



ECO-CRETE 200

HACCP for food factory floors



NOROO

ECO-CRETE 200

HACCP for food factory floors

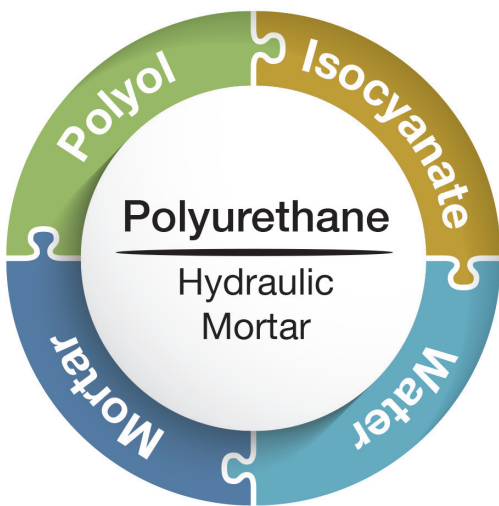


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Product Overview ECO-CRETE

Concept



I Polyurethane Resin Mortar

This paint is a four-component flooring material for concrete composed of base, hardener, powder and color by using the binding between polyurethane resin and inorganic powder.

Compatibility / Toughness

Isocyanate + Polyol \Rightarrow Polyurethane

Heat resistance / Adhesive strength

Mortar + H₂O \Rightarrow Hydraulic mortar

Anti chemical / Heat resistance

Isocyanate + H₂O \Rightarrow Urea

Product Overview



URETHANE RESIN

Chemical resistance,
Thermal properties



POWDER

Mechanical properties and
Durability



POLYURETHANE RESIN MORTAR WATER-BASED URETHANE CONCRETE

High durability flooring

ECO-CRETE Characteristics

1. There is almost no smell, so it is suitable for food factories, etc.
2. Solvent-free and eco-friendly. (There are no heavy metals or organic solvents.)
3. It dries quickly, shortening the construction time. (Usually, it is allowed to walk on it after 12 hours)
4. It is possible to construct with a single product without separate topcoat and primer.
5. It can be used in the temperature range of -40°C to 120°C after construction.
6. It has excellent mechanical strength and wear resistance.
7. It suppresses the reproduction of mold, spawn, etc. on the surface of flooring materials.
8. It has excellent adhesion, abrasion resistance, durability, and impact resistance.
9. Matte is mainly used, as it has a great slip resistance.
10. This material is suitable for HACCP and GMP certification.

Product Overview ECO-CRETE

Specification ECO-CRETE

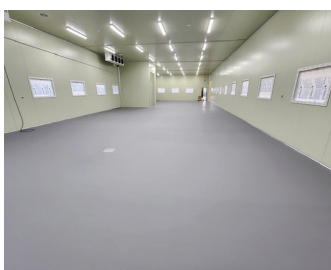
Product name	Mixing ratio	Film thickness	Color	Gloss
ECO-CRETE 200 SL	3.4/3.6/16kg	4mm	Gray, Green, Red Brown, Iron Yellow, Beige	Matte
ECO-CRETE 200 HD	3.4/3.6/32kg	6mm	Gray, Green, Red Brown, Iron Yellow, Beige	Matte

Physical Property Data

Compressive strength	Flexural strength	Adhesion strength	Water absorption
More than 65 N/mm ²	More than 20 N/mm ²	More than 1.5 N/mm ²	0ml

ECO-CRETE Applications

1. Broiler processing, milk, meat processing, confectionery, baking, frozen food, pastes, kimchi processing factories, etc.
2. Refrigeration, frozen warehouse
3. Liquor Factory, Beverage Factory
4. Restaurant kitchen, Cooking room
5. Logistics Warehouse and Parking Lot



ECO-CRETE Basic Colors

Gray



Green



Red Brown



Iron Yellow



Beige



- * ECO-CRETE may show yellowing under UV light, and image color may vary depending on the type and field conditions.
- * In addition to the basic colors, it can be manufactured in any color of your choice.

