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**Splošne metode preskušanja pigmentov - 19. del: Ugotavljanje vodotopnih nitrato  
(metoda s salicilno kislino) (ISO 787-19:1974)**

General methods of test for pigments - Part 19: Determination of water-soluble nitrates  
(Salicylic acid method) (ISO 787-19:1974)

Allgemeine Prüfverfahren für Pigmente - Teil 19: Bestimmung der wasserlöslichen  
Nitrate (Salicylsäure-Verfahren) (ISO 787-19:1974)

Méthodes générales d'essai des pigments - Partie 19: Détermination des nitrates  
solubles dans l'eau (Méthode a l'acide salicyclique) (ISO 787-19:1974)

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**Ta slovenski standard je istoveten z: EN ISO 787-19:1995**

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EUROPEAN STANDARD

EN ISO 787-19

NORME EUROPÉENNE

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August 1995

ICS 87.060.10

Descriptors: paints, pigments, tests, chemical analysis, determination of content, nitrates, spectrophotometry

English version

**General methods of test for pigments - Part 19:  
Determination of water-soluble nitrates (Salicyclic  
acid method) (ISO 787-19:1974)**

Méthodes générales d'essai des pigments -  
Partie 19: Détermination des nitrates solubles  
dans l'eau (Méthode à l'acide salicyclique)  
(ISO 787-19:1974)

Allgemeine Prüfverfahren für Pigmente - Teil  
19: Bestimmung der wasserlöslichen Nitrate  
(Salicylsäure-Verfahren) - (ISO 787-19:1974)

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## CEN

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

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

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Ref. No. EN ISO 787-19:1995 E

Page 2  
EN ISO 787-19:1995

## Foreword

The text of the International Standard from ISO/TC 35 "Paints and varnishes" of the International Organization for Standardization (ISO) has been taken over as a European Standard by the Technical Committee CEN/TC 298 "Pigments and extenders".

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of an identical text or by endorsement, at the latest by February 1996, and conflicting national standards shall be withdrawn at the latest by February 1996.

According to 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 the United Kingdom.

## Endorsement notice

The text of the International Standard ISO 787-19:1974 has been approved by CEN as a European Standard without any modification.

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# INTERNATIONAL STANDARD 787/XIX

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

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## General methods of test for pigments – Part XIX

*Méthodes générales d'essais des pigments – Dix-neuvième partie*

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Ref. No. ISO 787/XIX-1974 (E)

**Descriptors** : paints, pigments, tests, chemical analysis, determination of content, nitrates, spectrophotometry.

## 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 787/XIX (originally ISO/DIS 2807) was drawn up by Technical Committee ISO/TC 35, *Paints and varnishes*, and circulated to the Member Bodies in April 1972.

It has been approved by the Member Bodies of the following countries:

Austria	Israel	Sweden
Brazil	Italy	Switzerland
Czechoslovakia	Netherlands	Thailand
Egypt, Arab Rep. of	New Zealand	Turkey
France	Poland	United Kingdom
Germany	Romania	U.S.A.
India	South Africa, Rep. of	U.S.S.R.
Ireland	Spain	

The Member Body of the following country expressed disapproval of the document on technical grounds:

Canada

The purpose of this International Standard is to establish a series of general test methods for pigments which are suitable for all or many of the individual pigments for which specifications might be required. In such cases, a cross-reference to the general method should be included in the International Standard relating to that pigment, with a note of any detailed modifications which might be needed in view of the special properties of the pigment in question.

Committee ISO/TC 35 decided that all the general methods should be published as they become available, as parts of a single International Standard, in order to emphasize the relationship of each to the whole series.

The Committee also decided that, where two or more procedures were widely used for determining the same or a similar characteristic of a pigment, there would be no objection to including more than one of them in the ISO series. In such cases it will, however, be essential to state clearly in a specification which method is to be used and, in the test report, which method has been used.

