High-Performance Epoxy Resin Road and Bridge Paving Material Provider

2024

Technological Innovation for Better Architecture

Focused on the research and production of high-performance flexible epoxy resin materials for road and bridge paving, creating greater value for customers through innovative technologies.

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01.

About Us

Sichuan Dongchen Waterproof New Material Co., Ltd., part of our family business, was established in 2019. It specializes in the research and development of highly elastic and tough epoxy resin materials.

In recent years, through technological breakthroughs, the company has addressed several challenges in toughening and softening epoxy resin. We have developed epoxy materials widely applied in road and bridge paving, building waterproofing, and elastic bonding.

In road and bridge paving, we have launched a series of products, including thin-layer anti-slip epoxy, secondary-curing epoxy adhesives, hot-mix epoxy asphalt binder, cold-mix epoxy binder, and EBCL binder, covering a wide range of epoxy applications in road and bridge paving.

Our core competitiveness lies in our independently developed epoxy resin toughening and curing systems, enabling cured products that are both strong and tough, with ultra-high elasticity (elongation above 300%). The systems also allow initial curing at room temperature and secondary curing at high temperatures, significantly broadening the application scope of epoxy resins.

01.

About Us

Additionally, thanks to our independent development, all materials meet performance requirements while being offered at more competitive prices, helping clients expand their markets.

Our products have been applied to various large, medium, and small steel deck and concrete bridge deck paving projects, outperforming similar products. Meanwhile, we continuously develop new materials for specific application scenarios based on customer requirements, addressing niche market demands.

We will always uphold the business philosophy of "technological innovation, integrity, and customer first." We are committed to working with industry peers to enhance road and bridge paving quality and achieve win-win development!

02.

DC-HMB | Hot-Mix Epoxy Asphalt Binder

Overview:

This product is a specially toughened and modified epoxy resin binder used in conjunction with base asphalt, making it an excellent material for steel bridge deck paving.

Compared to traditional asphalt materials, hot-mix epoxy asphalt mixtures exhibit superior high-temperature stability, crack resistance, and waterproofing properties, making them ideal for steel bridge deck paving.

Our independently developed curing and toughening systems significantly reduce costs compared to similar domestic and international products, providing greater economic benefits to our clients.

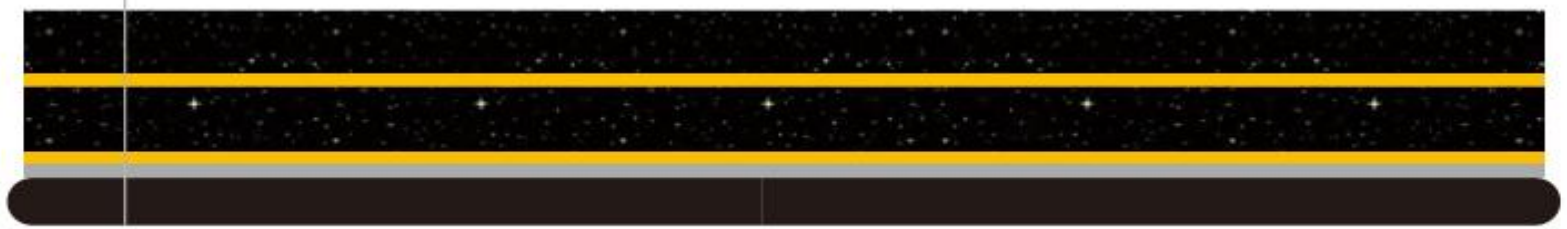
Applications:

According to the design and construction specifications for highway steel bridge deck paving (JTG/T3364-02-2019), hot-mix epoxy asphalt mixtures can be used as protective and wearing layers in combination with various asphalt paving materials, as follows:

Combination	Wearing Layer Type	Protective Layer Type
1	Epoxy Asphalt Mixture	Epoxy Asphalt Mixture
2	Modified Asphalt Mixture (SMA, AC)	Epoxy Asphalt Mixture
3	Epoxy Asphalt Mixture	Poured Asphalt Mixture

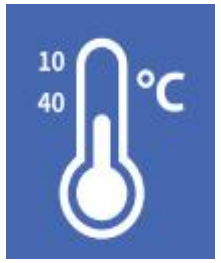
Layered Structure Schematic

Hot-Mix Epoxy Asphalt Mixture (Wearing Layer)
Secondary-Curing Epoxy Adhesive (Bonding Layer)
Hot-Mix Epoxy Asphalt Mixture (Protective Layer)
Secondary-Curing Epoxy Adhesive (Waterproof Bonding Layer)
Epoxy Zinc-Rich Paint
Steel Plate, Sandblasted to Sa2.5 Standard



Product Features

Long pot life: Maintains low viscosity within 3 hours at high temperatures (150~170°C), making construction easier.



