INTERNATIONAL STANDARD

ISO 9894

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Subsampling of uranium hexafluoride in the liquid phase

Sous-échantillonnage de l'hexafluorure d'uranium en phase liquide

Reference number
ISO 9894:1996(E)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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Subsampling of uranium hexafluoride in the liquid phase

1 Scope

This International Standard specifies a method of subsampling suitable for taking aliquots from a representative sample of uranium hexafluoride (UF_6) in the liquid phase, the latter having come from a (UF_6) shipping container.

The subsamples are intended for isotopic analysis (1 g to 3 g), impurity analysis (10 g to 200 g) and uranium assay (5 g to 10 g).

Carbon halides, hydrocarbons and certain metal halides can be measured directly from the sample or the subsample (10 g to 30 g).

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 7195:1993, *Packaging of uranium hexafluoride (UF_6) for transport.*

3 Principle

After liquifying the UF_6 contained in the sample cylinder, the amount in the liquid phase which is removed by means of a buffer volume is:

— either released into a container (0,005 litre to 0,100 litre) for isotopic analysis,

— or run into a container (0 litre to 0,5 litre) for impurity analysis after hydrolysing the UF_6,

— or run into a container (0,002 litre to 0,005 litre) for uranium assay determination of UF_6.

Every precaution shall be taken to minimize the risk of isotopic and chemical contamination among the samples.

4 Reagents and liquid refrigerants

4.1 Liquid nitrogen.

4.2 Iced water at 0 °C.

4.3 Chlorine trifluoride or **nitrogen doped to 25 % with fluorine,** optional.

5 Apparatus

5.1 Metal containers

Metal containers of types 1s and 2s according to ISO 7195 and ANSI N14.1[1], or type CEA 23D are used.

5.2 Polytrifluorochloroethylene (PTFCE) containers, example given for clarification in figure 1.

5.3 Tubes in PTFCE, examples given for clarification in figures 2 and 3.

5.4 Valves (see figure 4).

1) ANSI N14.1 — 1971, *Packaging of Uranium Hexafluoride for Transport.*