ECO-CRETE Construction method

Surface Treatment



1. Completely remove laitance, moisture, sand, dust and other foreign substances from the surface.
2. Cure concrete for at least 28 days at a temperature of 21°C and the proper pH of the material must be maintained at 7~9 or less, and the percentage of moisture content must be less than 6%.
3. Concrete must satisfy the minimum compressive strength of 25 N/mm² and the adhesive strength of 1.5 N/mm² or more.
4. Damaged concrete is removed, and voids or dents in the material are flattened before main construction by using ECO-CRETE.
5. Edges: Edges of ECO-CRETE, such as in borders and around drains, require pre-treatment to ensure that they are not subjected to mechanical or thermal effects. These parts should be cut to make a groove, and the width and depth of the groove should be about twice the thickness of the construction.
6. Construction joints: Construction joints must be made in areas where other materials intersect, where vibrations occur, around areas with periodic movements, in locations where joints are separated under thermal influence, etc.

Baseboard



Work is carried out using a round trowel so that the area where the horizontal and vertical surfaces meet has a width of 5 cm on the vertical surface and 4 cm on the horizontal surface.

1st coat



1. The first scraping is performed with ECO-CRETE 200.
2. Pin-holes may occur if the concrete mortar material with low strength is applied only once.
In order to obtain a clean surface, scrape with a trowel to a thickness of less than 1mm.
3. At this time, apply the paint thin enough to show the pattern of powder particles.

Main coat



1. Main coating is applied with ECO-CRETE 200.
2. After 1st coat(scraping), pour the paint and spread it out using a trowel, sawtooth, scraper. At the same time, do the spike roller work from the side to remove air bubbles and increase the smoothness of the coating film to a total film thickness is 4mm or more.

ECO-CRETE Technical Data

ECO-CRETE 200 SL

This paint is a four-component flooring material for concrete that is composed of base, hardener, powder and color by using the binding between polyurethane resin and inorganic powder. It is a non-solvent type eco-friendly product with excellent physical performance in terms of abrasion resistance, chemical resistance and impact resistance as well as excellent boiling water resistance compared to other flooring materials. It is possible to form a thick film of about 4mm with a single film of uniform thickness, and it has excellent smoothness and workability.

I Usage

Concrete flooring for indoor factory floors and parking lots in food factories and freezer warehouses

I Characteristics

1. Product type: Polyurethane resin/powder/(4 component)
2. Curing time

Category	5°C	20°C	30°C
Set-to-touch	12 hours	6 hours	3 hours
Dry-through	24 hours	12 hours	8 hours
Over-coat (Min.)	24 hours	16 hours	12 hours
Over-coat (Max.)	72 hours	48 hours	36 hours
Pot life	25 minutes	20 minutes	15 minutes

3. Specific gravity: 1.9 (Based on green color)
4. Theoretical coating amount: 8kg/m² (4mm)
5. Mixing ratio (weight) = Base/Hardener/Powder/Color = 3.4/3.6/16.0
6. Physical properties

Division	20°C
Compressive strength	More than 65 N/mm ²
Flexural strength	More than 20 N/mm ²
Tensile strength	More than 10 Mpa
Adhesion strength	More than 1.5 N/mm ²
Hardness	More than Shore D 60

All data are written based on theory and experience in the laboratory, but are subject to change without notice due to our continuous quality improvement. The amount of application depends on the type of surface to be coated. Surface roughness may change depending on the climatic conditions and coating method at the time of application, so please use it after thoroughly reviewing it.

ECO-CRETE Technical Data

I How to use

1. Surface treatment

- Completely remove the oil, moisture, sand, dust, laitance and other foreign matter from the surface and maintain surface smoothness.
- Please repair severe bumps or cracks with a paste of intermediate coating material.
- Sufficiently dry the surface to be coated.

2. Precautions for use

- In a state where the temperature of the paint is set to 10°C to 20°C, the base and the hardener are first mixed in the specified ratio and mixed well for 30 to 60 seconds.
- Then, add the specified amount of powder into the paint slowly, without pouring all at once. After adding the powder, mix it further for about 2 to 3 minutes.
- After uniformly mixing the base and hardener using a power stirrer, divide the powder into 2-3 times and stir evenly for 2-3 minutes.
- This product has a short pot life, so if you use it after its pot life, defects such as poor leveling and bubble generation may occur.
- Keep the specified mixing ratio accurately.
- Use the product within the pot life.
- If the concrete substrate is weak or the substrate treatment is insufficient, a part of the substrate and the coating may be lifted together.
- Thorough surface treatment and removal of old coating are required.

3. Coating method

- 1st coat - As a product that does not require primer, apply ECO-CRETE 200 SL mixed on the concrete surface using a trowel without missing parts of 1mm or less.
- 2nd main coating - Use a sawtooth scraper, rubber scraper, and pitchfork to apply the product to the first scraped floor surface smoothly.
- At the same time use a spike roller to remove air bubbles in the coating.

