

### SLOVENSKI STANDARD SIST ISO 4597-1:1996

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#### Polimerni materiali - Zamreževala in pospeševala za epoksidne smole - 1. del: Označevanje

Plastics -- Hardeners and accelerators for epoxide resins -- Part 1: Designation

Plastiques -- Durcisseurs et accélérateurs pour résines époxydes -- Partie 1: Désignation (standards.iteh.ai)

Ta slovenski standard je istoveten z: ISO 4597-1:1983

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ICS:

83.080.10 Duromeri Thermosetting materials

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### International Standard



INTERNATIONAL ORGANIZATION FOR STANDARDIZATION⊕MEЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ⊕ORGANISATION INTERNATIONALE DE NORMALISATION

# Plastics — Hardeners and accelerators for epoxide resins —

Part 1 : Designation

Plastiques — Durcisseurs et accélérateurs pour résines époxydes — Partie 1 : Désignation

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UDC 678.686:678.044

Ref. No. ISO 4597/1-1983 (E)

**Descriptors**: plastics, epoxy resins, hardeners for resins, designation, viscosity, classifications.

#### **Foreword**

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (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 authorized 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 4597/1 was developed by Technical Committee VIEW ISO/TC 61, *Plastics*, and was circulated to the member bodies in February 1978.

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

SIST ISO 4597-1:1996

Austria India: //standards.iteh.ai/catalosotathla/fricast/Rep? 7574d-e0c0-4c47-8034-

Belgium Iran 9a2e30d9 Spainist-iso-4597-1-1996
Bulgaria Israel Switzerland

Bulgaria Israel Switzerland
Canada Italy Turkey

Czechoslovakia Japan United Kingdom

Egypt, Arab Rep. of Korea, Rep. of USA France Mexico Yugoslavia

Germany, F.R. Poland Hungary Romania

No member body expressed disapproval of the document.

## Plastics — Hardeners and accelerators for epoxide resins —

Part 1: Designation

#### Scope and field of application

This part of ISO 4597 specifies a method of designation for epoxide resin hardeners and accelerators.

The object of this designation method is to allocate to each commercial product a group of digits, called the "designation", giving in a coded form certain information on the product: chemical base, modifiers and solvents, viscosity and additives.

Thus all products having similar properties and therefore likely to have the same uses will have the same designation, so aiding users in their choice if producers list the designation in their data sheets.

2 The value of the property in positions V and VI to be taken into consideration in defining in which class a product belongs is the mean value found in manufacture and normally given in data sheets.

In view of the inevitable variations in production, independently measured values on a resin designated as being in a particular class for a given property may possibly fall either,

- in the next lower class if the average value of the property is near the lower limit of the designation, or
- in the next higher class if the average value is near the upper limit.

ds.iteh.ai)

## ducers list the designation in their 4 Designation of a hardener or accelerator SIST ISO 4597-1: for epoxide resin https://standards.iteh.ai/catalog/standards/sist/e4c9754d-e0c0-4c47-8034-

9a2e30d913e2/sist-iso-4

ISO 3219, Plastics — Polymers in the liquid, emulsified or dispersed state — Determination of viscosity with a rotational viscometer working at defined shear rate.

#### 3 Designation system

Reference

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The hardeners and accelerators are designated by four groups of two digits, separated by intervals. The first three groups refer to principal properties and the final group refers to a secondary property.

- Each successive group of two digits corresponds to a different property in the list given in the table.
- The position (or rank I and II, III and IV, etc.) of each successive group of two digits in the group indicates the property to which it refers.
- The numerical value of each successive group of two digits in the designation indicates the class (01, 02, 03, etc.) which corresponds to a certain composition or to a certain range of values of the property, as given in the table.

#### NOTES

1 Not every combination of property classifications will be achievable in practice. Note that the designation of a material will not correspond, except by chance, with a horizontal row in the table.

Following the designation system described in clause 3, a product shall be designated by four groups of two digits, separated by intervals.

- The first group of two digits designates the chemical base (see the table).
- The second group of two digits designates modifiers and solvents (see the table).
- The third group of two digits designates the viscosity of the product (see the table).
- The final group of two digits designates additives (see the table).