Fast curing at room temperature (10~40°C), enabling traffic reopening within a few days.

Good flexibility and fatigue resistance, with high elongation at break and decent tensile strength.

Does not flow at high temperatures and remains non-brittle at low temperatures, suitable for various climatic conditions.

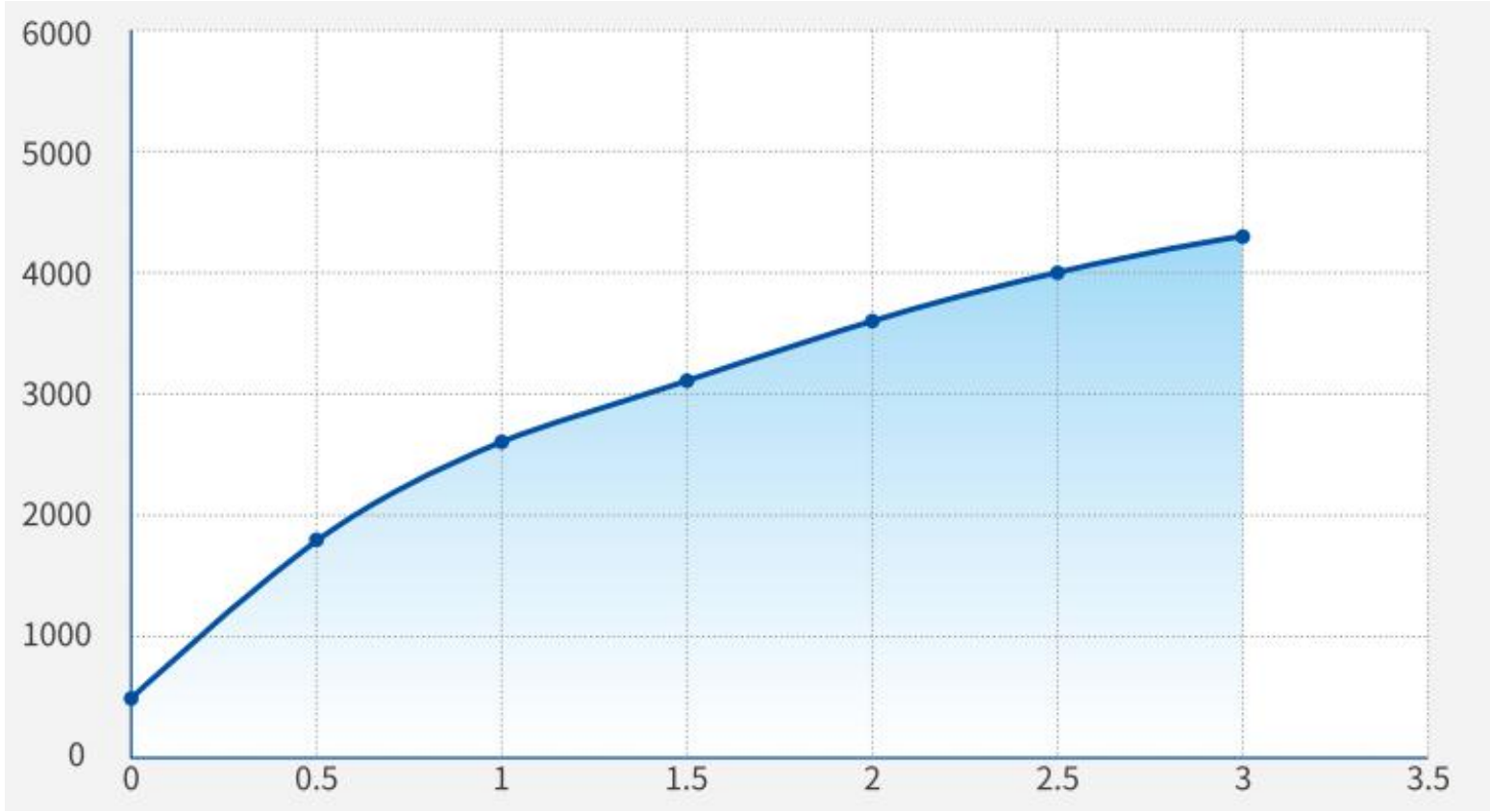
Excellent water stability.

