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Wet installed waterproofing sheets

湿铺防水卷材

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Wet installed waterproofing sheets

1 Scope

This standard specifies the classification, requirements, test methods, inspection rules, marking, packaging, storage and transportation of wet installed waterproofing sheets.

This standard applies to self-adhesive polymer-modified asphalt waterproofing sheets that use cement paste or cement mortar bonded to the concrete base.

2 Normative references

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) are applicable to this standard.

GB/T 328.2 Test methods for building sheets for waterproofing - Part 2: Bitumen sheets for waterproofing - Visible defects

GB/T 328.8 Test methods for building sheets for waterproofing - Part 8: Bitumen sheets for waterproofing - Tensile properties

GB/T 328.9-2007 Test methods for building sheets for waterproofing - Part 9: Plastic and rubber sheets for waterproofing - Tensile properties

GB/T 328.10-2007 Test methods for building sheets for waterproofing - Part 10: Bitumen plastic and rubber sheets for waterproofing - Water tightness

GB/T 328.11-2007 Test methods for building sheets for waterproofing - Part 11: Bitumen sheets for waterproofing-flow resistance at elevated temperature

GB/T 328.14 Test methods for building sheets for waterproofing - Part 14: Bitumen sheets for waterproofing - Flexibility at low temperature

GB/T 328.20 Test methods for building sheets for waterproofing - Part 20: Bitumen sheets for waterproofing - Resistance to peeling of joints

GB/T 328.26 Test methods for building sheets for waterproofing - Part 26: Bitumen sheets for waterproofing - Dissoluble composite of membrane (impregnated and coated asphalt amount)

GB/T 529-2008 Rubber, vulcanized or thermoplastic - Determination of tear strength (Trouser, angle and crescent samples)

JG/T 245 Vibrating table for concrete test

3 Categories

3.1 Type

The products are divided into polymer film-based waterproofing membranes, polyester tire-based waterproofing membranes (PY); polymer membrane-based waterproofing membranes are divided into high-strength (H-type) and high-elongation (E-type). The polymer film can be located on the surface or in the middle of the sheet.

Products are divided into single-sided adhesive (S) and double-sided adhesive (D) according to the bonding surface.

3.2 Specifications

Product thickness:

Categories H and Class E are 1.5 mm and 2.0 mm.

Category PY is 3.0 mm.

Other specifications can be agreed between the supplier and the purchaser.

3.3 Marking

Products are marked in order of name, this standard number, type, bonding surface, full thickness, area.

Example: 10 m^2 3.0 mm double-sided adhesive polyester wet installed waterproof sheet is marked as:

Wet installed waterproofing sheet GB/T 35467-2017-PY D 3.0-10.

3.4 Purpose

The wet installed waterproofing sheet is used for non-exposed waterproofing projects. Cement paste or cement mortar is used to bond the concrete base. It should use self-bonding overlap between the sheets.

4 Requirements

4.1 Area, mass per unit area, thickness

of the anti-sticking material. Use the average value of the 5 points as the thickness of the sheet. The thickness does not include particles on the surface of the sheet. For products of sanding surface or with particulate matter, it shall be measured within about 1 m range length of the edge of the sheet.

5.6 Appearance

It is performed according to GB/T 328.2.

5.7 Soluble content

It is performed according to GB/T 328.26.

5.8 Tensile properties

5.8.1 Categories H and E sheets

It is performed according to the method A in GB/T 328.9-2007. Adjust the distance between the fixtures. The distance between the marked lines is 100 mm. Record the maximum tensile force (N) and the elongation at the maximum tensile force (%). Take the average of 5 samples in the same direction. For the tensile force, multiply the test result by 2 to convert the unit to N/50 mm. Perform test along the longitudinal and lateral directions, respectively. Record whether the rubber layer is separated from the polymer film during tension. If the sample is still not broken when the test machine tensions to the limit position, it may shorten the spacing between the fixtures and change the spacing between the marked lines to 50 mm. Use a new sample to perform test again. The elongation rate is calculated by the spacing between the marked lines. The arithmetic mean of the longitudinal test results, the arithmetic mean of the lateral test results, the arithmetic mean during tension shall meet the requirements.

