

ICS 75.100

SH

**INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

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**Standard test method for oil separation from lubricating grease
during storage**
(English Translation)

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1 Scope

1.1

This Standard specifies the test method for oil separation from lubricating grease during storage. This method is only applicable to the lubricating grease of which the consistency is greater than 0.

1.2

This standard does not address all safety issues that may be related to the use of this method. Before use, an appropriate safety and health operation procedure shall be established and the scope of use shall be determined.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

SH 005, Solvent Oil for Paint Industry

GB/T 6003.1, Test sieves of metal wire cloth

3 Terms

For the purposes of this document, the following terms apply.

3.1

lubricating grease

Semi-fluid with thickener added to liquid lubricant to solid product.

3.2

thickener in lubricating grease

Constructional material that has good physical dispersion, is dispersed in base oil to form product structure.

3.3

oil separation

The phenomenon of separating the liquid part from the lubricating component.

Standard test method for oil separation from lubricating grease during storage

4.1 Install the lubricating grease on a 75 μ m strainer. At 25°C $\pm$ 1°C, under

1.72kPa $\pm$ 0.07kPa air pressure, after continuous test for 24h, weigh the mass of oil that is separated and added into the oil containing dish.

5 Significance and use

5.1

The lubricating grease has oil separation. The consistency of remaining components increases, which shall affect product performance.

5.2

The test results of this methods are directly related to the oil separation of the lubricating grease that is stored in the 15.88kg barrel.

5.3 This method does not describe the stability of lubricating grease under

dynamic working conditions.

6.1 Instruments

6.1.1

The test instrument is composed of the following components: tightly matched cups and lids, strainers, funnels and oil dishes. Figure 1 is the split photo of type A pressure oil

separation test instrument. Figure 2 is the detailed structure diagram of type A test instrument, where:

Cover: equipped with an air inlet to introduce compressed air;

Cup: there is a hole in the side to prevent back pressure;

Funnel: hold the strainer and collect the separated oil;

Strainer: 75 μ m (No. 200) stainless-steel strainer, marked as Phi104.8x12.7-

0.075/0.053-GB/T 6003.1-1997, in accordance with the requirements of GB/T 6003.1.

Oil containing dish: glass dish that contains the separated oil, 20mL.

6.1.2 Pressure system: supply and regulate air pressure, equipped with

pressure gauge or other suitable pressure indicating instrument and pressure reducing valve to prevent pressure fluctuation. Compressed air shall be purified to be oil-free and water-free.

8 Preparation

8.1

Use solvent oil to carefully clean the strainer, funnel and oil containing dish.

Dry with air.

8.2

Check whether the strainer shall affect the passage of the separated oil before installation. The strainer must be smooth and free of any irregularities on the surface (such as wrinkles, bumps, breaks). Once found, it must be replaced.

8.3

The funnel must be clean, otherwise the residue shall affect the flow of the separated oil.

8.4

Check the covers and cups. Any unevenness or distortion shall affect the tight sealing of the combined surface between the parts.

8.5

When the O-ring is worn out, it must be replaced in time.

9 Test steps

9.1

Place the strainer on top of the funnel. Weigh the combined piece (m1), to the nearest of 0.05g. Use a spatula to completely fill the space in the strainer with lubricating grease. The depth of filled lubricating grease is 12.7 ± 0.3 mm.

Avoid unnecessary work to prevent mixing of air. Use the straight edge of the spatula to scrape off excess lubricating grease and smooth the surface. Avoid applying the lubricating grease over the strainer. Weigh the combined piece after sample loading (m2), to the nearest of 0.05g.

9.2

Weigh the cleaned and dry oil containing dish (m3), to the nearest of 0.05g.

Place the oil containing dish on the receiving tray in the center of the cup. And equip the instrument as shown in Figure 1. Use a rubber tube of appropriate length to connect the compressed air to the air inlet on the cover.

9.3 Before the test, place the instrument and sample at $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$. Regulate

the air pressure at $1.72\text{kPa} \pm 0.07\text{kPa}$. Continue testing 24h at this temperature and pressure.

9.4 After test, weigh the oil containing dish (m4), to the nearest of 0.05g.

10 Calculation

The oil separation amount of lubricating grease, x, % (m/m), is calculated according to formula (1):

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