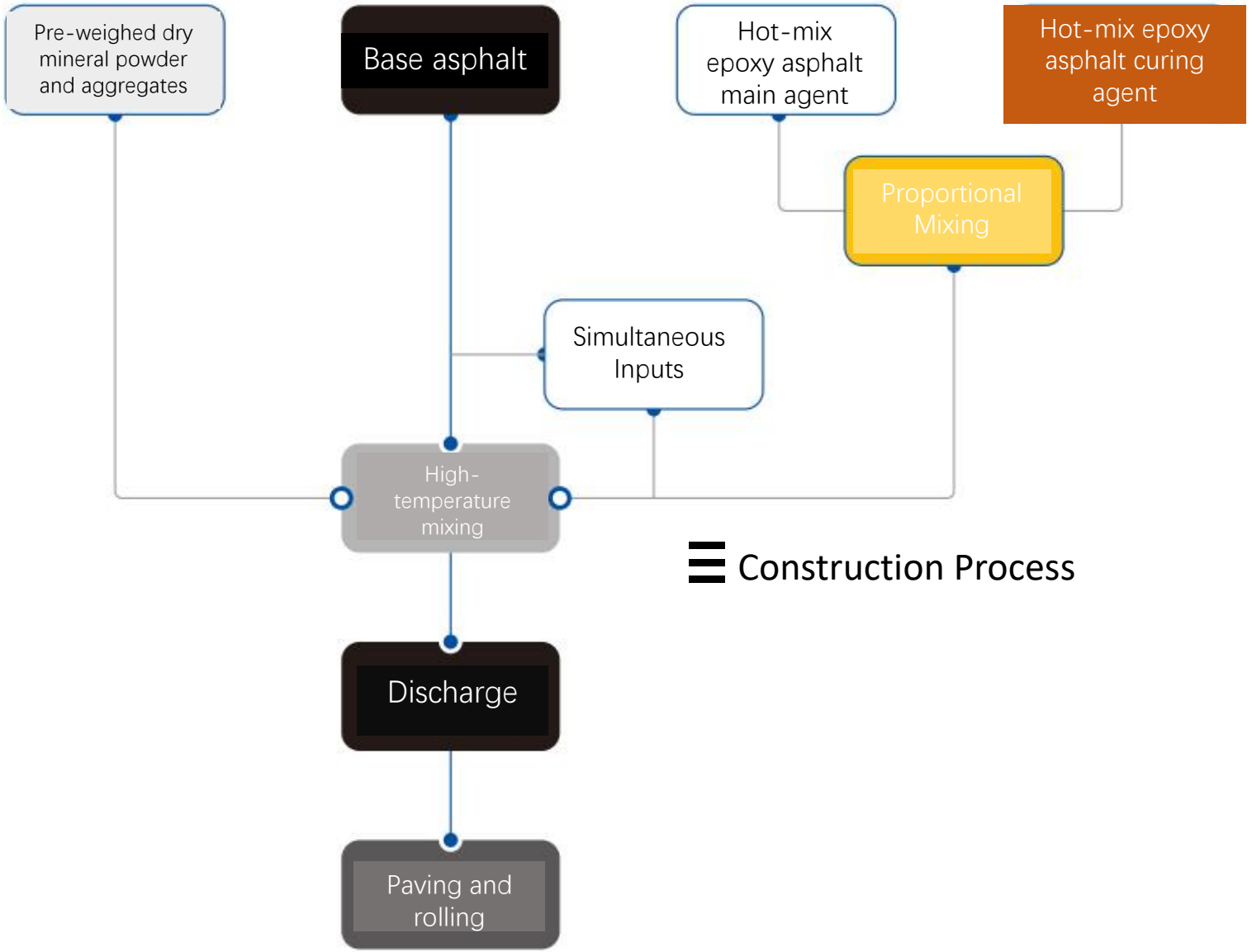
Technical Specifications

Complies with the technical requirements for hot-mix epoxy asphalt binders in section 4.5.3 of the *Highway Steel Bridge Deck Paving Design and Construction Specification (JTG/T3364-02-2019)*. **The key parameters, such as tensile strength and elongation at break, significantly exceed standard requirements and match or surpass similar imported products.**

Test Item	Unit	Technical Requirements	Test Method
Tensile Strength (23° C)	MPa	≥2.0	GB/T 16777-2008
Elongation at Break (23° C)	%	≥100	
Water Absorption (7d, 25° C)	%	≤0.3	T0625

