23 February 2023

Public

Proceedings

Workshop on the results of the Forum pilot project on *Recovered substances exempted from REACH registration*

Date: 30 November 2022

Time: 10:30-13:30 EET

Remote meeting

Chair: Oldrich Jarolim (WG Chair and CZ Forum Member)

Summary record of the proceedings

Item 1 – Opening of meeting

The WG Chair, Mr Oldřich Jarolím, the CZ Forum member, welcomed the participants, representing ECHA's Accredited Stakeholders organisations from the recovery sector, as well as some of their partner companies, national inspectors representing REACH, waste and environment national authorities, staff from the European Commission (COM) representing DG ENV (Environment), DG RTD (Research and Innovation) and JRC (Joint Research Centre), and observers from ECHA.

Item 2 - Presentation of the project results

The WG Chair gave a summary of the project[1] where it was found an overall non-compliance rate of 26% with REACH Article 2(7)d investigated in this project.

The main recommendation to the waste operators were to know better their recovered substances and their real uses in the market as well as to gather more and better information about the sameness of their substances with an already registered one, in order to benefit from the REACH exemption. Moreover, the waste operators should increase their knowledge about the chemical legislation, in particular on REACH registration and were advised to liaise with national authorities and helpdesks for guidance on this task.

A representative from the recycle industry noted that the project's high number of cases where the End-of-waste (EoW) status was granted by the company itself could be due to the complexity of the matter and the high number of such substances. Hence, he recommended for the waste operators to assess all the criteria set in Article 6 of the Waste Framework directive, document it and if not possible by other means, to take the decision themselves. A Forum member stressed that it was an important area that needed further improvement.

A Commission representative informed that the development of the EU-wide EoW criteria has re-started under the circular economy action plan and there was work ongoing for some waste streams, such as textiles. Many streams do not have EU EoW criteria but are defined nationally and supported by Article 6 of the Waste Framework directive. Currently, the granting of the EoW status relied on supervision and national enforcement activities.

On the assessment of "sameness" when inspectors visited the company, the chair shared his experience as an inspector: the inspected company provided the evidences upon request, and they were not documents specifically prepared for enforcement authorities. The representative from plastic recyclers added that their companies recycle polymers (out of the scope of REACH), but they recommend their members to check whether the monomers have been registered and to have the data on the type of polymer in question. Such information could be sufficient to prove "sameness". It was noted that there was no information from the project on monomers.

Replying to a participant, the chair clarified that the high number of inspections from one Member State did not greatly impact the results, as numerous of them were out of scope.

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[1] Presentation of the project results given on 9 November 2022, in the 2022 Forum Open session

Project report:
https://echa.europa.eu/documents/10162/17088/pilot_recovered_substances_en.pdf/bf588a50-705c-1b0f-b3f4-77eb5a59c5b8?t=1667885572609

The chair clarified that the project did not investigate the implementation of EoW criteria in the different participating countries and how it correlated with the project results.

Item 3 – National experiences: Challenges with pyrolysis oil and REACH registration

The presenter from a Danish consultant company shared the main steps of the pyrolysis that processes plastics at hight temperatures and where an oil can be recovered. According to his data, the components were clearly identified and he could find them registered in ECHA's website. Moreover, there was already a registration for pyrolysis oil originating from waste plastics. He questioned how to prove "sameness" of hid oil with other previously registered.

ECHA Head of Unit of Support and Enforcement shared that the questions raised were issues that were under discussion in other fora and no clear answer could be given at that moment. The Forum pilot project showed the challenges and weaknesses in this area and hopefully its recommendations to COM would be noted and considered during the REACH revision. For the moment, he advised to record the information and document the conclusions reached.

Additionally, an ECHA expert and also WG member, explained the reasoning behind the reply to the enquiry submitted to ECHA. She advised to follow the guides and learn more about REACH to conclude on the sameness. The conclusion on "sameness" should be reached by the waste operator itself and there was no need to have a confirmation from ECHA (*e.g.* via an enquiry). However, it should be substantiated with sufficient evidence to satisfy the inspectors.

