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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 9914.2-2013

Test method for reinforcement products - Part 2: Determination of combustible-matter content for glass fibre

增强制品试验方法 第2部分：玻璃纤维可燃物含量的测定

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Foreword

This document was issued on 27 November 2013 by the State Administration for Market Regulation; Standardization Administration of the PRC and takes effect on 1 August 2014.

It is a GB/T standard: recommended rather than compulsory, but it is the text a Chinese reviewer applies when assessing a submission.

1 Scope

GB/T 9914.2-2013 covers the measurement of combustible-matter content in glass fibre products - the organic matter that burns away and leaves the glass behind. A dried specimen is weighed, burnt at (625 +/- 20) °C in a muffle furnace and weighed again, and the loss is reported as a mass fraction of the dry product; for glasses that are not stable at that temperature a range of 500 °C to 600 °C may be chosen instead. The part sets out the principle, the instruments - the ventilated oven controlled at (105 +/- 3) °C and the muffle furnace among them - the specimens, the operation, the way the result is expressed, the precision of the method and the test report. It applies to continuous filament yarn, staple fibre yarn and the other reinforcement forms named in its scope. What burns off is not glass, and a buyer of reinforcement who does not know how much of the delivered weight is non-glass cannot compare two lots, or two suppliers, on any honest basis. Part 2 of the GB/T 9914 series on test methods for reinforcement products. Of use to glass fibre producers, composite fabricators and testing laboratories.

This Part of GB/T 9914 specifies the method for determining the combustible-matter

content of glass fiber products.

This method is applicable to continuous fiber yarn, fixed-length fiber yarn, untwisted roving, chopped strands, milled fiber, fabric, chopped strand mat, continuous strand mat and other forms of reinforcement products.

2 Terms and definitions

The following terms and definitions apply to this document.

2.1

Combustible-matter content

The ratio of the loss on ignition of dry glass fiber products to the mass of dry products.

Note: The ratio is expressed as a percentage. When the sizing agent or treatment agent on the glass fiber product is completely burned without residue (i.e., the original organic matter), this value is equal to the content of the sizing agent or treatment agent.

3 Principle

Under specified conditions, place the dry specimen at a temperature of (625 +/- 20) °C and burn it. Weigh the mass of the specimen before and after burning. For glass that is unstable at this temperature, a temperature of 500 °C ~ 600 °C can be selected, which shall be constant within the range of +/-20 °C of the selected temperature.

4 Instruments

4.1 Ventilated oven: The temperature can be controlled at (105 +/- 3) °C or the selected temperature +/-3 °C (see 6.3).

4.2 Muffle furnace: The temperature can be controlled at (625 +/- 20) °C or the selected

The mass of each specimen shall be not less than 5 g, preferably within 15 g ~ 30 g.

5.1.4 Fabric

The mass of each specimen shall be not less than 5 g.

Cut a specimen with an area of 100 cm2. If the specimen mass is less than 5 g, a larger specimen shall be cut or several adjacent specimens with an area of 100 cm2 shall be

taken.

The specimen size can be the same as the specimen for measuring the mass per unit area.

The woven fabric specimen shall be cut at least 10 mm away from the edge of the cloth or the selvedge. If the specimen must be folded, it shall not hinder the flow of air over the entire specimen surface. It is recommended to use a template (4.7) and a shearing tool or a punching device (4.8) to cut the specimen to avoid material loss.

5.1.5 Felt

The mass of the specimen shall be at least 5 g. The recommended specimen is a 316 mm x 316 mm square (0.1 m2); other specimens with a surface area close to 0.1 m2 may also be used. If other specimen shapes are used, the following specimen preparation process shall be modified appropriately.

If more than one squares must be used to achieve the minimum specimen mass, the square specimens shall be cut along the same straight line along the length of the felt roll.

Cut a felt strip at least 316 mm long across the width of the felt and cut the specimens from the felt strip using a template (4.7) and a cutting tool (4.8):

a) Cut a 316 mm x 316 mm specimen at each end of the felt strip (for felt strips with trimmed edges, at least 10 mm from the edge).

b) Cut as many 316 mm x 316 mm specimens as possible between the specimens at the two ends (these specimens shall be evenly distributed).

5.2 Number of specimens

Unless the product specification or the test client has different or more detailed instructions (i.e., quantity and location), the number of specimens per unit product shall be as specified in Table 2.

Note: The number of specimens for the determination of combustible-matter content may vary

depending on the form of the unit product. In addition, the test may be repeated at one or more

locations depending on the mass (chopped strands, milled fibers) or length (fabric, felt) of the

unit product being tested. Additional information on the number of specimens and the sampling

Heat the specimen for at least 30 minutes.

Take the specimen dish and the specimen out of the oven and place them in a desiccator (4.3) to cool for 30 minutes.

Weigh the total mass of the specimen dish and the dried specimen; record it as m1, accurate to 0.1 mg.

Repeat heating, cooling, weighing, until the mass is constant (see Note 3).

6.4 Weigh the mass of the specimen and the specimen dish after burning

Place the specimen dish and the dried specimen in a muffle furnace (4.2); control the furnace temperature at (625 +/- 20) °C or any selected temperature within 500 °C ~ 600 °C (see 6.2).

Open the furnace door; let the specimen burn for 5 minutes (see Notes 1 and 2). Then close the furnace door and burn for another 30 minutes. If the selected temperature is lower than 625 °C, the burning time after closing the furnace door shall be increased to at least 1 hour.

Move the specimen and the specimen dish from the muffle furnace into a desiccator (4.3); cool to room temperature.

Weigh the total mass of the specimen dish and the specimen after burning; record it as m2, accurate to 0.1 mg.

Repeat heating, cooling, weighing, until the mass is constant (see Note 3).

Note 1: Open the furnace door to allow volatiles to escape from the furnace, to prevent condensation from depositing on the specimen or specimen dish.

Note 2: If a ventilated muffle furnace is used, the furnace door does not need to be opened.

Note 3: This method requires that all weighing shall be repeated for drying and burning to ensure constant mass. If the material is tested frequently, the shortest time for the drying and