Example: A hardener or accelerator designated by 06 12 02 00 is a product based on modified cycloaliphatic polyamine, with accelerator and solvent, viscosity between 0,25 and 1 Pa·s, without indication of additives.

NOTE — The designation does not exempt the producer from giving in his literature the actual values of the designated properties, together with tolerances of manufacture and measurement.

#### 5 Special properties

These properties are not included in the designation.

In case they are necessary, they shall be given in actual values only and reference shall be made to the relevant International Standards for the test methods.

#### ISO 4597-1983 (E)

#### Table

Class   Chemical base   Principal properties   Property   Property   Property   Property   Recorder   Reserve   Re	Rank	l and ll	III and IV	V	VI
Class 00 Not designated 01 Unmodified aliphatic polyamines 03 Unmodified polyamines 05 Unmodified cycloaliphatic polyamines 06 Modified dycloaliphatic polyamines 07 Unmodified polyamines 08 Modified polyamines 09 Formulated amine hardened eh STANDA with solvent 10 Tertiary amines 11 Tertiary amines 12 Condensation polymers of amine derivatives with formaldehyde, etc.) 12 Condensation polymers of amine derivatives with formaldehyde, etc.) 13 Unmodified cycloaliphatic acids and anhydrides 14 Boronhalide complexes 15 Hologeneted anhydrides and acids and anhydrides 16 Hologeneted anhydrides and acids and anhydrides 17 Unmodified aliphatic acids and anhydrides 18 Hologeneted anhydrides and acids and anhydrides 19 Unmodified cycloaliphatic acids and anhydrides 19 Unmodified dycloaliphatic acids and anhydrides 10 Condensation polymers of phenol-formaldehyde type 10 Phenols and derivatives 11 Dycyandiamide and derivatives 12 Unmodified cycloaliphatic acids and anhydrides 13 Unmodified cycloaliphatic acids and anhydrides 14 Boronhalide complexes 15 Dycyandiamide and derivatives 16 Phenols and derivatives 17 Condensation polymers of phenol-formaldehyde type 18 Phenols and derivatives 19 Phenols and derivatives 19 Phenols and derivatives 19 Phenols and derivatives 10 Phenols and derivatives 10 Phenols and derivatives 11 Blocked isocyanates 11 Blocked isocyanates 12 Phenols and derivatives 13 Blocked isocyanates 14 Blocked isocyanates 15 Blocked isocyanates		Principal properties			
Not designated		Chemical base <sup>1)</sup>	modifiers	at 23 °C and $\gamma = 10 \text{ s}^{-1}$	Additives
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Modified aliphatic polyamines Unmodified aromatic polyamines Modified aromatic polyamines Modified cycloaliphatic polyamines Modified cycloaliphatic polyamines Modified cycloaliphatic polyamines Modified cycloaliphatic polyamines Modified polyaminoamides  Sactive agent with solvent Reactive agent with solvent Reactive agent with solvent and accelerator Reactive agent with solvent with solvent and accelerator Non-reactive agent with solvent span with accelerator Non-reactive agent with solvent and accelerator of the properties agent with solvent and accelerator of the proper	00	Not designated	Not designated	Not designated	Not designated
Unmodified aromatic polyamines  Modified cycloaliphatic polyamines  Modified polyaminoamides  Modified polyaminoamides  Modified polyaminoamides  Reactive agent with solvent and accelerator  Reactive agent with solvent and accelerator  Reactive agent with solvent and accelerator  Thixotrope solvent and accelerator  Tertiary amines  SISTISO 1  SISTISO 2  Condensation polymers of amine derivatives with formaldehyde (urea-formaldehyde, melamine-formaldehyde, etc.)  Unmodified alphatic acids and anhydrides  Unmodified acids and anhydrides  Unmodified acids and anhydrides  Halogenated anhydrides and acids  Dicyandiamide and derivatives  Boronhalide complexes  Organometalic complexes  Organo	01	Unmodified aliphatic polyamines	None	< 0,25	None