I Precautions

- Do not use when the temperature is below 5°C or the relative humidity is over 85%.
- The recommended temperature for use is 15~30°C, and when coating at 5~15°C, a hardening accelerator recommended by our company should be added.
- In case of contact with skin, wipe off immediately and wash with soapy water.

I Precautions during construction

- Coating work should be performed under the conditions of air temperature of 10°C~30°C and relative humidity of 85% or lower.
- Do not apply on asphalt, tile surfaces, perforated bricks, or concrete with weak strength.
- For construction, the temperature of the floor surface must be higher than the dew point by more than 3°C, and it is appropriate to construct on a concrete surface with a moisture content of 6% or less.
- Do not thin the end of the flooring.
- Confirm the color number before construction.
- Mix using a power tool.

All data are written based on theory and experience in the laboratory, but are subject to change without notice due to our continuous quality improvement. The amount of application depends on the type of surface to be coated. Surface roughness may change depending on the climatic conditions and coating method at the time of application, so please use it after thoroughly reviewing it.

ECO-CRETE Technical Data

ECO-CRETE 200 HD

This paint is a four-component flooring material for concrete that is composed of base, hardener, powder and color by using the binding between polyurethane resin and inorganic powder. It is a non-solvent type eco-friendly product with excellent physical performance in terms of abrasion resistance, chemical resistance and impact resistance as well as excellent boiling water resistance compared to other flooring materials. It is possible to form a thick film of about 6mm with a single film of uniform thickness, and it has excellent smoothness and workability.

I Usage

Concrete flooring for indoor factory floors and parking lots in food factories and freezer warehouses

I Characteristics

1. Product type: Polyurethane resin/powder/(4 component)
2. Curing time

Category	5°C	20°C	30°C
Set-to-touch	12 hours	6 hours	3 hours
Dry-through	24 hours	12 hours	8 hours
Over-coat (Min.)	24 hours	16 hours	12 hours
Over-coat (Max.)	72 hours	48 hours	36 hours
Pot life	25 minutes	20 minutes	15 minutes

3. Specific gravity: 2.0 (Based on green color)
4. Theoretical coating amount: 12kg/m² (6mm)
5. Mixing ratio (weight) = Base/Hardener/Powder/Color = 3.4/3.6/32.0
6. Physical properties

Division	20°C
Compressive strength	More than 65 N/mm ²
Flexural strength	More than 20 N/mm ²
Tensile strength	More than 10 Mpa
Adhesion strength	More than 1.5 N/mm ²
Hardness	More than Shore D 60

All data are written based on theory and experience in the laboratory, but are subject to change without notice due to our continuous quality improvement. The amount of application depends on the type of surface to be coated. Surface roughness may change depending on the climatic conditions and coating method at the time of application, so please use it after thoroughly reviewing it.

ECO-CRETE Technical Data

I How to use

1. Surface treatment

- Completely remove the oil, moisture, sand, dust, laitance and other foreign matter from the surface and maintain surface smoothness.
- Please repair severe bumps or cracks with a paste of intermediate coating material.
- Sufficiently dry the surface to be coated.

2. Precautions for use

- In a state where the temperature of the paint is set to 10°C to 20°C, the base and the hardener are first mixed in the specified ratio and mixed well for 30 to 60 seconds.
- Then, add the specified amount of powder into the paint slowly, without pouring all at once. After adding the powder, mix it further for about 2 to 3 minutes.
- After uniformly mixing the base and hardener using a power stirrer, divide the powder into 2-3 times and stir evenly for 2-3 minutes.
- This product has a short pot life, so if you use it after its pot life, defects such as poor leveling and bubble generation may occur.
- Keep the specified mixing ratio accurately.
- Use the product within the pot life.
- If the concrete substrate is weak or the substrate treatment is insufficient, a part of the substrate and the coating may be lifted together.
- Thorough surface treatment and removal of old coating are required.

3. Coating method

- 1st coat - As a product that does not require primer, apply ECO-CRETE 200 HD mixed on the concrete surface using a trowel without missing parts of 1mm or less.
- 2nd main coating - Use a sawtooth scraper, rubber scraper, and pitchfork to apply the product to the first scraped floor surface smoothly.
- At the same time use a spike roller to remove air bubbles in the coating

I Precautions

- Do not use when the temperature is below 5°C or the relative humidity is over 85%.
- The recommended temperature for use is 15~30°C, and when coating at 5~15°C, a hardening accelerator recommended by our company should be added.
- In case of contact with skin, wipe off immediately and wash with soapy water.

