                                                      |         |
|                                                                                                                                                                  |                                                   |                                                                                | Maximum Tensile Force Elongation Retention Rate/%                                      | ≥80                                                                                                                      |         |
|                                                                                                                                                                  |                                                   |                                                                                | Low Temperature Flexibility (-38°C)                                                    | No cracks                                                                                                                |         |
| 17                                                                                                                                                               | Artificial Climate Accelerated Aging <sup>a</sup> | Appearance                                                                     | No blisters, no cracks, no delamination, no bonding of the covering material, no holes |                                                                                                                          |         |
|                                                                                                                                                                  |                                                   | Bonding with Metal Base Surface                                                | The bonding surface does not debond or fall off                                        |                                                                                                                          |         |
| 18                                                                                                                                                               | Anti-corrosion                                    | Performance Salt Spray Resistance                                              |                                                                                        | ≤ Grade 1                                                                                                                |         |
| 19                                                                                                                                                               |                                                   | Resistance to Chemical Liquids (Resistant to Acid, Alkali and Salt)            | Tensile Force/(N/50mm)                                                                 | ≥450                                                                                                                     | ≥180    |
|                                                                                                                                                                  |                                                   |                                                                                | Elongation at Maximum Tensile Force/%                                                  | ≥50                                                                                                                      | ≥180    |
|                                                                                                                                                                  |                                                   |                                                                                | Appearance                                                                             | No blisters, no cracks, no delamination, no bonding of the covering material, no holes                                   |         |
| <sup>a</sup> When the product is used exposed, artificial climate accelerated aging should be tested, and the shortest aging time should not be less than 6000h. |                                                   |                                                                                |                                                                                        |                                                                                                                          |         |

## Scope of Application

It is mainly used for the protection of building metal surfaces that require leak prevention and rust prevention, such as building metal roofs and metal exterior wall surfaces.

It can also be used for the rust prevention protection of various metal surfaces such as metal containers, pipes, and equipment; as well as building protection that requires reflecting solar heat and reducing noise.



## General Specifications

### ● Specifications and Models 规格型号

- The width is 1000mm.
- The thickness is 0.4mm, 0.6mm.
- The area of a single roll is 20m<sup>2</sup>.

## Packaging, Storage and Transportation

1. Different types and specifications of membranes shall be stacked separately and shall not be mixed.
2. The product should be stored in a ventilated place and stacked in a single layer.
3. The product shall be protected from sun and rain, with attention to ventilation, and the storage temperature shall be -5°C ~ 45°C;
4. Prevent tilting or side pressure during storage or transportation, and cover with tarpaulin if necessary.

## Precautions

1. The construction environmental temperature for the protective membrane should not be lower than 5°C. When the construction temperature is lower than 5°C, heating and adhesion-promoting measures should be adopted.
2. Before paving the protective membrane, it shall be ensured that the base surface is clean, dry, free of oil stains, dust, and other loose substances.
3. Anti-slip flat-soled shoes shall be worn throughout the construction process, and spiked shoes are strictly prohibited.
1. It is strictly forbidden to place sharp objects directly on the completed protective layer without protective measures, and heavy objects or transportation equipment shall not be transported on the unprotected protective layer.
2. In case of damage, timely repair shall be carried out.
3. Shelf life: Under normal transportation and storage conditions, when the product is unopened, the shelf life of this product is 12 months.



## **SPECIAL PURPOSE INTERFACE TREATING AGENT MATCHED WITH XINIUPI PROTECTIVE MEMBRANE**

### **Product Introduction**

1. This product is a one-component new type of metal base treatment material composed of special rust conversion active substances, polymer emulsions, and various functional additives. It is a professional construction application supporting material for Xiniupi Self-Fusion Type Special Multi-functional Protective membrane.
2. This product is water-based, environmentally friendly, has strong permeability and sealing property, and is convenient for construction. It is mainly used for the base treatment of building metal materials with rust phenomenon. After construction, a hard sealing layer with extremely strong adhesion to the original metal base is formed, which can effectively improve the sealing and bonding effect of Xiniupi Self-Fusion Type Special Multi-functional Protective membrane and the original base.