Time-Viscosity Curve of Binder (Excluding Asphalt) at 150°C

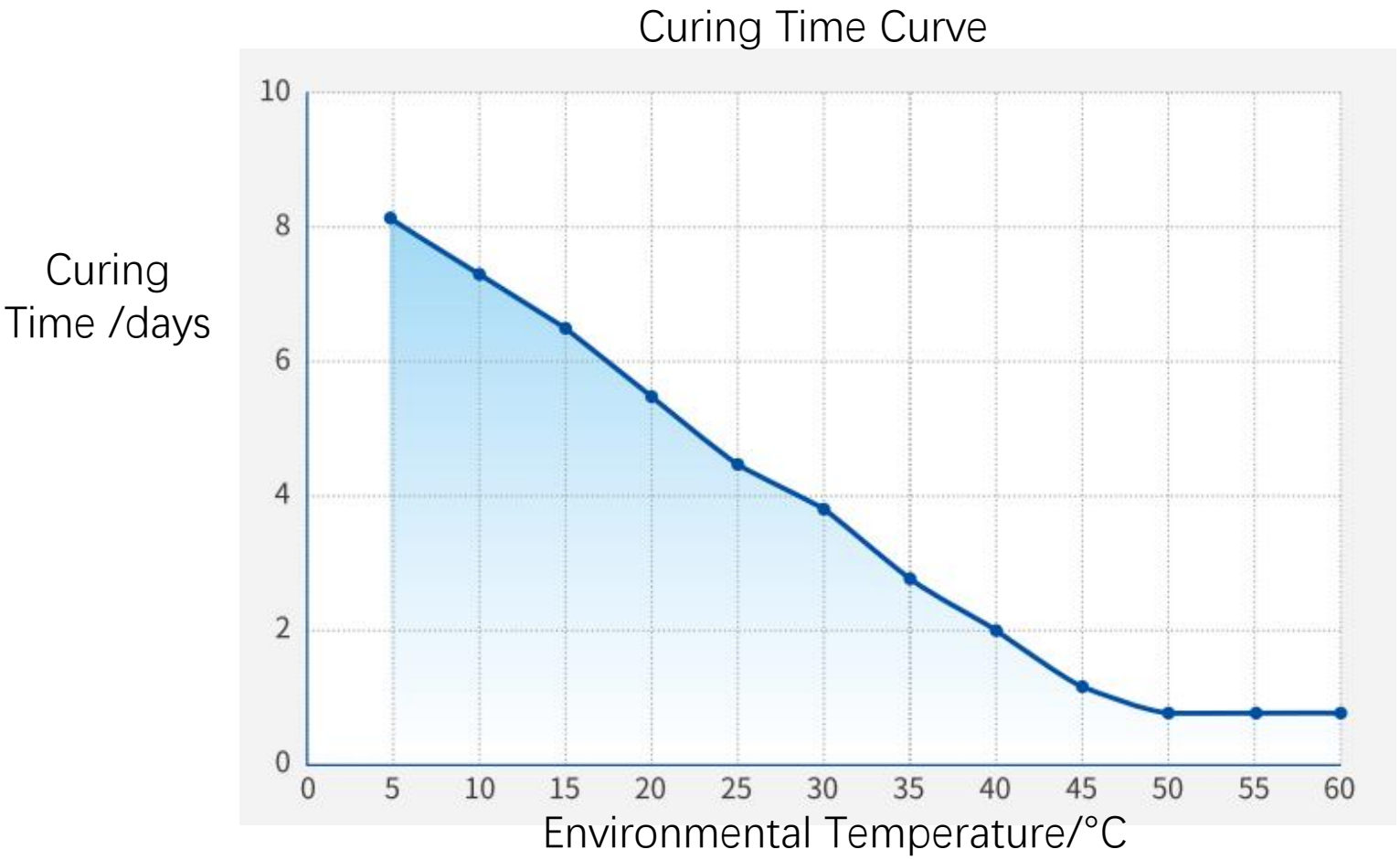




Construction Process

Curing Time

After paving and rolling, the mixture requires a curing period to reach traffic-ready strength. The curing time varies with environmental temperature, as shown in the chart below:



Precautions

To enhance workability, it is recommended to preheat the main agent and curing agent to 50–60°C before use, especially when the ambient temperature is below 20°C.

Mix the main agent and curing agent evenly in the recommended ratio, then add the mixture simultaneously with the asphalt.

The recommended binder-to-asphalt ratio is 1:1, but it can be adjusted based on specific requirements.

Transportation and Storage

Protect the product from rain, sunlight, packaging damage, and moisture during storage and transportation.

Store in a cool, dry place, away from fire sources.

The product has a shelf life of 24 months from the date of manufacture.

This product is not classified as hazardous and can be transported as general goods.

Packaging Specifications

20L metal drums or customized packaging as per user requirements.

DC-ETC Two-Stage Curing Epoxy Adhesive

03.

Overview

This product is a hot-melt epoxy interlayer adhesive with two-stage curing properties. After preliminary curing at room temperature, it does not adhere to paving equipment wheels. Under the influence of asphalt's high temperature, it melts and undergoes secondary curing, bonding the upper and lower layers firmly to prevent delamination or slippage.

