KES

Testing Method for Evaporation Loss of Lubricating Grease

KES T – L158

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1. Scope of Application

This standard shall regulate a test method for evaporation loss of lubricating grease.

2. Rule A

2.1 Equipment

(1) Sample container

Use a container, which inner diameter is about 53 mm, depth is about 56 mm, material is glass or metal, and bottom is flat.

(2) Uniform temperature air tub

Use a tub, which is a square-shaped and electric-type uniform temperature air tub (Uniform temperature tub hereinafter), height is higher than 290 mm excluding a heating part, length and width are longer than 300 mm each with a hinged door, and each door has a double layer glass square window with each side of about 100 mm. For proper ventilation, the uniform temperature tub should have one or more air entrance and one or more exit for heated vapor.

In order to ventilate the air around heating coil, the air entrance should be at the bottom or on the opposite of a contacting side of bottom, its are should be larger than 130 mm^2, and the exit for the heat and vapor should be located near that with an area of 130 ~ 1290 mm^2. Suspend a rotating disk, which is made of aluminum and diameter is about 250 mm, at the center inside the uniform temperature tub as indicated in Figure 1, and rotate 5~6 times every minute by an electromotor.

(3) Thermometer

Use a thermometer, which whole length is about 150 mm, range of scale is 100 ~ 110 °C, and detailed scale is 0.5 degrees.

2.2 Testing Method

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(1) Weigh a clean sample container, put about 20 g of well-stirred homogenized sample and weigh to the scale of 0.01 g.

(2) Keep the uniform temperature tub at the temperature of 105 ± 1 °C, hang the thermometer perpendicularly on a horizontal bar, which is stuck on a side of the disk, so that a bottom of mercury bulb is 6 mm above from the top of the disk and about 20 mm inside the disk.

(3) After placing the container with the sample on the disk of the uniform temperature tub, close the door, rotate the disk 5 ~ 6 times every minute, and keep the temperature for 8 hours when it reaches 105 ± 1 °C. However, in any case, do not exceed 8 hours and 15 minutes after the sample container is put in the uniform temperature tub. After heating, take out the sample container, cool it down in a desiccator to the room temperature, and weigh.

2.3 Calculations and report

(1) Calculate a decreased amount of the sample by the following equation

$$W_L = \frac{W_S - W}{W_S} \times 100$$

Here, W_L : Decreased amount of sample (%)

W_S : Weight of sample (g)

W : Weight of sample after evaporation (g)

(2) Report an average value of two samples as an amount of evaporation.

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