International Standard 6250

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Aviation fuels — Determination of water reaction

Carburants aviation — Détermination de la réaction à l'eau

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Foreword

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Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

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It has been approved by the member bodies of the following countries :

Australia	Hungary	Poland
Austria	India	Portugal
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Brazil	Ireland	South Africa, Rep. of
Bulgaria	Israel	Spain
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No member body expressed disapproval of the document.

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Aviation fuels — Determination of water reaction

1 Scope and field of application

This International Standard specifies a method for the determination of the presence of water-miscible components in aviation gasoline and turbine fuels, and the effect of these components on the fuel-water interface.

2 Principle

A test portion of the fuel is shaken, using a standardized technique, at room temperature with a phosphate buffer solution. The change in volume of the aqueous layer, the appearance of the interface, and the degree of separation of the two phases are reported as the water reaction of the fuel.

3 Reagents

Use only reagents of recognized analytical reagent grade, and only distilled water or water of equivalent purity.

3.1 Acetone.

3.2 ***n*-Heptane.**

3.3 Glass-cleaning solution.

Saturate concentrated sulphuric acid (H_2SO_4, ϱ 1,84 g/ml) with potassium dichromate ($K_2Cr_2O_7$) or sodium dichromate ($Na_2Cr_2O_7$).

CAUTION — Care should be taken in handling this very strong acid, especially when it is hot.

3.4 *Phosphate buffer solution,* (pH 7).

Dissolve 1,15 g of potassium monohydrogen phosphate, anhydrous, (K_2HPO_4) and 0,47 g of potassium dihydrogen phosphate, anhydrous, (KH_2PO_4) in 100 ml of water.

4 Apparatus

Ordinary laboratory apparatus and –

4.1 Graduated glass cylinder, glass-stoppered, of capacity 100 ml, with 1 ml graduations. The distance between the 100 ml mark and the top of the shoulder of the cylinder shall be within the range of 50 to 60 mm.

5 Preparation of apparatus

Clean the graduated cylinder (4.1) thoroughly before carrying out this test. Cleaning procedures found to be suitable are as follows :

5.1 Remove traces of oil from the graduated cylinder and stopper by flushing with hot tap water, brushing if necessary. Alternatively, remove all traces of oil from the graduated cylinder and stopper using *n*-heptane (3.2). Rinse with the acetone (3.1), followed by tap water.

5.2 Immerse the cylinder and stopper in the glass-cleaning solution (3.3) (see CAUTION in 3.3), rinse thoroughly with tap water, then distilled water, and finally rinse with the phosphate buffer solution (3.4) and drain.

NOTE — Only cylinders that drain cleanly should be used. If the cylinder does not drain cleanly (that is, without drops forming), soak it in hot (about 65 °C) glass-cleaning solution for approximately 30 min. Rinse it with tap water, then distilled water, and finally rinse with the phosphate buffer solution and drain.

6 Procedure

6.1 Measure 20 ml of the phosphate buffer solution (3.4) at room temperature into the cylinder and record the volume to the nearest 0,5 ml. Add 80 ml of the fuel to be tested at room temperature, and stopper the cylinder.