This two-stage curing epoxy adhesive can be used with epoxy asphalt mixtures, mastic asphalt mixtures, and conventional SMA/AC asphalt mixtures. In particular, its combination with mastic asphalt mixtures has demonstrated excellent results while significantly reducing time and material costs.

Applications

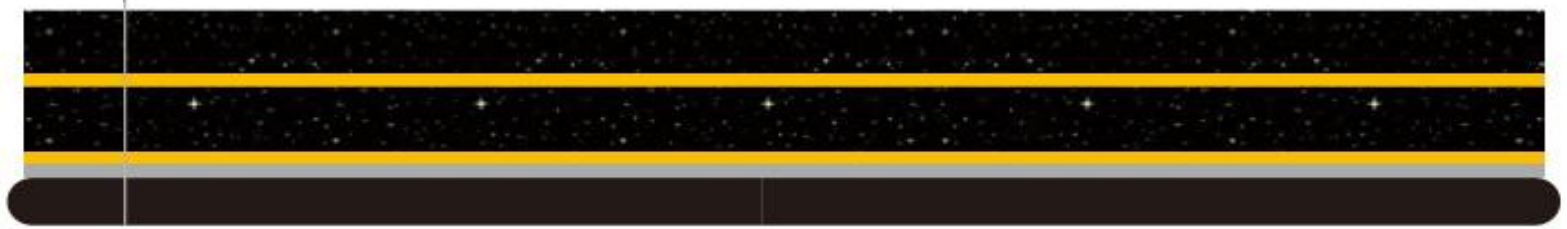
When used as a waterproof adhesive layer, the protective layer can be hot-mix epoxy asphalt mixtures or mastic asphalt mixtures.

When used as a bonding layer, the following combinations of protective and wear layers are available:

Combination	Wear Layer Type	Protective Layer Type
1	Epoxy Asphalt Mixture	Epoxy Asphalt Mixture
2	Modified Asphalt Mixture (SMA, AC)	Epoxy Asphalt Mixture
3	Epoxy Asphalt Mixture	Mastic Asphalt Mixture

Layered Structure Diagram

Wear Layer
Two-Stage Curing Epoxy Adhesive (Bonding Layer)
Protective Layer
Two-Stage Curing Epoxy Adhesive (Waterproof Bonding Layer)
Epoxy Zinc-Rich Primer
Steel Plate, Sandblasted to Sa2.5



Product Features

Initial curing at room temperature, melting and secondary curing at high temperatures.

High bonding strength, with adhesion to steel exceeding 3 MPa.

High elasticity, with elongation exceeding 200%.

Compatible with various mixtures (epoxy asphalt, mastic asphalt, SMA/AC asphalt), providing strong adhesion.

Technical Specifications

Complies with Section 4.2.1 of the Highway Steel Bridge Deck Paving Design and Construction Specification (JTG/T 3364-02-2019) for Type II Epoxy Adhesives. Significantly exceeds standard requirements for tensile strength, elongation at break, adhesion to steel, and adhesion to various asphalt mixtures, matching or surpassing similar imported products.

Test Item	Unit	Technical Requirement	Test Method
Tensile Strength (23°C)	MPa	≥3.0	GB/T 16777-2008
Elongation at Break (23°C)	%	≥100	
Water Impermeability (0.3MPa, 24h)	--	Impermeable	
Water Absorption (7d, 25°C)	%	≤0.3	GB/T 1034-2008
Adhesion to Steel (25°C)	MPa	≥3.0	Appendix B
Adhesion to Protective Layer (25°C)	Protective Layer as Epoxy Asphalt Mixture	≥1.5	
	Protective Layer as Modified or Mastic Asphalt Mixture	≥1.0	

Instructions for Use

Sandblast steel panels and mill concrete panels to remove rust, oil stains, laitance, and dust from the surface.
Measure and mix components A and B in the correct ratio, or directly use one container of component A with one container of component B.
The mixed adhesive can be applied by roller coating or high-pressure spraying with a sprayer.
Allow the bonding layer to cure until it reaches initial curing (non-tacky to the touch) before proceeding with the asphalt overlay. The curing time varies depending on the temperature, as shown in the table below:

Ambient Temperature	Curing Time	Effective Bonding Period
40~50°C	0.5 days	1.5 days
30~40°C	1 day	2 days
20~30°C	1 day	3 days
10~20°C	2 days	6 days

Precautions

Except for base treatment, the construction methods for the waterproof bonding layer and the bonding layer are identical.
Ensure thorough and even mixing, paying attention to dead corners. The mixed adhesive should be a uniformly colored liquid.
Use the mixed adhesive as soon as possible, especially if it begins to heat up. Pay close attention to the workable time.
If the ambient temperature is below 15°C, crystallization may occur in component B. Heat the material to above 40°C to dissolve the crystals. This does not affect product performance.
If the material is not fully used after opening, it must be sealed tightly as soon as possible.

