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Dipped reinforcing materials - Test method for moisture content

浸胶骨架材料 含水率试验方法

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part

1.Structure and Drafting Rules of Standardization Documents". Drafting. Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents. This document was proposed by the China Petroleum and Chemical Industry Federation. This document is under the jurisdiction of the National Technical Committee on Standardization of Rubber and Rubber Products (SAC/TC35). This document was drafted by: Jinhua Yalun Chemical Fiber Co., Ltd., Anhui Huaye Special Materials Co., Ltd., and Qingdao Haishengtai Materials Co., Ltd. Company, Changzhou Chaofeng Adhesive Wire Technology Co., Ltd., Qingdao Sanxiang Technology Co., Ltd., Qingdao University of Science and Technology. The main drafters of this document are. Xiang Ruiyang, Shi Jie, Liu Xiao, Yang Jie, Shang Shihao, Zhang Baogang, Zhuge Leke, and Xiang Xin. Test method for moisture content of impregnated skeleton materials

1.Scope This document describes the experimental principle, equipment and tools, and procedures for determining the moisture content of resin-impregnated skeleton materials using an oven hot air drying method. General rules, test procedures, data calculation, and test reports. This document applies to the determination of moisture content and moisture regain of PVC-impregnated reinforcing materials such as tire cord fabric, canvas, rope, and yarn.

4.Experimental Principle After weighing the sample, it is placed in an oven at a specified temperature until a constant weight is reached. During this process, the mass loss of the sample is related to its initial mass before drying. The ratio of the mass loss of the sample to the mass after drying is the moisture content of the sample, and the ratio of the mass loss of the sample to the mass after drying is the moisture regain of the sample.

5 Test equipment and tools

5.1 Oven The test oven should be a pressure-type or convection-type ventilated oven, and should meet the following conditions.

a) It has a constant temperature control device;

b) During the drying process, the temperature fluctuation range of the exposed part of the sample is ±2°C.

5.2 Weighing Container The weighing container should be a weighing bottle.

5.3 Dryer The dryer should be able to accommodate one or more weighing containers. The desiccant placed inside the dryer should meet drying requirements, be replaceable, and non-corrosive. Corrosive.

5.4 Balance The analytical balance has an accuracy of

0.1 mg.

6 General Rules for Testing

6.1 Test Environment The test shall be conducted in the test environment specified in GB/T 36798.

6.2 Sampling

6.2.1 Impregnated canvas. The outer layer of the fabric roll should be pulled off, and then test samples should be randomly cut from a distance of at least.200 mm from the edge of the fabric.

6.2.2 Impregnated cord fabric. The outer layer of the fabric roll should be pulled off, and then test samples should be randomly cut from a distance of at least.200 mm from the edge of the fabric.

6.2.3 Resin-impregnated cords and yarns. The outer layer should be removed, and then test samples should be taken from the middle.

6.3 Sample Preparation

6.3.1 Impregnated canvas. Prepare samples of the impregnated canvas into specimens

approximately 100mm x 100mm in size.

6.3.2 Impregnated tire cord fabric. Remove the weft yarn from the sampled impregnated tire cord fabric to prepare a sample. The mass of each sample is approximately 10g~20g.

6.3.3 Impregnated cords and yarns. The mass of each sample of impregnated cords and yarns is approximately 5g.

6.4 Number of Samples

6.4.1 Impregnated canvas. 3 pieces.

6.4.2 Impregnated curtain fabric. 3 pieces.

6.4.3 Impregnated cords and impregnated yarns. 3 items.

7 Test Procedure

7.1 After sampling, the pre-drying mass (G) of the sample should be weighed quickly and recorded, retaining 4 decimal places.

7.2 Turn on the oven power and keep it at a stable temperature of (105±2)°C for 15 minutes.

7.3 Place the weighing bottle containing the sample into the oven, open the weighing bottle cap, and dry until constant weight.

7.4 After sealing the weighing bottle in the oven and transferring it to a desiccator to cool to room temperature, immediately weigh the sample after drying (G0) and record it. To 4 decimal places.

7.5 Calculate the moisture content of the sample. If the relative deviation of the values of two out of the three samples is greater than 10%, the test should be repeated.

8.1 Moisture content

8.1.1 Calculate the moisture content of the sample according to formula (1), and round the result data to three decimal places in accordance with GB/T 8170.

8.1.2 The arithmetic mean of the moisture content of the three samples shall be taken as the test result, and the data shall be rounded to two decimal places in accordance with GB/T 8170.

8.2 Moisture regain

8.2.1 Calculate the moisture regain of the sample according to formula (2), and round the result data to three decimal places in accordance with GB/T 8170.

8.2.2 The arithmetic mean of the moisture regain of the three samples shall be taken as the

test result, and the data shall be rounded to two decimal places in accordance with GB/T 8170.

9 Test Report

The test report should include at least the following.

a) The name and number of this document;

b) Name, batch number, and material of the sample;

c) Number of samples;

d) Test results for moisture content and moisture regain;

e) Any details that deviate from this document;

f) Test personnel and test date.