There should also be a contact with the lead registrant to discuss and assess if the substances was the same. These discussions should also be documented in order to be provided to authorities when needed. The presenter noted that it could be challenging to contact the lead registrant and request access to sensitive information by a competitor. If there was no reply, at least the waste operator could have records that they tried to engage in a dialogue with the lead registrant. In that case, ECHA could help via a data sharing dispute.

On the best way to prove the substance as "end of waste", the representative from a recycling organisation advised the presenter to check the case-by-case decisions made by the authorities in the Netherlands of such products. Moreover, if the product was sold without the "end of waste" status, it could only be sold to companies with waste permits.

Item 4 – Chemical Management in Circular Economy: IMPEL guide on REACH Regulation and Circular Economy

The presenter introduced the organisation, highlighting the work being done by IMPEL's waste management and circular economy group, which was drafting a guidance on REACH Regulation and Circular Economy, planned to be finalised by end of 2022/early 2023.

Replying to a representative from the recycling industry, it was considered to include only situations when to provide or retrieve information from the SCIP data base as there was not much experience with it for waste products.

Item 5 – Compliance and quality expectation for recycled plastics

The presenter, representing the European Waste Management Association (FEAD), introduced a general picture of the legislations supporting the transitions to circular economy. In particular, the presenter focused on the status of plastic recycling and shared some initiatives from the recycling industry to make recycling sustainable, trustworthy and cost-effective.

Replying to a participant on the new developments of the EU-wide end-of-waste criteria being developed by the European Commission, the presenter replied that, from the German perspective, there were divergences between the authorities of the different federal states. Hence, clear EU criteria was much welcomed.

Answering a question from the WG chair, although not covered in the pilot project, the organisation considered that the plastics recycled were exempted from REACH registration and hence the monomers were not registered.

Item 6 – REACH/CLP compliance of complex mixtures: the successful case study of End-of-life (ELT)-derived rubber

The presenter from EuRIC gave a general outlook of the organisation, highlighting the EU policy on waste and circular economy as one of the main drivers of the work developed. He informed on the products that used ELT rubbers, its market, and the identified challenges that need to be overcome in order to be able to achieve the objectives of the different policies under the circular economy principle.

He invited the Forum members to visit a tyre recycling facility by liaising with EuRIC and welcome to collaborate with the Forum to work on the recommendations of the project.

A representative from ECOPNEUS presented an Italian project with the recycled rubber from ELT to provide the necessary tools to comply with REACH provisions to companies in the supply chain of this recycled material. In this project it was concluded, among other things, that ELT-recycled rubber could benefit from the exemption from REACH registration.

Item 7 – Conclusions and action points

Item 3 – National experiences: Challenges with pyrolysis oil and REACH registration
HET to share with the participants the ECHA Guidance on data sharing by 9 December 2022 (Done)

The Chair thanked the participants for the discussions held.

Annex I. Final agenda of the Workshop

The Forum for Exchange of Information on Enforcement (FORUM)

Workshop on the results of the Forum pilot project on

Recovered substances exempted from REACH registration

Date: 30 November 2022
Time: 10:30 – 13:20 Eastern European Time

Remote meeting

Chair: Oldrich Jarolim (WG Chair and CZ Forum Member)

Agenda

Time EET	Item	Subject
10:00-10:30	*0.*	***Connection of the participants***
10:30-10:35	**1.**	**Opening of meeting**
10:35-11:00	**2.**	**Presentation of the project results**
11:00-11:20	**3.**	**National experiences: Challenges with pyrolysis oil and REACH registration** – *Lars Wassmann,* DK
11:20-11:50	**4.**	**Chemical Management in Circular Economy: IMPEL guide on REACH Regulation and Circular Economy** - *Topi Turunen, IMPEL*
Break 20 minutes		
12:10-12:40	**5.**	**Compliance and quality expectation for recycled plastics -** *Monica Pfeifer, European Waste Management Association (FEAD)*
12:40-13:10	**6.**	**REACH / CLP compliance of complex mixtures: the successful case study of ELT-derived rubber** - *Alejandro Navazas (European recycling industries, EuRIC) and Daniele Fornai (Ecopneus)*
13:10-13:20	**7.**	**Conclusions and actions points**
13:20	**8.**	**End of the Workshop**

