
Gumeni materiali iz izrabljenih avtomobilskih gum - Smernice za skladnost z uredbama CLP in REACH - Granulati in praški

Rubber materials obtained from EndofLife Tyres - Guidelines for the compliance to CLP and REACH regulations - Granulates and powders

Leitlinien für die REACH-Konformität von aus ELT hergestellten Materialien

Matériaux caoutchouc issus des PUNR (Pneus Usagés Non Réutilisables) - Guide pour la conformité aux réglementations CLP et REACH - Granulats et poudrettes

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European foreword

This document (CEN/TR 18325:2026) 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.

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Introduction

According to its article 2.2, Regulation (CE) 1907/2006 of the European Parliament and the council and subsequent amendments concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (hereinafter REACH or REACH Regulation) does not apply to Waste. However as soon as ELT derived materials have ceased to be waste following a recycling or other recovery operation they fall, like any material containing chemicals, within the scope of both CLP (Regulation (CE) 1272/2008 concerning the classification, labelling and packaging of chemical substances and mixtures) and REACH.

According to the REACH guidance on waste and recovered substances, substances are recovered either on their own or as part of a mixture.

At the point they cease to be waste ELTs derived granulates and powders also referred to in this document as ELT derived rubbers are considered mixtures by ECHA¹.

This document aims to bring in a single document the existing data on both the nature and the concentrations of relevant hazardous substances expected in ELT derived rubbers based on of the substances used in the tyre supply chain and their impurities, their reaction species, their intrinsic hazard in order to help their hazard classification under CLP and substantiate the exemption from REACH registration requirements as provided by article 2.7(d) to REACH. The approach essentially relies on the guidelines given in the REACH guidance on waste and recovered substances².

This document needs to be reviewed periodically to assess the potential need for update depending on the regulatory developments on individual substances.

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¹ As per the European Commission opinion presented at the CARACAL conference of 29 June/1 July 2016 (CA/30/2016),

² European Chemicals Agency (ECHA), "Guidance on waste and recovered substances," Version 2.0, European Chemicals Agency, Helsinki, 2010, available at: https://echa.europa.eu/documents/10162/23036412/waste_recovered_en.pdf/657a2803-710c-472b-8922-f5c94642f836

1 Scope

This document compiles scientific and technical information on the composition of ELT derived rubbers aiming at helping ELT recyclers and producers of ELT derived rubbers complying with the main requirements of the European CLP and REACH regulations.

This document builds on existing literature data and on the REACH guidance on waste and recovered substances to:

- identify the relevant hazardous substances expected in ELT derived rubbers and the expected concentration ranges;
- assess the hazardous classification of the material according to the CLP Regulation;
- support the exemption from REACH registration requirements as provided by article 2.7(d) to REACH.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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

- ISO Online browsing platform: available at <https://www.iso.org/obp/>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1

article

object which, during production, is given a specific shape, surface or design that determines its function to a greater degree than its chemical composition

[SOURCE ECHA, <https://echa.europa.eu>]

3.2

chemical safety assessment (CSA)

process determining the risk posed by a substance and, as part of the exposure assessment, developing exposure scenarios including risk management measures to control the risks

[SOURCE ECHA, <https://echa.europa.eu>]

3.3

end-of-life tyre (ELT) derived rubber

rubber recovered/recycled from end-of-life tyres

Note 1 to entry: this includes granulates and powders

Note 2 to entry: please refer to the definition of end-of-life tyre in 3.10

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3.4

granulate

end-of-life tyre derived rubber with particle sizes typically ranging from 0.8 mm to 20 mm obtained from a granulation process

3.5

granulation process

successive shredding, crushing, fragmentation, sorting, and sieving of ELTs in order to separate the textile and metal reinforcements from the rubber matrix

3.6

mixtures

mixture or solution composed of two or more substances

Note 1 to entry: under the EU chemicals legislation, mixtures are not considered substances³

3.7

persistent, Bioaccumulative and Toxic (PBT)

substances recognized for their long-lasting presence in the environment, their accumulation in living organisms, and their harmful effects on health and ecosystems

3.8

powder

end-of-life tyre derived rubber with particle size typically less than 0.8 mm obtained from a granulation process

3.9

safety data sheet (SDS)

document listing information relating to environment, health and safety for the use of substances and mixtures

Note 1 to entry: : SDS information often encompasses instructions for the safe use of a material or product, potential hazards associated with it, and procedures for handling spills

3.10

End-of-Life Tyre

tyres no longer suitable for use for its original purpose

3.11

vPvB

substances that are very persistent and very bioaccumulate

3.12

carcinogenic, mutagenic, and reprotoxic chemicals (CMR)

substance or mixture which meets the criteria for classification as carcinogen or germcell mutagen or toxic for reproduction⁴

³ CLP, <https://eur-lex.europa.eu/eli/reg/2008/1272/oj/eng>

⁴ Annex I to Regulation (EC) No 1272/2008 of the European Parliament and of the Council (1)

4 Classification Labelling and Packaging Regulation (CLP): Identification of the relevant hazardous substances expected in ELT derived rubber

This section deals with the assessment of the intrinsic chemical hazards of ELT derived rubber as per the Classification Labelling and Packaging Regulation (CLP) (Regulation (EC) No 1272/2008 of the European parliament and of the council). The approach is based on a screening of the substances these materials may contain considering both the knowledge of the substances used in the tyre manufacturing supply chain and their potential derived substances or impurities and a literature review reporting qualitative and quantitative information on these substances.

Attention was paid to substances with known hazards or substances deemed of concern because of their toxicological profile and related scientific or regulatory debates (phthalates for example).

The vast majority of published data on substances in ELT derived rubbers are about granulates and specifically those used as infill material in artificial turfs. Nevertheless, as only size reduction processes and no chemical reactions are involved in the production of these materials, it is assumed for the purpose of this screening that the data available on granulates also apply to powders. The details of the approach are given in Annex B.

As a summary of this screening exercise attention is drawn mainly to five substances: 6PPD, Silica, Zinc, DPG and BPH (Table 1).

Table 1 — List of Substances with CAS Numbers

Substances	CAS Number
6PPD	793-24-8
Silica	7631-86-9
Zinc	7440-66-6
DPG	102-06-7
BPH	119-47-1

6PPD has been voluntarily classified as Reprotoxic cat 1B in 2019 by its lead registrant under EU REACH regulation (harmonized classification process launched November 2021, expected timeline late Q1 2026). This substance is a protection agent added in tyre rubber compounds to protect them against oxidation and ozone. The typical concentration of the substance in fresh tyre compounds is close to 1 %, but this concentration is expected to decrease because of its reaction with oxygen and oxidated species. The reported concentration ranges of 6PPD are under the 0,3 % European reprotoxic classification but close to it. The 6PPD content is measurable through a standardized test method [24], particularly considering that this content varies with the age of the feedstock.

Silica has been the subject of a notification for a classification as STOT RE Cat 1 (H372), following an evaluation concluded in 2021.

The regulatory process is ongoing, with several steps remaining. At this moment, drawing a conclusion on the outcome of the process remains premature. Consequently, there is a need to closely monitor the process and adapt the classification of ELT derived rubber, if necessary, in the event of a STOT RE 1 classification. Such a classification would entail a classification of ELT derived rubber as STOT RE 1 or STOT RE 2 depending on the silica content in the material. The classification thresholds are 1 % and 10 % for Cat1 and Cat 2, respectively. It is advisable to consider classifying based on real measurements of silica content rather than paper studies estimates. The expected timeline for the regulatory process to be completed is 2027.

Zinc (Zn) is generally reported at concentration above the classification threshold.