Reference Consumption

Approximately 0.4–0.5 kg/㎡ when used as a waterproof bonding layer.
Approximately 0.5–0.6 kg/㎡ when used as a bonding layer.

Transportation and Storage

Protect from rain, direct sunlight, packaging damage, and moisture during storage and transportation.
Store in a cool, dry place away from fire sources.
Shelf life: 24 months from the date of production.
This product is non-hazardous and can be transported as general goods.

Packaging Specifications:

20L iron drums or customized packaging as per user requirements.

DC-ASE Thin-Layer Anti-Skid Epoxy

Overview

This product is a specially modified elastic epoxy resin material for road and bridge paving. Thanks to proprietary epoxy resin toughening technology, it balances performance better than other products on the market, ensuring low deformation modulus, high elongation, and excellent adhesion to substrates. It is particularly suitable for anti-skid layer applications on road and bridge surfaces in environments with continuous vibration.

Applications

Used as a bonding material for anti-skid layers on asphalt concrete, cement concrete, and steel bridge surfaces.

By adding pigments and scattering colored ceramic particles, the thin paving layer's color can be altered, creating attractive anti-skid colored pavement.

04.

Schematic of Structural Layers

Wear-resistant aggregate or ceramic particles (grain size ~3–5mm)
Waterproof anti-skid layer (~3mm thick)
Asphalt concrete base

Product Features

Outstanding adhesion to substrates, perfectly bonding to asphalt concrete, cement concrete, and steel surfaces.

Can be applied on slightly damp substrates without affecting adhesion.

Traffic can resume within 4–24 hours depending on the temperature.

Firmly bonds ceramic particles and stones, ensuring they remain intact under continuous impact from vehicle wheels.

Excellent weather resistance ensures long-term durability under sunlight exposure.

High flexibility and fatigue resistance ensure durability under continuous vibration on road and bridge surfaces.

Exceptional resistance to chemicals and abrasion.

Technical Specifications

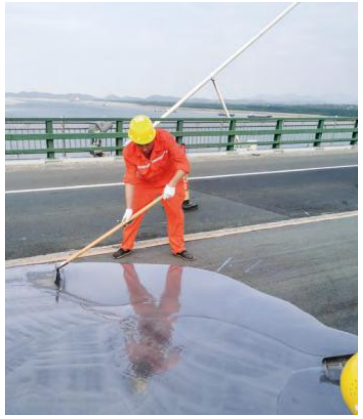
Item		Technical Requirements	Test Methods
Appearance	Group A	Transparent liquid	/
	Group B	Yellow transparent liquid	/
Shear Strength (Steel-to-Steel) ≥		10 MPa	GB/T 7124-2008
Bonding Strength	With steel plate ≥	8 MPa	GB/T 16777-2008
	With cement ≥	3.5 MPa (Cement Failure)	
Tensile Strength ≥		8 MPa	
Elongation at Break ≥		50%	
Waterproofness (0.3MPa, 24h)		Impermeable	

Application Method

Milling the substrate to remove surface oils, slurry, dust, etc.
Weigh and mix components A and B in the specified ratio, or use 1 bucket of A to 1 bucket of B directly.
Add color pigments and filler powder to the mixed resin, and mix thoroughly.
Evenly spread the resin on the road and bridge surface, and sprinkle ceramic particles or stones, ensuring even coverage.
After the resin is mostly cured, sweep away excess ceramic particles or stones.
Traffic can be opened after the curing time is completed.

Precautions

Ensure thorough and even mixing, paying attention to corners to avoid incomplete mixing. The mixed resin should have a uniform color.
Use the mixed resin promptly after preparation, especially when it begins to heat up, as this affects the working time.
At low temperatures, the material becomes more viscous. A hot air blower can be used on-site to reduce viscosity for easier application.

