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Vinyl ester resin concrete electrolytic cell made by monolithic casting

整体浇筑乙烯基树脂混凝土电解槽

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Vinyl ester resin concrete electrolytic cell made by monolithic casting

1 Scope

This standard specifies the product marking, requirements, test methods, inspection rules, marking, transportation and storage of vinyl ester resin concrete electrolytic cell made by monolithic casting (commonly known as vinyl resin in the industry).

This standard applies to vinyl ester resin concrete electrolytic cell made by monolithic casting for the purpose of non-ferrous metal hydrometallurgy, with acid-resistant quartz sand as reinforcing aggregate and vinyl ester resin as binder, as well as vinyl ester resin electrolytic cells with similar different use environments.

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) is applicable to this standard.

GB/T 1410 Methods of test for volume resistivity and surface resistivity of solid electrical insulating materials

GB 50212 Specification for construction and acceptance of anticorrosive engineering of buildings

DL/T 5150 Test code for hydraulic concrete

JGJ 51 Technical specification for lightweight aggregate concrete

3 Terms and definitions

The following terms and definitions apply to this document.

3.1

Vinyl ester resin concrete

A concrete material made of vinyl ester resin as a binder, acid-resistant quartz sand as a reinforcing aggregate, by adding initiator and accelerator.

the test result.

6.10 Full water test

Fix the support seat on the test platform according to the actual support working condition of the electrolytic cell; place the electrolytic cell in position. Plug the drain port; fill the cell with water (normal temperature) to the overflow port position; keep it for 24 hours. U-shaped clamps and other protective devices can be set on the electrolytic cell, to prevent the cell from deforming; the platform and support seat shall have sufficient strength and rigidity.

6.11 Dimension stability test

The dimensional stability of the electrolytic cell is tested by load temperature simulation test. The test load is 1.2 times the actual working condition of the electrolytic cell; the test water temperature shall be 10 °C higher than the actual working condition temperature of the electrolytic cell. For the recommended test method, refer to Appendix A.

7 Inspection rules

7.1 Inspection items

7.1.1 Exit-factory inspection

The exit-factory inspection items are the appearance inspection, dimensional tolerance inspection, and full water test specified in Table 2 of Chapter 5.

7.1.2 Type inspection

The type inspection items are the contents specified in 5.2 and 5.3.

Type inspection shall be carried out in any of the following situations:

a) Before the product is successfully manufactured for the first time and put into normal production;

b) Where there are major changes in materials and processes that may affect product performance;

c) When production is resumed after one year of suspension;

d) When normal production reaches 3 years;

e) When the national quality supervision department proposes a type inspection requirement.

7.2 Sampling rules

7.2.1 Exit-factory inspection sampling

During exit-factory inspection, the product shall be 100% inspected by the quality inspection department of the manufacturer.

7.2.2 Type inspection sampling

When conducting type inspection of vinyl ester resin concrete material performance, the vinyl ester resin concrete material shall be randomly selected during the casting process of the electrolytic cell; no additional preparation is allowed. The test pieces to be tested shall be 3 groups; the number of test pieces in each group shall comply with the relevant inspection standards. One group is used for the initial inspection. If it fails, the other two groups are used for double sampling and re-inspection.

When conducting type inspection of vinyl ester resin concrete electrolytic cell products made by monolithic casting, a batch of electrolytic cell products shall be randomly selected for inspection; then 3 units from the batch shall be randomly selected as samples, one for the initial inspection, if it fails, the other two for double sampling and re-inspection. 100 electrolytic cell products produced continuously with the same raw materials and the same production process are regarded as a batch; if it is less than 100 units, they are counted as a batch.

7.3 Judgment rules

7.3.1 Exit-factory inspection judgment

During exit-factory inspection, if all three inspection items of appearance inspection, external dimension tolerance inspection, full water test are qualified, it is judged as qualified products; otherwise, it is unqualified products.

7.3.2 Type inspection judgment

During type inspection, if all inspection items are qualified, the batch is judged as qualified products; if there are unqualified items in the inspection items, the unqualified items will continue to be doubled for re-inspection. If they are still unqualified, the batch is judged as unqualified products.

Disposal of unqualified products: If one of the appearance inspection and full water test fails, it will be treated as waste.

8 Marking, transportation and storage

8.1 Marking

Each product shall be marked with product model, product number, production date,

Appendix A

(Informative)

Dimensional stability test method

A.1 Instruments and equipment

Instruments and equipment include dial indicator (division value 0.01 mm) or displacement sensor, thermometer or thermocouple (accuracy not greater than 1 °C), electric heater, test platform, dial indicator bracket.

A.2 Test conditions

The test load is 1.2 times the actual working condition; the test water temperature shall be 10 °C higher than the normal working temperature of the electrolytic cell.

A.3 Distribution of measurement points

Since the structure of the electrolytic cell is basically symmetrical and the load it bears is evenly and symmetrically distributed, it is approximately assumed that the deformation of the electrolytic cell is also symmetrical; 20 detection points are selected to be arranged within the range of one-half of the side wall of the cell and one-half of the bottom plate. If the electrolytic cell is an asymmetric structure with an inclined bottom, the arrangement range of the 20 detection points is selected on the side wall and bottom plate of the cell at one end of the short support leg.

Distribution of measurement points on the long side wall: On the vertical dividing lines that divide the length of the 3 side walls into six equal parts, 3 measurement points are arranged at 2 points on each dividing line that divides it into three equal parts and 1 point on the upper edge of the cell, for a total of 9 measurement points.

Distribution of measurement points on the short side wall: 3 measurement points are arranged at 2 points on the vertical center line of the short side wall that divides it into two equal parts and 1 point on the upper edge of the cell.

Distribution of bottom plate measurement points: 3 measurement points are arranged at 3 points on the four-quarters of the bottom plate's horizontal centerline.

Distribution of overall displacement measurement points of the electrolytic cell: 2 relative measurement points are arranged on the two long side walls near the support seat and 20 mm away from the bottom plate; 2 relative measurement points are arranged on the two short side walls near the bottom corner of the cell and 20 mm away from the bottom plate; 1 measurement point is arranged on the bottom plate 20 mm away from the support seat, for a total of 5 measurement points.

The distribution positions of the measurement points on the long side wall, short side

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