Parts of the series already published are as follows :

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- Part I : Comparison of colour
- Part II : Determination of matter volatile at 105 °C
- Part III : Determination of matter soluble in water (Hot extraction method)
- Part IV : Determination of acidity or alkalinity of the aqueous extract
- Part V : Determination of oil absorption value
- Part VI : Determination of residue on sieve (Oil method)
- Part VII : Determination of residue on sieve (Water method)
- Part VIII : Determination of matter soluble in water (Cold extraction method)
- Part IX : Determination of pH value of an aqueous suspension
- Part X : Determination of density relative to water at 4 °C
- Part XI : Determination of tamped volume
- Part XII : Visual comparison of hue of powdered white pigment (Hollow cone method)
- Part XIII : Determination of water-soluble sulphates, chlorides and nitrates
- Part XIV : Determination of resistivity of aqueous extract
- Part XV : Comparison of resistance of coloured pigments of similar types to light from a specified light source
- Part XVI : Comparison of relative tinting strength (or equivalent colouring value) and colour on reduction in linseed stand oil using the automatic muller
- Part XVII : Comparison of lightening power of white pigments
- Part XVIII : Determination of residue on sieve by a mechanical flushing procedure

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# General methods of test for pigments – Part XIX : Determination of water-soluble nitrates (Salicylic acid method)

## 0 INTRODUCTION

This document is a part of ISO 787, *General methods of test for pigments*.

## 1 SCOPE AND FIELD OF APPLICATION

Part XIX of this International Standard specifies a general method of test for determining the water-soluble nitrates in a sample of pigment by a spectrophotometric method using salicylic acid.

Part XIII specifies a method for determining the water-soluble nitrates in a sample of pigment using Nessler's method.

### NOTES

1 When this general method is applicable to a given pigment, a cross-reference to it will be included in the International Standard relating to that pigment, with a note of any detailed modifications which may be needed in view of the special properties of the pigment in question. Only when this general method is not applicable to a particular pigment will a special method for determination of nitrates be specified.

2 It should be noted that the two methods may not necessarily give the same result, and work is being carried out to compare the two methods.

## 2 REFERENCE

ISO 842, *Raw materials for paints and varnishes – Sampling*.

## 3 PRINCIPLE

The nitrate present in the extract of the pigment sample is used to nitrate salicylic acid in sulphuric acid medium. The nitro-compound formed is of an intense yellow colour in alkaline solution and the colour is measured spectrophotometrically at a wavelength of 410 nm.

## 4 REAGENTS

All reagents shall be of recognized analytical reagent quality. Distilled water or water of equivalent purity shall be used.

**4.1 Sulphuric acid**,  $\rho$  1,84 g/ml.

**4.2 Sulphuric acid**, 5 N.

**4.3 Ethanol**, 95 % (V/V).

**4.4 Sodium salicylate**, 5 g/l solution, freshly prepared.

**4.5 Sodium hydroxide**, 300 g/l solution.

**4.6 Sodium hydroxide**, 4 N solution.

**4.7 Potassium nitrate**, dried at 120 °C and cooled in a desiccator.

## 5 APPARATUS

**5.1 Spectrophotometer**, suitable for measurements at a wavelength of 410 nm.

**5.2 10 mm cells** for use with the spectrophotometer.

**5.3 pH meter**.

**5.4 One-mark volumetric flasks**, of capacity 50 ml, 100 ml, 250 ml and 500 ml, complying with ISO/R 1042.

**5.5 Pipettes**, capacity 10 ml, complying with ISO/R 648 and ISO/R 835.

## 6 SAMPLING

The sample of pigment used for the test shall be taken in accordance with the provisions of ISO 842.

## 7 PREPARATION OF CALIBRATION GRAPH

### 7.1 Standard solution I

Weigh  $163 \pm 0,1$  mg of the potassium nitrate (4.7), dissolve it in water in the 100 ml one-mark volumetric flask, make up to the mark and mix well.

### 7.2 Standard solution II

Pipette 10 ml of standard solution I into a 500 ml one-mark volumetric flask, make up to the mark and mix well.