

# International Standard



# 7059

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

## Caprolactam for industrial use — Determination of absorbance at a wavelength of 290 nm

*Caprolactame à usage industriel — Détermination de l'absorbance à la longueur d'onde de 290 nm*

First edition — 1982-12-01

UDC 661.733 : 543.422

Ref. No. ISO 7059-1982 (E)

Descriptors : industrial products, caprolactams, tests, determination, absorbance, spectrophotometry.

Price based on 1 page

## 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 7059 was developed by Technical Committee ISO/TC 47, *Chemistry*, and was circulated to the member bodies in July 1981.

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

Austria	Hungary	Philippines
Belgium	India	Poland
Brazil	Italy	Romania
China	Korea, Dem. P. Rep. of	South Africa, Rep. of
Czechoslovakia	Korea, Rep. of	Switzerland
Egypt, Arab Rep. of	Mexico	Thailand
France	Netherlands	United Kingdom
Germany, F.R.	New Zealand	USSR

No member body expressed disapproval of the document.

This International Standard has also been approved by the International Union of Pure and Applied Chemistry (IUPAC).

# Caprolactam for industrial use — Determination of absorbance at a wavelength of 290 nm

## 1 Scope and field of application

This International Standard specifies a spectrometric method for the determination of the absorbance at a wavelength of 290 nm of caprolactam for industrial use.

## 2 Principle

Spectrometric measurement of the absorbance of a 50 % caprolactam water solution at a wavelength of 290 nm.

## 3 Reagents

During the analysis, use only distilled water or water of equivalent purity.

## 4 Apparatus

Ordinary laboratory apparatus and

**4.1 Ultraviolet molecular absorption spectrometer,** fitted with a hydrogen or deuterium lamp.

**4.2 Two quartz cells,** of optical path length 1 cm, as minimum.

## 5 Procedure

### 5.1 Test portion and preparation of the test solution

Weigh to the nearest 0,1 g, 50 g of the test sample, dissolve it in 50 ml of water, and mix.

### 5.2 Determination

#### 5.2.1 Spectrometric measurements

Fill one of the cells (4.2) with the test solution (5.1) and fill the other cell with water.

Carry out the spectrometric measurements, using the spectrometer (4.1) set at a wavelength of 290 nm, after having adjusted the instrument to zero absorbance against water.

#### 5.2.2 Check for absorbance of cells

Fill the two cells used for the measurements (5.2.1) with water and measure the absorbance of each cell at a wavelength of 290 nm.

One of the cells will read "zero" since it has been used to adjust the instrument to zero absorbance.

NOTE — The difference between the measured absorbances should not exceed 0,003.

## 6 Expression of results

The absorbance at a wavelength of 290 nm, expressed in relation to an optical path length of 1 cm, is given by the formula

$$\frac{(A_1 - A_0)}{l}$$

where

$A_0$  is the correction for the difference in absorbances of the cells (see 5.2.2);

$A_1$  is the absorbance (5.2.1) of the test solution (5.1);

$l$  is the optical path length, in centimetres, of the cell.

## 7 Test report

The test report shall include the following information :

- a) an identification of the sample;
- b) the reference of the method used;
- c) the results and the method of expression used;
- d) any unusual features noted during the determination;
- e) any operation not included in this International Standard or regarded as optional.