

Plastics — Determination of caprolactam and its cyclic and linear oligomers by HPLC

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Summary of pages

This document comprises a front cover, an inside front cover, the ISO title page, pages ii to v, a blank page, pages 1 to 14, an inside back cover and a back cover.

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cycliques et linéaires par CLHP*



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Foreword

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International Standard ISO 15033 was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 5, *Physical-chemical properties*.

Annex A forms a normative part of this International Standard. Annex B is for information only.

Introduction

The basic method specified in this International Standard can be used for the HPLC determination of the cyclic oligomers of caprolactam up to and including the hexamer ($n = 6$), using UV detection. Simultaneously, after post-column reaction of the primary amine with 1,2-phthalic dicarboxaldehyde, on-line determination of the linear oligomers up to and including the hexamer can be carried out.

The determination is not quantitative for oligomers higher than the hexamer ($n > 6$). In the determination of cyclic oligomers, the sensitivity for the tetramer and higher oligomers is constant, which means that calibration should take place up to and including the tetramer ($n = 4$).

For the determination of linear oligomers, it is assumed that the fluorescence sensitivity of the product of the reaction between the primary amino group and 1,2-phthalic dicarboxaldehyde and 3-mercaptopropionic acid is determined only by the *iso*-indole group, so that calibration with ϵ -aminocaproic acid ($n = 1$) is sufficient.

In general, the separation between ϵ -caprolactam and the cyclic dimer is sufficient. However, if there is a large excess of ϵ -caprolactam relative to the cyclic dimer, the latter cannot be determined quantitatively. For these cases, an alternative HPLC method, using the same basic equipment, is included in this International Standard.