Modified aromatic polyamines  Unmodified cycloaliphatic polyamines  Modified cycloaliphatic polyamines  Modified cycloaliphatic polyamines  Modified polyaminoamides  Modified polyaminoamides  Modified polyaminoamides  Modified polyaminoamides  Formulated amine hardeners eh STANDA  Tertiary amines  STANDA  Thixotrope solid  Thixo	02	Modified aliphatic polyamines	Reactive agent	> 0,25 to 1	Fillers
Modified cycloaliphatic polyamines Modified cycloaliphatic polyamines Modified cycloaliphatic polyamines Modified polyaminoamides  Fermulated amine hardenes en STANDA Nonreactive agent with solvent and accelerator Training mines  Standard  Standard  Nonreactive agent with solvent Modified genty in with solvent Modified agenty in with solvent  Condensation polymers of amine derivatives with formal/delyde (urea-formal/delyde, melamine-formal/delyde, etc.)  Unmodified aliphatic acids and anhydrides Modified acids and anhydrides Halogenated anhydrides and anhydrides Modified acids and anhydrides Modifi	03	Unmodified aromatic polyamines	Non-reactive agent	> 1 to 5	
Modified cycloaliphatic polyamines  Modified polyaminoamides  Modified polyaminoamides  Modified polyaminoamides  Modified polyaminoamides  Reactive agent with accelerator  Reactive agent with solvent and accelerator  Non-reactive agent with solvent and accelerator  Non-reactive agent with solvent  Non-reactive agent with solven	04	Modified aromatic polyamines	Solvent	> 5 to 15	Fillers and colorants
Solvent Reactive agent with accelerator Reactive agent with accelerator Reactive agent with solvent and accelerator Reactive agent with solvent and accelerator Reactive agent with solvent and accelerator Reactive agent with solvent Reactive agent with so	05	Unmodified cycloaliphatic polyamines	Accelerator	Liquid > 15	Emulsifying agent
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Tertiary amines  Standard  Standard  Non-reactive agent with accelerator Non-reactive agent with accelerator of the property o	08	Modified polyaminoamides	solvent and ac-	Thixotrope	
11 SIST ISO 45 Swith solvent and achitips://standards.itch.ai/catalog/standardselerator.9754d-e0c0-lc47-8034- 12 9a2e30d913e2/sist sAcetelerator.9754d-e0c0-lc47-8034- 13 Unmodified urea-formaldehyde, melamine-formaldehyde, etc) 13 Unmodified cycloaliphatic acids and anhydrides 13 Unmodified aromatic acids and anhydrides 14 Modified acids and anhydrides 15 Halogenated anhydrides and acids 16 Dicyandiamide and derivatives 17 Dicyandiamide and derivatives 18 Boronhalide complexes 19 Organometallic complexes 10 Condensation polymers of phenol-formaldehyde type 18 Phenols and derivatives 19 Other compounds with hydroxyl group 10 Free isocyanates 10 Blocked isocyanates 11 Blocked isocyanates 12 SIST ISO 45 Swith solvent and acids solvent with solvent and acids solvent with solvent with solvent and acids with solvent with solvent and acids with solvent with solvent and acids with solvent with solvent with solvent and acids with solvent with solvent and acids with solvent and acids with solvent with solvent and acids and anhydrides 10 Condensation polymers of phenol-formaldehyde type 11 Phenols and derivatives 12 Blocked isocyanates 13 Blocked isocyanates 14 Blocked isocyanates 15 Blocked isocyanates	09	Formulated amine hardeners eh STANDA	Non-reactive agent with solvent	EW	
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	51	Blocked isocyanates			
70 Imidazoles and derivatives	60	Ketoimines			
	70	Imidazoles and derivatives			

<sup>1)</sup> The chemical bases and organic modifiers are indicated by two digits; class 1 is written as 01, class 2 as 02, etc.

<sup>2)</sup> Test method: ISO 3219, which concerns the use of rotational viscometers with definite shear rate. However, any other viscometer specified in an International Standard may be used provided that it gives the same results.