

KES

Testing Method for
Copper Corrosion of
Petroleum Products

KES T – L399

(EST.) 1990 – 11 – 13

Contents

1. Scope of Application
 2. Summary of Method
 3. Apparatus
 4. Copper Plate and Other Materials
 5. Copper Corrosion Standard
 6. Preparation for Test
 7. Specimen
 8. Operation
 9. Report
- Quoted Standard

1. Scope of Application

This standard shall be applied to testing method for copper corrosion of the petroleum products.

However, except for aromatic products and greases, this method includes a bombe method and a test tube method, the bombe method is applied to aerial gasoline and aerial turbine fuel, and the test tube method to all other petroleum products.

2. Summary of Method

After dipping well-washed copper plate in specimen at specified temperature for specified period, take this out, wash out, compare with copper corrosion standard, and decide the corrosion of the specimen.

3. Apparatus

(1) Test tube

Use a glass test tube, which diameter is about 25mm and length about 150mm.

(2) Heating bath for test tube

Use an oil bath or water bath, which heating bath can be maintained at $50\pm 1^{\circ}\text{C}$ or $100\pm 1^{\circ}\text{C}$, the bath shall be able to dip more than 100mm of the test tube, and have a proper strut to support the test tube vertically.

(3) Copper plate fixing device

When grinding the copper plate for test, use the fixing device so that there will not be a scratch on the copper plate.

Although it is preferred to use the one, which has structures and sizes as in Figure 2 and Figure 3, and if using other fixing device, use the one, which can securely fix the copper plate and put a surface of the copper plate higher than the one of the fixing device while grinding.

(4) Flat glass pipe

Use the one, which has a shape, size and no scratches as indicated in Figure 4, and it is used to protect the copper plate while observing for its degree of change of color.

(5) Thermometer

Use the specified thermometer number 42 (SG) specified in KS B 5314 (Glass Thermometer for Petroleum Tests).

4. Copper Plate and Other Materials

(1) Copper plate

Use deoxidized copper plate or tough pitch copper plate, which length is about 75mm, width about 12.5mm and thickness about 1.5 ~ 3.0mm. Although it is allowed to test the copper plate repetitiously, do not use the one, which has a deep scratch hard to be removed or surface is deformed.

(2) Washing solvent

Use isooctane to measure octane value.

(3) Abrasives and absorbent cotton

When pre-grinding, use number 240 and silicon carbonate with proper granularity specified in KS L 6003 (Sand Paper) or KS L 6002 (Abrasive Cloth), or melted alumina sand paper or abrasive cloth.

For the polishing, use the silicon carbonate abrasives and weak electric current absorbent cotton of granularity of number 150 specified in KS L 6001 (Granularity of Abrasives).

5. Copper Corrosion Standard

Follow the copper corrosion standard ⁽¹⁾ specified in ASTM D 130, IP 154, and express the change of color and sample of the decision in Table 1.