### **Product Features**

1. It is used for the surface treatment of building metal materials with rust phenomenon to improve the adhesion between Xiniupi Self-Fusion Type Special Multi-functional Protective membrane and the rusted metal base;
2. It replaces the traditional grinding and rust removal process, and can be brushed manually or sprayed mechanically to improve construction efficiency and construction quality;
3. Cold construction, no need for torching or heating, and no harmful substances are released during the process, which is safe and environmentally friendly.

### **Scope of Applicationa**

Applied on the surface of rusted building metal materials, it has the effect of improving the adhesion between the functional film for protecting building metal surfaces and the rusted metal base.

## Application Method

Base surface cleaning:

Before applying this product, clean the rusty surface thoroughly, requiring no oil stains, no visible water, no debris, no dust, and no loose rust.

Construction of this product:

1. No water is needed during construction. Stir evenly and apply directly.
2. It can be applied by brushing, rolling or spraying, and apply this product evenly on the rusty surface.
3. If the rusty surface is severely rusted, a second application can be carried out 24 hours after the first application until the base surface requirements for the construction of the Xiniupi Self-Fusion Type Special Multi-functional Protective membrane are met.
4. The next process can be carried out after the coating solidifies to form a hard and closed layer.

## Precautions

1. This product should be stirred evenly before use, and it is prohibited to be mixed with other products.
1. The construction environment temperature should be (5 to 45)°C. Construction is not suitable when the humidity is more than 85% or in exposed environments without shelter during rain or in frost environments.
1. If it comes into direct contact with the skin or eyes, rinse immediately with clean water.
1. Clean the tools with water in time after construction. Unused materials should be sealed and stored tightly.

## Packaging, Storage and Transportation

1. This product is a water-based product, non-flammable and explosive, and can be transported as general goods.
2. During transportation and storage, it should be protected from sun exposure and rain, and packaging damage should be avoided.
3. The transportation and storage temperature is (5 to 45)°C: When the transportation or storage temperature is lower than 5°C, corresponding heat preservation measures should be taken to prevent this product from freezing, demulsifying and being damaged by freezing.

## Reference Amount, Shelf Life and Execution Standard

1. One kilogram covers 8-10 m<sup>2</sup>. Adjust amount based on surface rust and equipment used.
2. Under normal transportation and storage conditions, when the product is unopened, the shelf life of this product is 12 months.
3. Execution Standard: Q/XNP 37-2024 "Special purpose interface treating agent matched with functional protective membrane for constructions' metal surface protection".



# JOINT SEALING TAPE MATCHED WITH XINIUPI PROTECTIVE MEMBRANE

## Product Introduction

1. This product is composed of a weather-resistant polymer film covering material, a bonding adhesive layer, and an isolation protective layer. It is a tape that can be tightly bonded to the building metal base and the self-fusing special function protective membrane, and is an application supporting material for the Xiniupi Self-Fusion Type Special Multi-functional Protective membrane.
2. The bonding adhesive layer of this product is formed by a specific production process after using special functional rubber material as the functional material, through kneading, shearing, and achieving nano-scale or molecular-level fusion with functional compatible materials. It is homogeneous and compatible with the bonding adhesive material of the Xiniupi Self-Fusion Type Special Multi-functional Protective membrane.
3. This product has various protective application functions such as strong sealing and bonding force, irreversible bonding, multi-interface bonding ability, convenient construction, and excellent aging resistance. It plays the role of sealing and anti-seepage, and rust prevention and corrosion protection on the surface of the adhered object.
4. It is mainly used for the strengthened sealing treatment of detailed node parts such as the lap joints of metal tiles, the nail holes of metal tiles, the lap joints and closures of functional films for protecting the building metal surface, and can also be used for the rust prevention and leakage prevention treatment of partial applications of metal buildings.

## Product Features

1. Excellent creep and crack resistance performance, and can adapt to a certain degree of deformation of the base surface.
2. Strong chemical inertness, resistant to long-term ultraviolet irradiation, and erosion by corrosive media such as acids, alkalis, and salts.
3. It can be integrated and bonded with the base surface, with long-lasting sealing effect and is not prone to the phenomena of peeling and delamination.

## Scope of Applicationa

1. Strengthened sealing treatment of detailed node parts such as the lap joints of metal tiles, the nail holes of metal tiles, the lap joints and closures of functional membranes for protecting the building metal surface.
2. Rust prevention and leakage prevention treatment of partial applications of metal buildings.