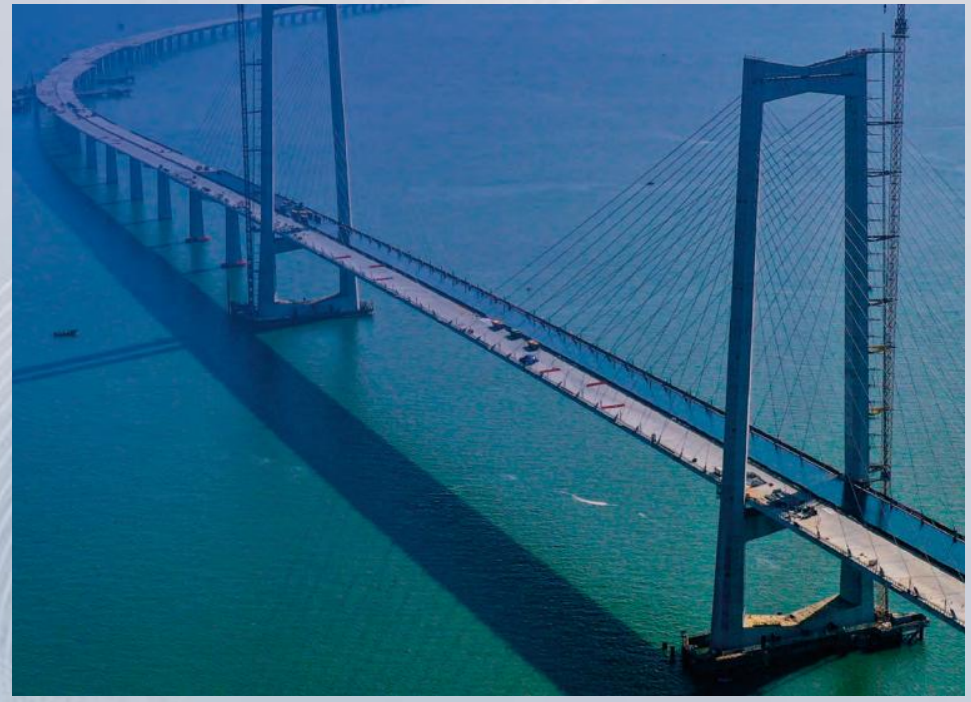


Transportation and Storage

During storage and transportation, protect from rain, direct sunlight, packaging damage, and moisture.
Store in a cool, dry place, away from fire sources.
Shelf life is 24 months from the date of production.
This product is non-hazardous and can be transported as general goods.

Packaging Specifications

20L metal drums or customized according to user requirements.



05.

DC-CMB Cold Mix Epoxy Binder

Overview

This product is a specially modified elastic epoxy resin paving material for road and bridge surfaces. Thanks to the independently developed epoxy resin toughening technology, it offers better performance than other products on the market, with high tensile strength and excellent elongation. As such, it is ideal for use in road and bridge cold mix paving in environments subject to continuous vibration.

Application Scope:

Cement concrete bridges、Steel structure bridges、Pedestrian overpasses、Colored paved surfaces.

Product Features

Cold mix construction on-site, no mixing station required, energy-saving, no pollution at the construction site.

Initial curing is slow, allowing for a longer working period, ideal for large-scale construction projects.

Excellent chemical resistance and wear resistance.

High flexibility and fatigue resistance, ensuring the bonding layer remains intact under continuous vibration on the road and bridge surface.

Can be applied even in slightly humid conditions without affecting curing.

The product gains strength quickly in the later stages, with traffic opening time ranging from 4 to 48 hours depending on temperature.

Excellent weather resistance, ensuring long-term exposure to sunlight without failure.

Technical Specifications:

This product complies with the technical requirements for cold-mix epoxy asphalt binders in the highway steel bridge deck paving design and construction specifications (JTG/T 3364-02-2019), with key indicators such as tensile strength and elongation far exceeding the standards. Depending on the formula design, the tensile strength can reach over 20 MPa, and the elongation at break can exceed 200%, meeting various project requirements.

Test Item	Unit	Technical Requirements	Test Method
Tensile Strength (23°C)	MPa	≥2.0	GB/T 16777-2008
Elongation at Break (23°C)	%	≥50	
Water Absorption (7d, 25°C)	%	≤0.3	T0625

Application Method:

Mill the base surface to remove oil, slurry, dust, and other contaminants.
Apply the bonding waterproof layer and allow it to cure before proceeding to the next step.
Measure and mix components A and B in the correct ratio, or mix one drum of A component with one drum of B component directly.
Add color powder, filler powder, and aggregates into the binder mixture and stir thoroughly to ensure even distribution.
Evenly spread the binder on the road/bridge surface and compact it with vibration.
Open traffic after the curing time is completed.

Precautions:

Ensure thorough mixing, paying attention to corners that may not be mixed well. The mixed binder should be a uniform liquid in color.
At low temperatures, the material may become more viscous. Use a heat gun at the construction site to heat and reduce viscosity for easier application.

Transportation and Storage

During storage and transport, protect from rain, sunlight, packaging damage, and moisture.
Store in a cool, dry place, away from fire sources.
Shelf life is 24 months from the date of production.
This product is not hazardous and can be transported as general goods.

Packaging Specifications

20L metal drums or customized according to user requirements

06.

