International Standard 5789

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION•МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ•ORGANISATION INTERNATIONALE DE NORMALISATION

Fluorinated hydrocarbons for industrial use — Determination of non-volatile residue

Hydrocarbures fluorés à usage industriel — Détermination du résidu non volatil

First edition — 1979-07-15

UDC 661.723-16 : 543.814 **Ref. No. ISO 5789-1979 (E)**

Descriptors : halogenated hydrocarbons, chemical analysis, determination of content, non-volatile matter.

Price based on 2 pages

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.

International Standard ISO 5789 was developed by Technical Committee ISO/TC 47, *Chemistry*, and was circulated to the member bodies in December 1977.

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

Australia	France	Netherlands
Austria	Germany, F. R.	Poland
Belgium	Hungary	Romania
Brazil	India	South Africa, Rep. of
Bulgaria	Israel	Switzerland
Chile	Italy	Turkey
Czechoslovakia	Kenya	United Kingdom
Egypt, Arab Rep. of	Mexico	USSR

No member body expressed disapproval of the document.

Printed in Switzerland

Fluorinated hydrocarbons for industrial use — Determination of non-volatile residue

1 Scope and field of application

This International Standard specifies a method for the determination of the non-volatile residue of fluorinated hydrocarbons for industrial use.

2 Reference

ISO 3427, *Gaseous halogenated hydrocarbons (liquefied gases) — Taking of a sample.*

3 Principle

Evaporation of a test portion under specified conditions, using special apparatus, and weighing of the residue after evaporation.

4 Apparatus

Ordinary laboratory apparatus and

4.1 Jacketed glass container, with ground glass stopper, and a graduation line marking a capacity of 500 ml. (See the figure.)

NOTE — Do not use grease in ensuring that the ground glass joints are leak-proof.

4.2 Detachable element, with a ground glass joint. (See the figure.)

4.3 Electric oven, capable of being controlled at 105 ± 2 °C.

4.4 Heating device (water bath, small electric oven or heating tape).

5 Procedure

Dry the detachable element (4.2), in the electric oven (4.3), controlled at 105 ± 2 °C, for 30 min, allow to cool in a desiccator, weigh to the nearest 0,000 1 g and connect it to the glass container (4.1).

Weigh, to the nearest 1 g, the cylinder containing the sample (see ISO 3427). Fill the apparatus to the 500 ml graduation line with the liquid sample and reweigh the cylinder to the nearest 1 g. Determine the mass of the test portion by difference.

By means of the heating device (4.4), heat the detachable element (4.2) uniformly in such a way that the evaporation of the test portion is completed in 1,5 to 2 h. Stop heating, dry the detachable element in the electric oven (4.3), controlled at 105 ± 2 °C, for 30 min, allow to cool in a desiccator and reweigh to the nearest 0,000 1 g.

The increase in mass corresponds to the non-volatile residue of the test portion.

6 Expression of results

The non-volatile residue, expressed in milligrams per kilogram, is given by the formula

$$\frac{1\,000\,m_1}{m_0}$$

where

m_0 is the mass, in grams, of the test portion;

m_1 is the mass, in milligrams, of the non-volatile residue weighed.

NOTE — 500 ml of sample corresponds to

740 g of trichlorofluoromethane (CCl_3F)

745 g of dichlorodifluoromethane (CCl_2F_2)

705 g of chlorodifluoromethane ($CHClF_2$)

7 Test report

The test report shall include the following particulars :

a) an identification of the sample;

b) the reference of the method used;

c) the results and the method of expression used;

d) any unusual features noted during the determination;

e) any operation not included in this International Standard or in the International Standard to which reference is made, or regarded as optional.

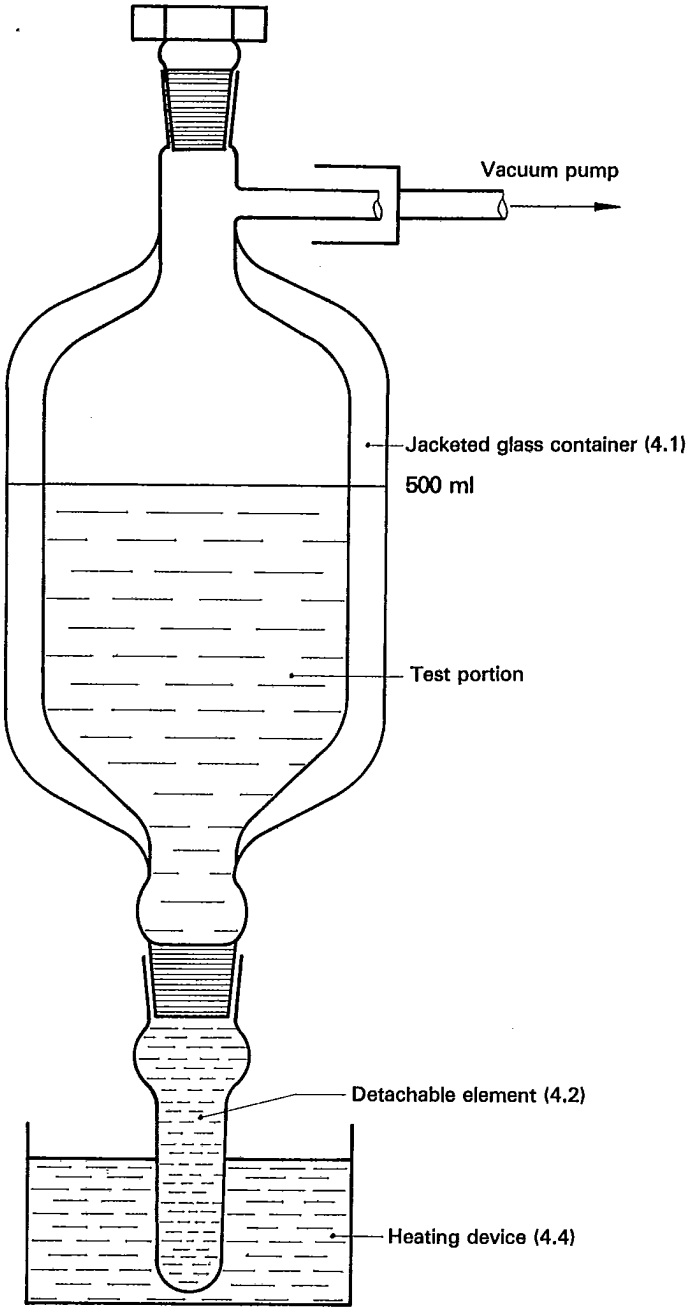

FIGURE — Apparatus for determination of non-volatile residue of fluorinated hydrocarbons