### Application Method

1. Clean the base surface. It is required to be free of oil stains, visible water, debris, dust, loose objects and rust.
2. Peel off the release film on the surface of this product and paste it on the base surface to make it closely adhere to the surface of the adhered object.
3. After the construction is completed, the next process can be carried out. If there is any damage, it should be repaired in time.

### Precautions

1. The base surface should be kept clean, dry and free of oil stains.
2. Construction is suitable in an ambient temperature of (5 to 45)°C (heating can be used to assist adhesion in a low-temperature environment).
3. Select products of different models and specifications according to the actual engineering needs.
4. When used in combination with materials containing organic solvents, ensure that the organic solvent components have volatilized before applying this product to avoid swelling and damage.

### Packaging, Storage and Transportation

1. During transportation and storage, products of different types and specifications should be stacked separately and not mixed; avoid impact, extrusion, sun exposure and rain, and the storage temperature should be (-5 to 45)°C.
2. During product transportation, prevent tilting or side pressure, and cover with tarpaulin if necessary.

### Shelf Life

Under normal transportation and storage conditions, when the product is unopened, the shelf life of this product is 12 months.



# JOINT SEALANT MATCHED WITH XINIUPI PROTECTIVE MEMBRANE

## Product Introduction

1. This product is an environmentally friendly, solvent-free, one-component neutral protective sealant. It is a professional matching node sealing material for the outdoor exposed environment application of Xiniupi Self-Fusion Type Special Multi-functional Protective membrane.
2. This product has excellent weather resistance, sealing performance, and low-temperature flexibility. It has good tracking performance for the displacement of the base layer caused by thermal expansion and contraction. It can be firmly and durably sealed and bonded to the surfaces of various building materials such as Xiniupi Self-Fusion Type Special Multi-functional Protective membrane, metal, glass, and plastic. It can also be applied to the caulking, sealing, and leak-proof treatment of various types of doors, windows, interior and exterior walls, and non-structural glass curtain walls.

## Product Features

1. Excellent elasticity, UV resistance, and weather aging resistance.
2. Excellent adhesion. No primer is needed. It can be firmly and durably sealed and bonded to the surfaces of various building materials such as Xiniupi Self-Fusion Type Special Multi-functional Protective membrane, metal, glass, and plastic.
3. Excellent air tightness and water tightness.
4. Excellent extrudability, which is conducive to construction.

## Scope of Application

1. It is suitable for the sealing and leak-proof treatment of various edge lapping joints of Xiniupi Self-Fusion Type Special Multi-functional Protective membrane.
2. It is suitable for the caulking, sealing, and leak-proof treatment of various types of doors, windows, interior and exterior walls, and non-structural glass curtain walls.

### Application Method

1. The construction surface should be clean, dry, and free of dirt.
2. If necessary, cut the pointed nozzle provided with the glue gun. This product needs to be in full contact with both sides of the sealing part.

### Precautions

1. The construction temperature should be (5 to 45)°C.
2. Good ventilation should be maintained during construction and curing. Before the glue slurry has cured after glue application, it is not suitable to completely isolate the air.
3. Bonding tests should be conducted before the project starts.

### Packaging, Storage and Transportation

1. Prevent sun exposure and rain, and avoid packaging damage.
2. The storage temperature should not be higher than 45°C.

### Execution Standard, Type and Shelf Life

1. Execution Standard: GB/T 14683-2017 "Silicone and Modified Silicone Building Sealants"
2. Type: (SR)GB/T 14683-2017-I-Gw-35HM.
3. Shelf life: Under cool and dry conditions below 27°C and when unopened, the shelf life of this product is 12 months.



05

## **8-year university-enterprise cooperation for joint R&D**

- Xiniupi, National Double Demonstration Enterprise.
- Technical cooperation with the scientific research team of Professor Li Guangtao from Tsinghua University.