I Precautions during construction

- Coating work should be performed under the conditions of air temperature of 10°C~30°C and relative humidity of 85% or lower.
- Do not apply on asphalt, tile surfaces, perforated bricks, or concrete with weak strength.
- For construction, the temperature of the floor surface must be higher than the dew point by more than 3°C, and it is appropriate to construct on a concrete surface with a moisture content of 6% or less.
- Do not thin the end of the flooring.
- Confirm the color number before construction.
- Mix using a power tool.

All data are written based on theory and experience in the laboratory, but are subject to change without notice due to our continuous quality improvement. The amount of application depends on the type of surface to be coated. Surface roughness may change depending on the climatic conditions and coating method at the time of application, so please use it after thoroughly reviewing it.

ECO-CRETE Test Report

KCL
TEST REPORT

1. NO : CT20-02948E
2. Client : Minor Paint & Coatings Co., Ltd
3. Address : Bakda1-ro 351, Manan-gu, Anyang-si, Gyeonggi-do
4. Date of Test : 2020.01.15 ~ 2020.02.13
5. Test Sample : ECO-CRETE
6. Test Method : (1) JIS Z 2901:2012
7. Test Results

Test Item(s)	Unit	Test Method	Test Results	Remark
Hardness (D)	N/mm ²	ISO 9080	5.5	28.3 ± 3.1 N/mm ² 19.2 ± 3.1 N/mm ² 18.2 ± 3.1 N/mm ²
Compressive Strength	N/mm ²	ISO 9080	5.5	28.3 ± 3.1 N/mm ² 19.2 ± 3.1 N/mm ² 18.2 ± 3.1 N/mm ²
Tensile Strength	N/mm ²	ISO 9080	5.5	28.3 ± 3.1 N/mm ² 19.2 ± 3.1 N/mm ² 18.2 ± 3.1 N/mm ²

Tested By: Lee, Jeong-yeon
Technical Manager: Park Sanghyo

2020.02.13
Korea Conformity Laboratories President: Yoon, Kap Seok

KTR
TEST REPORT

86, Gyeongsan-ro, Gwacheon-si, Gyeonggi-do, 13800, Korea
Report No: T24C-2019-10366
Representative: Jin Myeong Ho, Kim Yong Kee
Company name: NORDO Paint & Coatings Co., Ltd.
Address: (Bakda1-ro351), Bakda1-ro, Manan-gu, Anyang-si, Gyeonggi-do, Korea

TEST RESULTS

TEST ITEM	UNIT	SAMPLE	RESULT	TEST METHOD
Hardness (D)	-	-	-	84 KS M 6518 : 2016 (*)
Compressive Strength	N/mm ²	-	-	60.4 KS F 4042 : 2012
Tensile Strength	N/mm ²	-	-	18.4 KS F 4042 : 2012

2020.02.24
Korea Testing & Research Institute President: Park Sanghyo

KTR
TEST REPORT

86, Gyeongsan-ro, Gwacheon-si, Gyeonggi-do, 13800, Korea
Report No: T24C-2019-10367
Representative: Jin Myeong Ho, Kim Yong Kee
Company name: NORDO Paint & Coatings Co., Ltd.
Address: (Bakda1-ro351), Bakda1-ro, Manan-gu, Anyang-si, Gyeonggi-do, Korea

TEST RESULTS

TEST ITEM	UNIT	SAMPLE	RESULT	TEST METHOD
Impact Resistance	-	-	-	No defects KS F 4857 : 2009
Adhesion Strength	N/mm ²	-	-	2.9 KS F 4857 : 2009
Wear Resistance - Surface	-	-	-	No defects KS F 4857 : 2009
Wear Resistance - Abrasion	-	-	-	0.3 KS F 4857 : 2009
Wear Resistance - Abrasion (Weight Loss)	mg	-	-	90 ASTM D4898-15
TVOC emission	mg/m ³ ·h	-	-	0.177 KS F 4857 : 2009
Toluene emission	mg/m ³ ·h	-	-	0.05 below KS F 4857 : 2009
Formaldehyde emission	mg/m ³ ·h	-	-	0.05 below KS F 4857 : 2009

