Plast – Epoxihartser – Bestämning av klorinnehåll –
Del 3: Totalt klor (ISO 21627-3:2002)

Plastics – Epoxy resins – Determination of chlorine content –


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Plastics - Epoxy resins - Determination of chlorine content -

English version

This European Standard was approved by CEN on 3 November 2003.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

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Foreword

The text of ISO 21627-3:2002 has been prepared by Technical Committee ISO/TC 61 “Plastics” of the International Organization for Standardization (ISO) and has been taken over as EN ISO 21627-3:2003 by Technical Committee CEN/TC 249 "Plastics", the secretariat of which is held by IBN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by May 2004, and conflicting national standards shall be withdrawn at the latest by May 2004.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

Endorsement notice

The text of ISO 21627-3:2002 has been approved by CEN as EN ISO 21627-3:2003 without any modifications.

NOTE Normative references to International Standards are listed in Annex ZA (normative).
Introduction

In producing epoxy resins based on epichlorohydrin, impurities containing chlorine may be formed. These are shown below. Since these impurities could lower the final properties of the cured resins, it is necessary to control their formation. Their chemical activities differ significantly, so different analytical procedures are needed for their analysis.

ISO 21627 specifies methods for the determination of these organic and inorganic chlorides which occur as impurities in epoxy resins derived from epichlorohydrin.

— Part 1: Inorganic chlorine (also called ionic chlorine).
— Part 2: Easily saponifiable chlorine consisting mainly of chlorine, which is present as 1,2-chlorohydrin as the result of incomplete dehydrohalogenation.
— Part 3: Total chlorine consisting mainly of all saponifiable organic chlorine, e.g. 1,2-chlorohydrin, 1,3-chlorohydrin and 1-chloro-2-glycidylether (chloromethyl derivative) which are the result of incomplete dehydrohalogenation, along with inorganic chlorine present in the test portion of epoxy resin.

Since the purposes of parts 1 to 3 of ISO 21627 differ, one of these methods should be selected depending on the impurities to be measured.

For analytical methods for impurities other than those shown below, see ISO 4615.

\[ \text{Cl}^- \]  

Inorganic chlorine (or Ionic chlorine)

\[ \text{O} \quad \text{CH}_2 \quad \text{CH} \quad \text{CH}_2 \quad \text{OH} \quad \text{Cl} \]  

1,2-chlorohydrin

\[ \text{CH}_2\text{Cl} \]  

1,3-chlorohydrin

\[ \text{O} \quad \text{CH}_2 \quad \text{CH} \quad \text{O} \quad \text{CH}_2 \quad \text{CH} \quad \text{CH}_2 \quad \text{Cl} \]  

1-chloro-2-glycidylether (chloromethyl derivative)

Typical impurity types of inorganic and organic chlorine.