**THE UNIVERSITY HAS BEEN COOPERATING WITH THE ENTERPRISE FOR 10 YEARS  
TO CARRY OUT TECHNOLOGICAL INNOVATION**

**XINIUPI AND PROFESSOR LI GUANGTAO'S RESEARCH TEAM FROM TSINGHUA UNIVERSITY  
JOINTLY ESTABLISHED THE 311 WATERPROOFING RESEARCH INSTITUTE**

Postdoctoral Innovation Practice Base

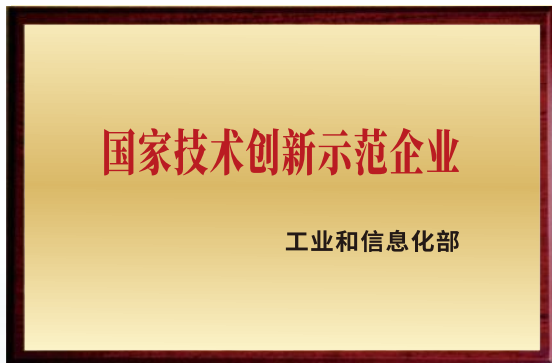


# NATIONAL DOUBLE DEMONSTRATION ENTERPRISE

## ◎ NATIONAL DEMONSTRATION ENTERPRISE FOR TECHNOLOGICAL INNOVATION

GONG XIN BU KE. [2019] NO. 204

GONG XIN BU GONG XIN TING KE HAN. [2022] NO. 304



National Technological Innovation Demonstration Enterprise refers to enterprises that have important demonstration and guiding roles in aspects such as R&D and innovation investment, innovation cooperation, innovation team building, technological innovation output and benefits. The acquisition of this award represents the high recognition of the company's innovation ability, innovation level and innovation performance at the national level!

## ◎ NATIONAL INTELLECTUAL PROPERTY DEMONSTRATION ENTERPRISE

GUO ZHI FA GUAN HAN ZI. [2018] NO. 158

GUO ZHI FA YUN HAN ZI. [2022] NO. 160



National Intellectual Property Demonstration Enterprise is a key project carried out by the state to cultivate and form a group of demonstration enterprises with an intellectual property strategic management concept, comprehensive development of intellectual property creation, application, protection and management capabilities, outstanding comprehensive competitive advantages in intellectual property, and with industry influence and benchmarking.

# MASTERING THE CORE TECHNOLOGY OF MODERN BUILDING WATERPROOFING AND PROTECTION

Professional and dedicated, technological innovation • Product technology has won “National Double Award”

## ◎ NATIONAL KEY NEW PRODUCT

GUO KE FA JI. [2014] NO. 303



National Key New Product refers to a landmark product that has a significant role in ensuring and improving people's livelihood, has a major impact on the industry technology, achieves major technological breakthroughs, possesses core invention patents, and represents China's independent innovation ability and advanced level.

(Source: "Notice of the Ministry of Science and Technology on the Issuance of Relevant National Science and Technology Project Plans in 2014")

## ◎ CHINA PATENT EXCELLENCE AWARD

GUO ZHI FA GUAN ZI. [2014] NO. 63



China Patent Excellence Award is a government department award specifically given by the National Intellectual Property Administration to inventions and creations granted patent rights and is recognized by the World Intellectual Property Organization (WIPO).

[Novelty Search Report] As of 2014, the "CPS Reaction Bonding Waterproofing Membrane Patent Technology" of Xiniupi Waterproofing (formerly Golden Umbrella Waterproofing) is the only waterproofing membrane patent technology in the country's waterproofing membrane category that has won the China Patent Excellence Award (Data from the official website of the National Intellectual Property Administration and the special novelty search report of the Guangxi Zhuang Autonomous Region Institute of Scientific and Technical Information).

# XINIUPI WATERPROOFING TECHNOLOGY CO., LTD.

Mastering the Core Technology of  
Modern Building Waterproofing and Protection

Xiniupi Waterproofing Technology Co., Ltd. is a rare National Double Demonstration Enterprise (National Demonstration Enterprise for Technological Innovation and National Intellectual Property Demonstration Enterprise) in China's building materials industry. It is a national key new product research and development and production base, a postdoctoral innovation practice base, and a leading enterprise in concrete building sealing and waterproofing in China. In 2017, it was rated as one of the top ten most influential brands in the waterproofing industry and became a high-quality supplier of waterproofing materials for national-wide government-run public housing projects.

The company has focused on the field of modern building waterproofing and protection for more than 30 years, mastering the core technology of modern building waterproofing and protection. Its products and technologies have won two major national honors: the China Patent Excellence Award (GUO ZHI FA GUAN ZI. [2014] NO. 63) and the National Key New Product (GUO KE FA JI. [2014] NO. 303), and has been jointly and intensively promoted by four national ministries. It has edited and participated in more than 40 national, industry and regional standards, and its technology is in a leading position in the industry.