5.8.2 Category PY sheets

It is performed according to GB/T 328.8. Record whether the rubber layer and the base are separated. The arithmetic mean of the longitudinal test results, the arithmetic mean of the lateral test results, the arithmetic mean during tension shall meet the requirements.

5.9 Tear force

5.9.1 Categories H and E sheets

It is performed according to GB/T 529-2008. Use the cut-free right-angled sample to directly read the maximum tensile force value; the result is expressed by the force value; the tensile speed is 250 mm/min.

Calculate the arithmetic mean of the tensile force of 5 samples in the same direction as the longitudinal or lateral tear force of the sheet, respectively, in the

temperature.

5.11 Low temperature flexibility

It is performed according to GB/T 328.14. The bending shaft's diameter of the categories H and E products is 20 mm; the bending shaft's diameter of the category PY products of 3.0 mm thickness is 30 mm. Take 10 samples in the longitudinal direction. Respectively perform test at the upper surface of 5 samples and lower surface of the other 5 samples. When at least 4 samples have no crack under visual observation for the 5 samples at each side, this side passes the test. When both sides pass the test, it is deemed as complying with the requirements of low temperature flexibility.

5.12 Impermeability

It is performed according to the method B of GB/T 328.10-2007. The categories H and E sheets use cross slotted discs; the category PY sheets use 7-hole discs; the test time is 120 min. Remove the anti-adhesive material and cover the filter paper to avoid sticking. When the three samples are impermeable at the specified pressure and the specified time, it is deemed as complying with the impermeability requirements.

5.13 Peel strength between sheets (lap edge)

5.13.1 No treatment

It is performed according to GB/T 328.20. Cut a sample at the overlap of the longitudinal long side of the sheet. Cut another sample on the other side opposite to the longitudinal long side of the sheet. Remove all the anti-adhesive material on the surface of the sample. The lower surface of the one sample is bonded to the upper surface of the other sample. The bonding surface is (50 × 75) mm. It is repeatedly rolled 3 times by a pressure roller which has a mass of 2 kg and a width of 50 mm ~ 60 mm. After bonding, it is left for 24 hours.

Divide the maximum peeling force by the width of the sample to get the result of the peel strength of the sample, in the unit of N/mm. The test result is the arithmetic mean of the results of 5 samples.

5.13.2 Immersion treatment

The sample as overlapped according to 5.13.1 is immersed in (23 ± 2) °C water for (168 ± 2) h. Take it out and dry the surface. Then perform the test according to 5.13.1.

5.13.3 Heat treatment

Put the two non-overlapped samples without removing the surface insulation material horizontally into a (70 ± 2) °C oven for (168 ± 2) h. Take them out and

place it at (23 ± 2) °C for 24 h. Cut the processed samples. It is performed according to 5.13.1.

5.14 Oil permeability

Remove the anti-adhesive material on the lower surface of the sample. Place the adhesive side down on 5 layers of medium-speed qualitative filter paper which has an area of not smaller than the sample. Then use aluminum foil to seal and wrap the filter paper and sample. Horizontally place it on a glazed tile. Let the filter paper at lower side. Add a 1 kg weight on the sample. The contact surface of the weight is not less than the size of the sample. Then place the sample in an oven that has been adjusted to a temperature of (80 ± 2) °C; place it horizontally for 24 h ± 15 min. Then place it at (23 ± 2) °C for 2 h. Check the number of sheets with permeable oil.

All filter papers with traces of contamination are counted as permeable. The maximum number of sheets with permeable oil in the 3 samples is used as the test result.

5.15 Adhesion

At (23 ± 2) °C, stick the sample to two mirror stainless steel plates which have a thickness of not less than 1.5 mm and whose surface had been cleaned and smoothed by a solvent. The bonding area of the upper stainless steel plate is (50 × 50) mm. After removing the anti-adhesive material from the adhesive part of the sample, it is not allowed to contact with hands and other objects. Immediately attach it to the stainless steel plate. Then use a pressure roller which has a mass of 2 kg and a width of 50 mm ~ 60 mm to repeatedly roll it 3 times.

