

Plastid. Polümeerid/vaigud vedelas olekus või emulsioonidena või disperssete süsteemidena. Viskoossuse määramine rotatsioonviskosimeetriga, mille nihkekiirus on kindlaks määratud

Plastics - Polymers/resins in the liquid state or as emulsions or dispersions - Determination of viscosity using a rotational viscometer with defined shear rate

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN ISO 3219:2000 sisaldab Euroopa standardi EN ISO 3219:1994 + AC:1994 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 11.01.2000 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN ISO 3219:2000 consists of the English text of the European standard EN ISO 3219:1994 + AC:1994.</p> <p>This document is endorsed on 11.01.2000 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p>Käsitlusala:</p> <p>Käesolev standard määrab kindlaks viskoossuse määramise üldpõhimõtted polümeeridel ja vaigudel, mis on vedelas, emulgeeritud või disperseeritud olekus, kaasa arvatud polümeeride disperssed süsteemid. Viskoossus määratakse kindlaksmääratud nihkekiirusel standardsete geomeetriliste mõõtmega rotatsioonviskosimeetriga.</p>	<p>Scope:</p>
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ICS 83.080.01

Võtmesõnad: määramine, plastid, polümeerid, testimine, vaigud, viskoossus

UDC 678.6/7:532.13

Descriptors: Plastics, polymer, resin, viscosity, testing.

English version

Plastics

**Polymers/resins in the liquid state or as emulsions
or dispersions**

**Determination of viscosity using a rotational viscometer with defined shear rate
(ISO 3219:1993)**

Plastiques; polymères/résines à l'état
liquide, en émulsion ou en dispersion;
détermination de la viscosité au moyen
d'un viscomètre rotatif à gradient de
vitesse de cisaillement défini
(ISO 3219:1993)

Kunststoffe; Polymere/Harze in flüssi-
gem, emulgiertem oder dispergiertem
Zustand; Bestimmung der Viskosität mit
einem Rotationsviskosimeter bei definier-
tem Geschwindigkeitsgefälle
(ISO 3219:1993)

This European Standard was approved by CEN on 1994-08-22 and is identical to the ISO Standard as referred to.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart 36, B-1050 Brussels

Foreword

International Standard

ISO 3219:1993 Plastics; polymers/resins in the liquid state or as emulsions or dispersions; determination of viscosity using a rotational viscometer with defined shear rate

has been taken over as a European Standard by CEN/TC 139 'Paints and varnishes' from the work of ISO/TC 35 'Paints and varnishes' of the International Organization for Standardization (ISO).

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, and conflicting national standards withdrawn, by February 1995 at the latest.

In accordance with the CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard:

Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

Endorsement notice

The text of the International Standard ISO 3219:1993 was approved by CEN as a European Standard without any modification.

1 Scope

This International Standard specifies the general principles of a method for determining the viscosity of polymers and resins in the liquid, emulsified or dispersed state, including polymer dispersions, at a defined shear rate by means of rotational viscometers with standard geometry.

Viscosity determinations made in accordance with this standard consist of establishing the relationship between the shear stress and the shear rate. The results obtained with different instruments in accordance with this standard are comparable and apply to controlled shear as well as controlled stress instruments.

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 291:1977, *Plastics — Standard atmospheres for conditioning and testing*.

3 Principle

The viscosity of a fluid sample is measured using a rotational viscometer with defined characteristics, which permits the simultaneous measurement of the shear rate used and the shear stress applied.

The viscosity η is determined using the following equation:

$$\eta = \frac{\tau}{\dot{\gamma}}$$

where

τ is the shear stress;

$\dot{\gamma}$ is the shear rate.

According to the International System of Units (SI), the unit of dynamic viscosity is the pascal second (Pa·s):

$$1 \text{ Pa}\cdot\text{s} = 1 \text{ N}\cdot\text{s}/\text{m}^2$$

NOTES

1 Symbols are in accordance with ISO 31-3:1992, *Quantities and units — Part 3: Mechanics*.

2 If the viscosity depends on the shear rate at which the measurement is made, i.e. $\eta = f(\dot{\gamma})$, the fluid is said to exhibit non-Newtonian behaviour. Fluids with a viscosity independent of the shear rate are stated to exhibit Newtonian behaviour.

4 Apparatus

4.1 Rotational viscometer

4.1.1 Measuring system

The measuring system shall consist of two rigid, symmetrical, coaxial surfaces between which the fluid whose viscosity is to be measured is placed. One of these surfaces shall rotate at a constant angular velocity while the other remains at rest. The measuring