The fully sealed waterproofing technology and products for concrete structures have been widely applied in numerous fields such as housing construction, urban transportation, airports, urban pipe galleries, etc., and have become the first choice for key national projects.

Meanwhile, the company is committed to the research and development of the "double protection, double reduction and durability" of metal roofs, focusing on enabling metal roofs to be used for another 30 years. It is a pioneer and innovator in multi-functional protection field for metal roofs.



## National Double Demonstration Enterprise

**National Key New Product R&D and Production Base**  
Two major science and technology parks rooted  
in South China and serving the world

Centralized production, maintaining a high level of technology and quality  
The world's largest R&D and production base of CPS waterproofing  
membranes and protective membranes



## 10 Warehousing Service Centers

**90% of areas in China can  
receive goods within 24 hours**

(Production centers are close to seaports for convenient service  
of the global market): Nanning, Qinzhou, Nanjing, Changchun,  
Shanghai, Tianjin, Urumqi, Xi'an, Chengdu, Wuhan



## 300

**Xiniupi Modern Building  
Waterproofing and Protection  
Application Demonstration Bases**

New technologies, new materials and knowledge  
popularization of modern waterproofing and protection



## 300 Professional Service Teams

300 Central Cities  
More than 300 professional service teams



## 3000 Xiniupi Squads

**serve tens of thousands of  
construction sites every year**

Solve the "3 chaos" problems on the construction site through  
"militarization, mechanization and benchmarking of on-site management"



## 3000

**Xiniupi Squad  
Service Vans**

Serving the world, right beside you  
Ready to provide professional waterproofing and protection  
construction guidance services for you at any time

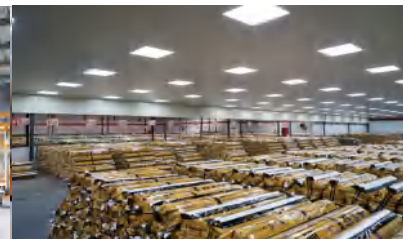


## NATIONAL KEY NEW PRODUCT R&D AND PRODUCTION BASE

Mastering the Core Technology of  
Modern Building Waterproofing and Protection



- National High-Tech Enterprise
- Research and develop and produce national key new products, and provide high-quality product services
- Specialized production of single-model products to avoid multi-model production on a single line to ensure product quality
- Strictly control product quality and won the 2016 Mayor's Quality Award of Nanning City (first place)
- Won more than 80 provincial and ministerial-level projects and honors



# XINIUPI TECHNOLOGY FORTRESS

Technological innovation is the driving force for the development and progress of Xiniupi.



## ● Global Science and Technology Innovation Center for Modern Building Waterproofing and Protection

Here, there are advanced concrete sealing waterproofing technologies in the construction industry and pioneering metal roof protection technologies.

## ● Xiniupi 311 Waterproofing Research Institute

Built by the domestic top scientific and technological force led by Professor Li Guangtao from Tsinghua University and his team to create the top waterproofing and protection products in the field of waterproofing and protection in the construction industry.



## ● Xiniupi Technology Center

Standardized Laboratory of China's Building Waterproofing Industry,  
Guangxi Concrete Sealing Waterproofing Engineering Technology Research Center,  
Guangxi Research and Development Center,  
Guangxi Certified Enterprise Technology Center



## ● Expert Building

Gather top waterproofing and protection experts, only making waterproofing and protection products that can solve practical problems

## MASTERING THE CORE TECHNOLOGY OF MODERN BUILDING WATERPROOFING AND PROTECTION

### First Prize of Nanning Science and Technology Progress Award

Made significant contributions to promoting the technological progress of the waterproofing industry



[Science and Technology Progress Award] The Nanning Municipal Government focuses on rewarding major scientific and technological achievements that have high technical content, good benefits, obvious role in promoting the technological progress of the industry and the whole society, and have a large influence in the organization and implementation of innovation plans in recent years. The project "Development and Industrialization of CPS Reaction Bonding Wet-laid Waterproofing Membrane" of Xiniupi Waterproofing (formerly Guangxi Golden Umbrella) has achieved remarkable results in technological innovation, product innovation, high-tech industrialization, promotion and application of advanced scientific and technological achievements, social welfare, and sustainable development. To affirm and commend this achievement: The People's Government of Nanning City awarded "The First Prize of Nanning Science and Technology Progress".