After placing the bonded sample at (23 ± 2) °C for 24 hours, hang it vertically in the direction as shown in Figure 2. Hang a 1 kg weight (including the mass of the lower plate) on the lower end of the lower plate. Start time keeping. Record the time required for the sample to completely peel off from the upper plate, in the unit of min. Take the average of the test results of 5 samples. If it is not peeled for more than 60 min, it is recorded as more than 60 min.

The double-side self-adhesive products are carried out on both sides; when both sides pass the test, it is deemed as complying with the adhesion requirements.

5.17 Peel strength after immersion in cement mortar

Prepare and cure the sample according to 5.16.1.1. Immerse it in water at (23 ± 2) °C for 28 d ± 2 h. Then perform the test according to 5.16.1.2.

5.18 Thermal aging

5.18.1 Categories H and E sheets

Place the sample flatly on a plywood with a larger size, with the adhesive side facing up; the insulation material on the surface of the adhesive layer is retained. It may place a non-woven fabric of similar size and 3 mm ~ 4 mm thick aluminum-plastic plate on the adhesive side to avoid rolling up. Place it horizontally in an oven at (80 ± 2) °C for (168 ± 2) h. Take it out and place at (23 ± 2) °C for 24 h. Then cut the sample. Follow 5.8.1 to measure the tensile performance. Use the formula (1) to calculate the retention rate. Follow 5.11 to determine the low temperature flexibility.

$$Q = \frac{q_1}{q_0} \times 100\% \qquad \cdots\cdots (1)$$

Where:

Q - Tensile force, elongation retention rate, expressed in %;

q_1 - Tensile force, elongation value after thermal aging;

q_0 - Tensile force, elongation value before thermal aging.

The test results are the average of 5 samples in the same direction. It shall meet the requirements in both longitudinal and lateral directions.

5.18.2 Category PY sheets

Retain the isolation materials of the sample. Horizontally place it in an oven at (80 ± 2) °C for (168 ± 2) h. Take it out and place it at (23 ± 2) °C for 24 h. Follow the 5.8.2 to measure the tensile performance. Follow the 5.8.1 to calculate the retention rate. Follow 5.11 to determine the low temperature flexibility.

5.19 Size change rate

Place the sample flatly on a plywood with a slightly larger size, with the adhesive side facing up. Retain the isolation material at the surface of adhesive layer. It may place a non-woven fabric of similar size and 3 mm ~ 4 mm thick aluminum-plastic plate on the adhesive layer to avoid rolling up. Then horizontally place the sample in an oven at (90 ± 2) °C for 24 h ± 15 min. Take it out and place it at (23 ± 2) °C for 2 h. Flatten the sample flatly. Measure the longitudinal size and lateral size of the polymer film base or polyester tire base of the sample at

properties of the batch of products are judged to be qualified. If only one of the items does not meet the requirements of this standard, it allows to randomly take another 1 coil from this batch of product to retest the single item. If it is qualified, the physical and mechanical properties of the batch are qualified; otherwise the physical and mechanical properties of the batch are not qualified .

6.4.3 General judgment

When the exit-factory inspection results all meet the relevant requirements of Chapter 4, this batch of products is qualified.

When the results of the type inspection test meet all the requirements of Chapter 4, the batch of products is judged to be qualified.

7 Marking, packaging, storage, transportation

7.1 Marking

The product's outer packaging shall include:

a) Product name;

b) Manufacturer name and address;

c) Trademark;

d) Product marking;

e) Production date or batch number;

f) Precautions for storage and transportation;

g) Inspection conformity identification.

7.2 Packaging

Products are packaged in a manner suitable for storage and transportation.

7.3 Storage and transportation

During storage and transportation, products of different types and specifications shall be stacked separately and shall not be mixed. Avoid sunlight and rain; pay attention to ventilation. Keep away from fire. The storage temperature shall not be higher than 45 °C. The stacking height of the sheet shall not exceed 5 layers when stored flatly. When it is stored vertically, it shall be stacked in single layer.

Prevent tilting or side pressure during transportation; cover with cloth when necessary.

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