NSAI
Standards

Irish Standard Recommendation
S.R. CEN/TS 17307:2019

# Material derived from End-of-Life tyres - Granulates and powders - Elastomers identification: Gas-chromatography and mass-spectrometric detection of pyrolysis products in solution

**S.R. CEN/TS 17307:2019**

*Incorporating amendments/corrigenda/National Annexes issued since publication:*

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard — national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation — recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

*This document replaces/revises/consolidates the NSAI adoption of the document(s) indicated on the CEN/CENELEC cover/Foreword and the following National document(s):*

*NOTE: The date of any NSAI previous adoption may not match the date of its original CEN/CENELEC document.*

| *This document is based on:* | *Published:* |
|---|---|
| CEN/TS 17307:2019 | 2019-03-27 |

| *This document was published* under the authority of the NSAI and comes into effect on: | ICS number: |
|---|---|
| 2019-04-14 | 83.160.01 |
| | NOTE: If blank see CEN/CENELEC cover page |


| | | |
|---|---|---|
| NSAI | T +353 1 807 3800 | Sales: |
| 1 Swift Square, | F +353 1 807 3838 | T +353 1 857 6730 |
| Northwood, Santry | E standards@nsai.ie | F +353 1 857 6729 |
| Dublin 9 | W NSAI.ie | W standards.ie |

Údarás um Chaighdeáin Náisiúnta na hÉireann

## National Foreword

S.R. CEN/TS 17307:2019 is the adopted Irish version of the European Document CEN/TS 17307:2019, Material derived from End-of-Life tyres - Granulates and powders - Elastomers identification: Gas-chromatography and mass-spectrometric detection of pyrolysis products in solution

This document does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

For relationships with other publications refer to the NSAI web store.

**Compliance with this document does not of itself confer immunity from legal obligations.**

*In line with international standards practice the decimal point is shown as a comma (,) throughout this document.*

This page is intentionally left blank

TECHNICAL SPECIFICATION

SPÉCIFICATION TECHNIQUE

TECHNISCHE SPEZIFIKATION

# CEN/TS 17307

March 2019

ICS 83.160.01

English Version

# Material derived from End-of-Life tyres - Granulates and powders - Elastomers identification: Gas-chromatography and mass-spectrometric detection of pyrolysis products in solution

Matériaux obtenus à partir de pneumatiques en fin de vie - Granulats et poudrette - Identification des élastomères : Détection par chromatographie en phase gazeuse et spectrométrie de masse des produits de pyrolyse en solution

Material aus Altreifen - Granulat und Mehle - Identifizierung von Elastomeren: Gaschromatographie und massenspektrometrische Detektion von Pyrolyseprodukten in Lösung

This Technical Specification (CEN/TS) was approved by CEN on 14 January 2019 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

CEN members are required to announce the existence of this CEN/TS in the same way as for an EN and to make the CEN/TS available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force (in parallel to the CEN/TS) until the final decision about the possible conversion of the CEN/TS into an EN is reached.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**



Ref. No. CEN/TS 17307:2019 E

# Contents

Page

## European foreword

This document (CEN/TS 17307:2019) has been prepared by Technical Committee CEN/TC 366 "Materials obtained from End-of-Life Tyres (ELT)", the secretariat of which is held by UNI.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

According to the CEN/CENELEC Internal Regulations, the national standards organisations of the following countries are bound to announce this Technical Specification: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

# Introduction

**WARNING — Persons using this Euopean Standard should be familiar with normal laboratory practice. This standard does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user to establish appropriate safety and health practices and to ensure compliance with any national regulatory conditions.**

# 1 Scope

This document specifies a method for the identification of the elastomers in granulates or powder derived from End-of-Life Tyres.

The method specified is a qualitative method only.

# 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 1407, *Rubber — Determination of solvent extract*

# 3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

# 4 Principle

A sufficient amount of granules or powder is compacted and homogenized in a laboratory mill and a small aliquot of the homogenized sample is then solvent extracted and subjected to pyrolysis at elevated temperature. Few drops of the liquid pyrolysis products are then diluted in dichloromethane for the GC/MS analysis. The use of the mass-spectrometric detector is a mean for improving the sensitivity and reliability of the identification of the elastomers present in low or trace amount, with threshold limit estimated to about 5 %.

The use of this standard pre-supposes sufficient working knowledge of the principles and techniques of gas chromatography/mass-spectrometry (GC/MS) for the analyst to perform the operations described and interpret the results correctly.

# 5 Reagents

**5.1 Dichloromethane**

**5.2 Acetone**

**5.3 Nitrogen,** for flushing the pyrolysis product.

# 6 Apparatus

All reagents shall be of analytical grade

**6.1 Extraction apparatus.** The apparatus specified in ISO 1407 is satisfactory.