### Major Contribution Award in Science and Technology

Breakthrough achievements and outstanding contributions in solving the problem of building leakage



[Major Contribution Award in Science and Technology] is an award established by the Nanning Municipal Government to recognize and reward organizations or scientific and technical personnel who have made outstanding contributions to the scientific and technological progress and social and economic development of Nanning. Projects such as "The Development and Industrialization of CPS Reaction Bonding Wet-laid Waterproofing Membrane" of Xiniupi Waterproofing Company (formerly Guangxi Golden Umbrella) have obtained 4 authorized invention patents, 10 utility model patents, 40 valid invention patent applications, and 6 utility model patents. Its innovation and industrial driving ability is at the forefront in Nanning, setting an exemplary leading role for waterproofing enterprises in Nanning, Guangxi and even the whole country, and was awarded the "Major Contribution Award in Science and Technology of Nanning in 2015". (The statistical data in the text is as of May 2015)

## MASTERING THE CORE TECHNOLOGY OF MODERN BUILDING WATERPROOFING AND PROTECTION

### Nanning Mayor's Quality Award



[The Nanning Mayor's Quality Award] is the highest quality honor established by the Nanning Municipal People's Government, specifically awarded to enterprises or organizations in Nanning that implement the excellent performance quality management model, whose quality level and independent innovation ability are in the leading position in the same industry in Guangxi, and have achieved significant economic and social benefits. On November 9, 2016, the Nanning Municipal People's Government issued a document announcing the review results of the second Mayor's Quality Award. Xiniupi Waterproofing (formerly Guangxi Golden Umbrella) stood out among many excellent participating enterprises, won the first place, and its comprehensive score ranked first among the awarded enterprises!

### Top Ten Most Influential Brands in China's Waterproofing Industry



On September 14, 2017, the organizing committee including China Enterprise News, the Editorial Department of Macroeconomic Management of the National Development and Reform Commission, the Huading Sinology Research Foundation of the Counsellor's Office of the State Council, and the "Discovering Brands" column of CCTV jointly held the "The Fourth Release Event of Evaluation Results of China's Brand Influence" in the Great Hall of the People in Beijing. Ten waterproofing enterprises that pursued excellence and kept improving in the work of building brand influence, fully embodying the spirit of craftsmanship, were jointly selected and awarded the title of "Top Ten Most Influential Brands in China's Waterproofing Industry".

Xiniupi Waterproofing (formerly Guangxi Golden Umbrella) was selected as one of the top ten most influential brands in China's waterproofing industry for "complying with the spirit of craftsmanship, pursuing excellence and continuous improvement, with outstanding brand effect, significant innovation benefits, complete service platform and first-class quality level".

## Edit and participate in waterproofing standards at all levels such as national and regional ones.

Xiniupi Waterproofing (formerly Guangxi Golden Umbrella Waterproofing and Decoration Co., Ltd.) masters the core technology of concrete sealing and waterproofing. It has nearly 110 authorized patents related to sealing, waterproofing and protection technologies, and has edited or participated in over 40 standards at all levels of the country.

