
**Plastics/rubber — Polymer dispersions and
rubber latices (natural and synthetic) —
Determination of residual monomers and
other organic components by capillary-
column gas chromatography —**

Part 2:
Headspace method

*Plastiques/caoutchouc — Dispersions de polymères et latex de caoutchouc
(naturel et synthétique) — Détermination des monomères résiduels et
autres constituants organiques par chromatographie en phase gazeuse sur
colonne capillaire —*

Partie 2: Méthode de l'espace de tête



Foreword

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Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 13741-2 was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 9, *Thermoplastic materials*, in close collaboration with ISO/TC 45, *Rubber and rubber products*.

ISO 13741 consists of the following parts, under the general title *Plastics/rubber — Polymer dispersions and rubber latices (natural and synthetic) — Determination of residual monomers and other organic components by capillary-column gas chromatography*:

- *Part 1: Direct liquid injection method*
- *Part 2: Headspace method*

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International Organization for Standardization
Case postale 56 • CH-1211 Genève 20 • Switzerland
Internet central@iso.ch
X.400 c=ch; a=400net; p=iso; o=isocs; s=central

Printed in Switzerland

Introduction

The requirements imposed today by authorities include the assessment of the content of residual monomers and organic saturated volatiles, for health and environmental reasons sometimes down to minute traces. Former standards for measurement of residual volatiles based on distillation linked with titration cannot cope with such exigences.

This part of ISO 13741 presents an advanced method for the determination by gas chromatography, of residual monomers and other organic components in polymer dispersions and latices. This standard provides a method that is in line with present-day requirements for analytical methods and is intended for use instead of ISO 2008:1987, *Rubber latex, styrene-butadiene — Determination of volatile unsaturates* and ISO 3899:1988, *Rubber — Nitrile latex — Determination of residual acrylonitrile content*, where precise measurements of volatile-matter content are needed, and expands their scope to include other volatile organic components.

Plastics/rubber — Polymer dispersions and rubber latices (natural and synthetic) — Determination of residual monomers and other organic components by capillary-column gas chromatography —

Part 2: Headspace method

WARNING — This part of ISO 13741 does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user of this part of ISO 13741 to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

1 Scope

1.1 This part of ISO 13741 specifies a method for the determination of residual monomers and other (unsaturated or saturated) organic components in aqueous polymer dispersions and latices as well as in related products. It makes use of capillary-column gas chromatography, the sample being introduced into the chromatograph in vapour form from a headspace vial.

1.2 Residual monomers and saturated volatiles that have been successfully determined by this method include acrylic and methacrylic esters, butadiene, styrene and vinyl acetate, as well as by-products such as ethylbenzene.

1.3 Since the chromatograms obtained normally contain a series of peaks, it is only possible to determine the content of those volatiles for which response factors have been determined. For the identification of unknown peaks, auxiliary methods like mass spectroscopy or the use of a second GC column with a different polarity are advisable.

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this part of ISO 13741. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this part of ISO 13741 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 3696:1987, *Water for analytical laboratory use — Specification and test methods*.