

International Standard 4615

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

Plastics — Unsaturated polyesters and epoxide resins — Determination of total chlorine content

Plastiques — Résines de polyesters non saturés et époxydes — Détermination de la teneur totale en chlore

First edition — 1979-12-01

UDC 678.674 + 678.685 : 543.848

Ref. No. ISO 4615-1979 (E)

Descriptors : plastics, polyester resins, epoxy resins, chemical analysis, determination of content, chlorine, combustion analysis.

ISO 4615-1979 (E)

 **Documents**
Document Sharing Hub
Price based on 5 pages

FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up 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.

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 4615 was developed by Technical Committee ISO/TC 61, *Plastics*, and was circulated to the member bodies in August 1978.

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

Austria	Hungary	South Africa, Rep. of
Belgium	Iran	Sweden
Bulgaria	Italy	Switzerland
Canada	Japan	Turkey
Czechoslovakia	Korea, Rep. of	USA
Egypt, Arab Rep. of	Mexico	USSR
Finland	Netherlands	Yugoslavia
Germany, F.R.	New Zealand	
Greece	Romania	

The member body of the following country expressed disapproval of the document on technical grounds :

United Kingdom

Plastics — Unsaturated polyesters and epoxide resins — Determination of total chlorine content

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies two methods for the determination of the total chlorine content of unsaturated polyesters and epoxide resins, namely :

- method A : combustion in a bomb;
- method B : combustion in a flask.

NOTES

1 Determination of combined chlorine and bromine content or bromine content only, is also possible by these methods. The appropriate procedure shall be agreed upon by the purchaser and the supplier.

2 These methods are not applicable to the determination of total chlorine in epoxy resins containing chlorine as an impurity.

2 PRINCIPLE

Oxidation of a test portion with sodium peroxide (method A) or gaseous oxygen (method B) followed by electrometric or volumetric titration of the resulting chlorides.

3 REAGENTS

During the analysis, use only reagents of known analytical quality, and only distilled water or water of at least equivalent purity.

3.1 Silver nitrate, standard volumetric solution, $c(\text{AgNO}_3) = 0,1 \text{ mol/l.}^{1)}$

NOTE — For testing resins of low total chlorine content [less than 2 % (m/m)], a standard volumetric solution of silver nitrate, $c(\text{AgNO}_3) = 0,05 \text{ mol/l.}^{2)}$ may be used.

3.2 Nitric acid, 126 g/l solution.

For method A only :

3.3 Nitric acid, concentrated, $\rho = 1,42 \text{ g/ml}$.

3.4 Sodium peroxide, granulated.

3.5 Starch or sucrose as combustion aids.

For method B only :

3.6 Oxygen, gaseous.

3.7 Sodium nitrate.

3.8 Potassium hydroxide solution, 100 g/l.

3.9 Hydrogen peroxide solution, 300 g/l.

4 APPARATUS

4.1 Balance, to weigh to an accuracy of 0,000 1 g.

4.2 Equipment for Volhard titration or for electrometric titration, with a burette having a capacity and accuracy appropriate to the chosen method (A or B).

For method A only :

4.3 Combustion bomb (for example Parr bomb or another bomb which gives the same results), electrically fired or gas-fired. A suitable gas-fired bomb is shown in figure 1.

4.4 Nickel crucible with lid, to fit into the bomb (gas-fired). Suitable dimensions are : diameter 25 mm, height 40 mm.

4.5 Safety oven.

1) Hitherto expressed as 0,1 N standard volumetric solution.

2) Hitherto expressed as 0,05 N standard volumetric solution.