| Category          | Standard Name                                                                                                                                 | Standard Number        | Remarks                |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|------------------------|------------------------|
| National standard | Wet-laid waterproofing membrane                                                                                                               | GB/T 35467-2017        | Chief Editor           |
| National standard | Waterproofing membrane with self-adhesive layer                                                                                               | GB/T 23260-2009        | Participate in Editing |
| National standard | Self-adhesive polymer modified bitumen waterproofing membrane                                                                                 | GB/T 23441-2009        | Participate in Editing |
| National standard | Pre-laid waterproofing membrane                                                                                                               | GB/T 23457-2017        | Participate in Editing |
| Group standard    | Technical specification for application of wet-laid waterproofing membrane with skin-core structure and hot-pressed cross-linked polymer base | T/CECS 1019-2022       | Chief Editor           |
| Group standard    | Wet-laid waterproofing membrane with skin-core structure and hot-pressed cross-linked polymer base                                            | T/CECS 10173-2022      | Chief Editor           |
| Group standard    | Technical specification for application of pre-laid composite waterproofing membrane                                                          | T/CECS 1020-2022       | Chief Editor           |
| Group standard    | Pre-laid composite waterproofing membrane                                                                                                     | T/CECS 10174-2022      | Chief Editor           |
| Group standard    | High-solid water-based rubber polymer high molecular waterproofing coating                                                                    | T/CECS 10016-2019      | Chief Editor           |
| Group standard    | Freshly prepared water-based rubber polymer composite waterproofing membrane                                                                  | T/CECS 10017-2019      | Chief Editor           |
| Group standard    | Technical specification for application of water-based rubber polymer composite waterproofing material                                        | T/CECS 603-2019        | Chief Editor           |
| Group standard    | Technical specification for application of wet-laid waterproofing membrane                                                                    | T/CBMF66-2019          | Chief Editor           |
| Group standard    | Waterproofing sealant at the connection of building components                                                                                | JG/T 501-2016          | Chief Editor           |
| National atlas    | Structure of building waterproofing system (XII)                                                                                              | Atlas number 19CJ40-12 | Chief Editor           |
| National atlas    | Waterproofing Structure of Urban Comprehensive Pipe Gallery Project                                                                           | Atlas number 19J302    | Participate in Editing |
| .....             | .....                                                                                                                                         | .....                  | .....                  |



## The product standard reaches the world-leading level.

The product standard of Xiniupi freshly prepared waterproofing membrane was selected into the top 100 group standard application demonstration projects of the Ministry of Industry and Information Technology of China.



The product standard reaches the world-leading level and has won the top ten excellent standards of the China Association for Engineering Construction Standardization.



10 Outstanding CECS Standards Released On-Site

### ● Jointly formulate product and application standards with domestic high-level scientific research institutions, universities, design units and application constructors.

The product and application standards of Xiniupi freshly prepared waterproofing membrane are group standards jointly formulated by Xiniupi and more than 30 units such as Tsinghua University, Tongji University, National Center for Quality Supervision and Inspection of Building Engineering, National Quality Supervision and Inspection Center for Polymer Engineering Materials and Products (Guangdong), China Municipal Northwest Design and Research Institute, and China Construction First Bureau!

### ● Guided by the effectiveness and durability of waterproofing, and referring to the principle of standard formulation in Europe and America, a new standard for the application of waterproofing layers has been established.

The setting of waterproofing performance indicators in this standard not only pays attention to the conventional physical performance indicators of waterproofing materials, but also pays more attention to the performance indicators that are compatible with the actual application requirements of the project, thereby ensuring that the on-site environmental applicability and waterproofing durability of Xiniupi freshly prepared waterproofing membranes are much higher than those of traditional waterproofing materials.

中华人民共和国工业和信息化部

工业和信息化部公告

工业和信息化部公告 2020年第10号

工业和信息化部公告 2020年第10号

| 序号 | 标准编号              | 标准名称            | 所属领域 | 发布单位       |
|----|-------------------|-----------------|------|------------|
| 16 | T/CECS 10017-2019 | 现制水性橡胶高分子复合防水卷材 | 建筑防水 | 中国工程建设标准协会 |
| 18 | T/CECS 10017-2019 | 现制水性橡胶高分子复合防水卷材 | 建筑防水 | 中国工程建设标准协会 |
| 19 | T/CECS 10017-2019 | 现制水性橡胶高分子复合防水卷材 | 建筑防水 | 中国工程建设标准协会 |
| 20 | T/CECS 10017-2019 | 现制水性橡胶高分子复合防水卷材 | 建筑防水 | 中国工程建设标准协会 |
| 21 | T/CECS 10017-2019 | 现制水性橡胶高分子复合防水卷材 | 建筑防水 | 中国工程建设标准协会 |
| 22 | T/CECS 10017-2019 | 现制水性橡胶高分子复合防水卷材 | 建筑防水 | 中国工程建设标准协会 |
| 23 | T/CECS 10017-2019 | 现制水性橡胶高分子复合防水卷材 | 建筑防水 | 中国工程建设标准协会 |
| 24 | T/CECS 10017-2019 | 现制水性橡胶高分子复合防水卷材 | 建筑防水 | 中国工程建设标准协会 |
| 25 | T/CECS 10017-2019 | 现制水性橡胶高分子复合防水卷材 | 建筑防水 | 中国工程建设标准协会 |