2020.02.05
Korea Testing & Research Institute President: Park Sanghyo

KTR
TEST REPORT

86, Gyeongsan-ro, Gwacheon-si, Gyeonggi-do, 13800, Korea
Report No: T24C-2019-10368
Representative: Jin Myeong Ho, Kim Yong Kee
Company name: NORDO Paint & Coatings Co., Ltd.
Address: (Bakda1-ro351), Bakda1-ro, Manan-gu, Anyang-si, Gyeonggi-do, Korea

TEST RESULTS

TEST ITEM	UNIT	SAMPLE	RESULT	TEST METHOD
Compressive Strength	N/mm ²	-	-	60.3 KS F 4042 : 2012
Tensile Strength	N/mm ²	-	-	11.3 KS F 4042 : 2012
Abrasion Resistance (Weight Loss)	mg	-	-	90 ASTM D4898-15

2020.03.05
Korea Testing & Research Institute President: Park Sanghyo

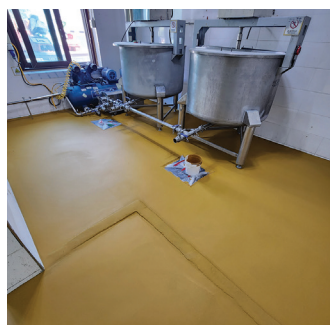
KTR
TEST REPORT

86, Gajae-ro, Seon-gu, Incheon, 22629, Korea
Report No: T24C-2019-10369
Representative: Jin Myeong Ho, Kim Yong Kee
Company name: NORDO Paint & Coatings Co., Ltd.
Address: (Bakda1-ro351), Bakda1-ro, Manan-gu, Anyang-si, Gyeonggi-do, Korea

TEST RESULTS

TEST ITEM	UNIT	SAMPLE	RESULT	TEST METHOD
Compressive Strength	N/mm ²	-	-	20.0 KS F 4042 : 2012
Tensile Strength	N/mm ²	-	-	11.3 KS F 4042 : 2012
Abrasion Resistance (Weight Loss)	mg	-	-	90 ASTM D4898-15

2020.02.20
Korea Testing & Research Institute President: Lee Seung-yeon



Warnings and Precautions

I Warning

- 1) Keep out of reach of children. It is prohibited to apply on utensils and food storage containers for infants and children. Be sure to coat with low-toxic product that has undergone a safety inspection.
- 2) Since the contents can cause health problems (headache, dizziness, dermatitis and other symptoms), absolutely prohibit intake and avoid inhalation of steam and skin contact. When working, wear safety protective equipment (gas mask, painting clothes, etc.).
- 3) Do not coat in an enclosed area.
- 4) If there is insufficient ventilation, there is a risk of suffocation, so during coating and drying, provide sufficient ventilation.
- 5) There is a risk of fire, so storage and use near fire is prohibited.
[In case of fire, use powder class B and gas fire extinguisher]
- 6) When storing or moving, seal the container and store it in a cool and dark place at room temperature.
In case of spillage, absorb it with sawdust or sand.
- 7) Do not use for purposes other than intended (smelling, fuel use, etc.), and do not throw or strike the product.
- 8) In case of ingestion, seek medical advice immediately, and in case of skin contact, wash thoroughly with plenty of soapy water.

I Precautions

- 1) Store the product in a cool, dry place at room temperature (5~35°C), and keep the container tightly closed and the inlet facing upward.
- 2) Avoid painting work when it is raining or when humidity is high (over 85%) as normal physical properties cannot be exhibited. (Problems with property degradation and adhesive strength may occur.)
- 3) Please use after checking the compatibility with the old coating when repairing.
(Contact the agency or consumer service center)
- 4) During painting, there may be a different color phenomenon depending on the painting equipment and painting method. So, paint under the same working conditions and check the color before working, and then apply if there is no problem.
- 5) Do not use this product by mixing it with other paints.
- 6) Since the hardener reacts with moisture to deteriorate, open and use only the necessary amount if possible.
- 7) After completing the painting work, wash the exposed skin thoroughly.
- 8) To prevent environmental pollution, dispose of the contents after complete use, and dispose of the remaining amount through a waste disposal company designated by the Ministry of Environment.
- 9) When stored for a long time, deterioration may occur, so use within the expiration date.
- 10) As a 3-component product, be sure to mix the base, hardener, and powder in an appropriate ratio before use.

NOROO Paint & Coatings Co., Ltd.
351, Bakdal-ro, Manan-gu, Anyang-si
Gyeonggi-do, 13977 Korea

www.noroopaint.com

NOROO Paint & Coatings