DC-EBCL Waterproof Binder

Overview:

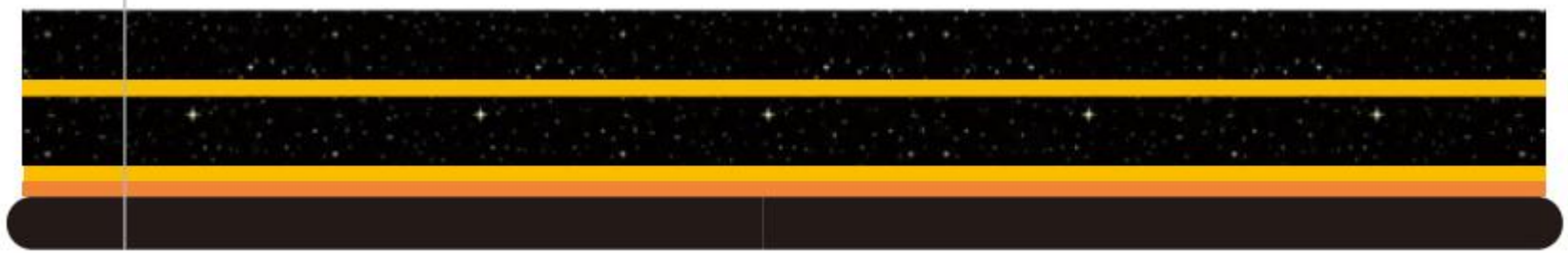
This product is a specially modified elastic epoxy resin waterproof and anti-skid binder for road and bridge surfaces. Thanks to the independently developed toughening technology, it offers better performance than other products on the market, combining high tensile strength with excellent elongation. The EBCL waterproof anti-skid binder is applied to the steel plate surface, and 3-5mm small gravel is spread over it, forming a waterproof, rough anti-skid thin layer structure that interlocks with the paving layer, preventing slipping. Additionally, after curing, the binder forms a strong bond with the steel plate, providing waterproof and anti-corrosion protection for the steel.

Application Range:

Used as a waterproof and anti-skid bonding layer in processes such as ERS and ERE for steel bridge surfaces, providing waterproofing and anti-skid functions.

Layered Structure Diagram

High-Viscosity Modified Asphalt SMA-10
Second-Stage Cured Epoxy Binder (Bonding Layer)
RA Resin Asphalt Mixture
RA Resin Asphalt Binder Layer
EBCL Waterproof Binder Layer
Steel Plate, Sandblasted and Rust-Removed Sa2.5



Product Features

Excellent adhesion to steel plates, securely bonding ceramic particles and stones, ensuring tight interlocking with the paving layer.

Free from solvents such as toluene and xylene, and does not blister, decompose, or degrade under high temperatures.

Excellent weather resistance, ensuring long-term performance even when exposed to sunlight.

Can be applied in slightly moist environments without affecting curing.

High flexibility and fatigue resistance, ensuring durability under continuous vibration on road and bridge surfaces.

Technical Specifications

Test Item		Technical Requirements
Pull-off strength	70° C	≥3
	25° C	≥10
Shear strength (70°C)(MPa)		≥1
Tack-free time t (25° C) (h)		1≤t≤10
Cured strength (25° C, 72h) (MPa)		≥3
Elongation at break (%)	25° C	≥20
	-10° C	≥5
Break strength (MPa)	25° C	≥10
	-10° C	≥12
Flowability		No visible flow
High-temperature stability (180° C, 1h)	Appearance	No pores, blistering, decomposition, or degradation
	Mass loss (%)	≤1
UV fluorescence aging break strength (25° C) (MPa)		≥8

Application Method

Sandblast and grind the steel plate to remove surface contaminants like oil, laitance, and dust.
Weigh and mix components A and B in the specified ratio, or mix one barrel of component A with one barrel of component B for direct use.
Apply the bonding material evenly on the steel plate surface using a roller or scraper.
Spread the gravel evenly as soon as possible before the bonding material cures.
Cure the material for 4 to 24 hours, depending on the environmental temperature, until the bonding material is mostly cured.
Spread the asphalt layer.

Precautions

Ensure thorough mixing, paying attention to corners that may be missed. The mixed bonding material should have a uniform color and consistency.
If the material becomes more viscous in low temperatures, it can be heated with a hot air gun on site to reduce viscosity and facilitate application.

Transportation and Storage

During transportation and storage, protect from rain, direct sunlight, and damage to packaging.
Store in a cool, dry place away from fire sources.
The product has a shelf life of 24 months from the date of manufacture.
This product is non-hazardous and can be transported as general goods.

Packaging Specifications

Available in 20L metal drums or customized according to user requirements.

THANK YOU

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