



**SLOVENSKI STANDARD**  
**PSIST prEN 480-10:1995**  
**01-december-1995**

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8 cXUh\_]nUVYrcb`]b`a Urc`!`A YrcXY`dfYg\_i ýUb`U!`%`"XY.`8 c`c Ub`Y`j gYVbcgfh  
\_`cf]Xcj

Admixtures for concrete, mortar and grout - Test methods - Part 10: Determination of the chloride content

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**ICS:**

91.100.10	Cement. Mavec. Apno. Malta	Cement. Gypsum. Lime. Mortar
91.100.30	Beton in betonski izdelki	Concrete and concrete products

**PSIST prEN 480-10:1995**

**en**



EUROPEAN STANDARD

DRAFT  
prEN 480-10

NORME EUROPEENNE

EUROPAISCHE NORM

April 1991

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UDC

Descriptors:

English version

Admixtures for concrete, mortar and grout - Test  
methods - Part 10: Determination of the chloride  
content

Adjuvants pour bétons, mortiers et  
coulis - Méthode d'essai - Partie 10:  
Détermination de la teneur en chlorure

Zusatzmittel für Beton, Mörtel und  
Einpreßmörtel - Prüfverfahren - Teil  
10: Bestimmung des Chloridgehaltes

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This draft European Standard is submitted to the CEN members for CEN enquiry.  
It has been drawn up by Technical Committee CEN/TC 104.

If this draft becomes a European Standard, 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.

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CEN

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

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Ref. No. prEN 480-10:1991 E

## Foreword

This document has been prepared by TC 104, of which the secretariat is held by DIN.

According to the Common CEN/CENELEC Rules, following countries are bound to implement this European Standard:

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## 1 Scope

This European standard describes a method for determining the chloride content<sup>1)</sup> of admixtures that comply with EN 104.300<sup>2)</sup>.

## 2 Normative references

- EN 104.300 Admixtures for concrete, mortar and grouts; Definitions, requirements, quality control<sup>2)</sup>
- ISO 1158:1984 Plastics - Vinyl chloride homopolymers and copolymers - Determination of chlorine

## 3 Principle

The object of the test is to determine the content of chloride ions (including other halogen ions except fluorides) in an admixture by precipitation of the chloride ions with a silver nitrate solution, according to the reaction:



The end point of this reaction is determined with the aid of a pH meter.

The volume of the sample required for this test has been calculated for an admixture of which the chloride content is lower than 0.1 %. If the chloride content is known, or can be assumed to be higher, the admixture has to be diluted in a precise ratio before carrying out the test.

## 4 Apparatus

### 4.1 pH meter

Either

- a) a pH millivoltmeter in which case the graph is plotted point by point, or
- b) a recording pH millivoltmeter connected to an automatic burette.

### 4.2 Electrodes

Either

- a) a combination of two electrodes consisting of:
- an indicator: silver
  - a reference: mercurous sulphate (electrolyte  $\text{KNO}_3$ ) or calomel with algar gel (electrolyte  $\text{KNO}_3$ ) or
- b) a combined electrode (indicator and reference) Ag-AgCl (electrolyte  $\text{KNO}_3$ ).

<sup>1)</sup> If at the time of testing for acceptance the admixture is found to contain polyvinylidene chloride this admixture has to be tested in accordance with ISO 1158.

<sup>2)</sup> At present at the draft stage.

#### 4.3 Additional apparatus

- Laboratory balance, accurate to 0,1 mg reading up to 200 g
- 20 ml burette accurate to 0.05 ml
- 250 ml and 500 ml beakers
- 1 liter measuring flask
- magnetic stirrer heating device
- 10 ml precision pipette
- 10 ml, 20 ml and 50 ml graduated flasks.

#### 4.4 Reagents

All reagents shall be of analytic grade.

4.4.1 Dilute nitric acid | + | ; mix equal volumes of concentrated nitric acid ( $d = 1,38$ ) and distilled water

4.4.2 Hydrogen peroxide at 110 volumes

4.4.3 33 % sodium hydroxide solution

4.4.4 Ethanol

4.4.5 0,01 mol/l silver nitrate solution:

- Either a pre-prepared solution
- or prepared in the following manner:  
Dissolve 1,6990 g of pure dry silver nitrate in distilled water and dilute to one litre (in a graduated flask).

Determine the titre of this solution using a 0,01 mol/l potassium chloride solution prepared with pure KCl that has been dried for 2 hours in an oven at  $(105 \pm 3) ^\circ\text{C}$ .

Using a pipette, take 10 ml of this KCl solution and dilute this in 90 ml of distilled water. Add 5 ml of a 1:1 dilution of nitric acid in distilled water.

Now carry out the titration and follow the reaction by potentiometry.

Carry out a trial run under the same conditions.

The normality "n" of the silver nitrate solution is given by the formula:

$$n = \frac{10 \times \text{normality of the KCl solution}}{V - V_0}$$

where

V volume of silver nitrate solution used in the test

$V_0$  volume of silver nitrate solution used in the blank titration.

#### 5 Procedure

5.1 From a liquid admixture a sample of 10 ml is extracted with a precision pipette. The exact volume is to be ascertained. This will be designated  $P_1$ . In case the admixture is too viscous to be extracted by pipette, the sample should be weighed and its density determined, from which the corresponding volume is calculated.