**International exchange and cooperation win the respect of the world with technological innovation.**



**Strategic cooperation with  
the German Freudenberg Performance Materials Group.**



**Jointly develop international high-end waterproofing  
products with the German company Infiana.**

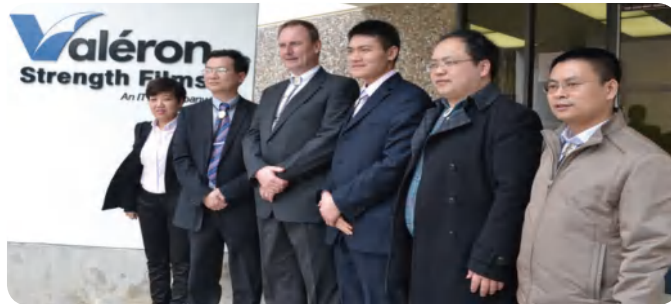


The 8th Sino-German Economic and Technological Cooperation Forum was held in the Great Hall of the People(The National Parliament Building). The governments of the two countries designated 48 contracting teams. Xiniupi Waterproofing (formerly Guangxi Golden Umbrella Waterproofing and Decoration Co., Ltd.) participated in this signing ceremony as the only representative of waterproofing enterprises in China and reached strategic cooperation with the German company Infiana.

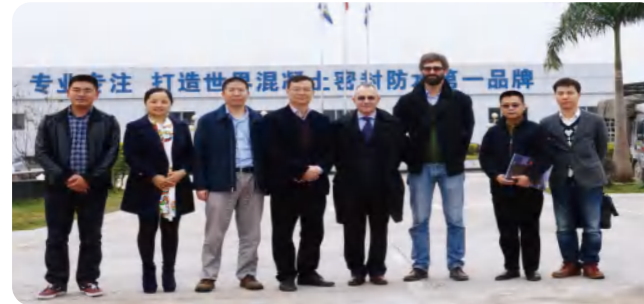
**International exchange and cooperation win the respect of the world with technological innovation.**



**Cooperate with the American company Valeron Strength Films to jointly develop intelligent waterproofing layers.**



**Cooperate for win-win results with the Italian company NARDINI.**



**Become a strategic partner of the Swiss company Pavag.**



**Share resources with Henkel Dubai of Germany to solve the waterproofing problems of concrete buildings for customers.**



# Technical cooperation

with the research team of Professor Li Guangtao of Tsinghua University

Technology research and development of Xiniupi Self-Fusion Type Special Multi-functional Protective membrane  
Cooperation project between Xiniupi and the research team of Professor Li Guangtao of Tsinghua University



## Li Guangtao

Professor and doctoral supervisor of Tsinghua University  
Outstanding Youth of the National Natural Science Foundation  
Outstanding Youth of the National Natural Science Foundation

**Chief scientist of Xiniupi  
Waterproof 311 Research Institute**

### Research directions:

Supramolecular chemistry and molecular assembly  
Colloid and interface chemistry  
Nanomaterials chemistry  
Functional thin film materials





Professor Li Guangtao of Tsinghua University led the team to visit the Xiniupi Science and Technology Park regularly for technical guidance and project breakthroughs.

### IMPORTANT NOTICE:

The data and situations listed in this product brochure are the test results of the company. When using this product, there may be discrepancies between the actual situations and the test data and situations due to different actual conditions. The data and content published in this brochure are for reference only and do not serve as guarantees. In special cases, the explanations provided by the company shall prevail. Meanwhile, the company does not guarantee that the materials, reports and related descriptions from time to time provided are complete, timely, accurate or fit for any particular purposes of the customers. Xiniupi Waterproofing Technology Co., Ltd. reserves the final right to interpret the content of this brochure.



WeChat QR Code



WhatsApp QR Code

Welcome to contact our Overseas Business Center.(Highsum International) PIC: Mr. Guibo Xiang

Tel: +86 18929316157 (WeChat) / +852 97901976 (WhatsApp)

E-mail: [xiangguibo@163.com](mailto:xiangguibo@163.com)



Follow Xiniupi WeChat



(+86)4006675123  
[en.xnpfs.com](http://en.xnpfs.com)

**MANUFACTURER: XINIUPI WATERPROOFING TECHNOLOGY CO., LTD.**

R&D and production address: Xiniupi Science and Technology Park, Santang Town, Xingning District, Nanning, Guangxi, China