Annex II. List of Attendees

ECHA's accredited stakeholders and partner companies

	Name	Organisation
1	Annick Meerschman	Cefic
2	Dunja Drmac	Cefic
3	Ioana Blaj	Cefic
4	Jerker Ligthart	ChemSec
5	Kristof Bogaert	Denuo
6	Wendy Wellens	ECI
7	Daniele Fornai	Ecopneus
8	Roger Creswell	ESRG - European Solvent Recycler Group
9	Alex van Gelderen	ETRMA
10	Julien De Cruz	Eurima
11	Alejandro Navazas	European Recycling Industries' Confederation
12	Paolo Campanella	FEAD
13	Topi Turunen	Finnish Environment Institute SYKE
14	Aline Granjard	FNADE
15	Inneke Claes	FuelsEurope
16	Lars Raahauge	Genan Holding A/S
17	David Cressey	Lubrizol
18	Lars Wassmann	Mediator A/S
19	Arnaud Dosnon	OSILUB
20	Patrick De Kort	Plastics Recyclers Europe
21	Michel Cassart	PlasticsEurope
22	Susanne Madelung	PVP (EuRIC)
23	Daniel Schockmann	REGUPOL BSW (EuRIC)
24	Monica Harting	REMONDIS Recycling GmbH
25	Olaf Kral	Shell Deutschland GmbH
26	Jérôme Tuti	TOTALENERGIES
27	Andrey Andreev	TotalEnergies OneTech Belgium
28	Yves Decelle	VEOLIA
29	Vincent Stone	VinylPlus
30	Lauriane Veillard	Zero Waste Europe

Representatives of Enforcement Authorities

	Country	Name
1	AT	Michael Fuchs
2	BE	Chris Van Den Hole
3	BE	Mieke Vandenhaute
4	BE	Philip Tanghe
5	BE	Tuan Khai Tran
6	BG	Denitsa Tsakova
7	BG	Elena Tchobanova
8	CZ	Zbyněk Dvořák
9	DE	Angelina Gadermann
10	DE	Anja Hackmann
11	DE	Sibylle Wursthorn
12	DK	Ida Scharff
13	DK	Louise Jensen
14	EL	Aikaterini Kasapidou
15	EL	Konstantinos Dellios
16	EL	Konstantinos Kordoutis
17	EL	Maria Tsaknaki
18	EL	Panagiota Skafida
19	ES	Abel Rodríguez Blanco
20	ES	Beatriz Jarabo
21	ES	Elena Oliva
22	ES	Lidia Ferrer-Bosch
23	ES	Inés Iribarren
24	ES	Inmaculada Martinez
25	ES	Julia Campos
26	ES	Laura León
27	ES	Maria Tarancon
28	ES	Matilde Revuelta
29	ES	Marta Garcia Esteban
30	ES	Inma Escorihuela
31	ES	María Jesús Chávarri
32	ES	María Jiménez De Los Galanes
33	ES	Natalia Ruiz Rodriguez
34	ES	Raquel Alonso
35	ES	Yudani Pousada Ferradás
36	IT	Antonietta Covone
37	IT	Daniele Carpanelli
38	IT	Luigia Scimonelli
39	NL	Christan, Enno
40	NL	Mirjam Van Der Meer
41	NO	Cathrine Skjærgård
42	PT	Ana Correia
43	PT	Ana Paula Rodrigues
44	PT	Ilda Gato
45	PT	Jessica Pinto
46	PT	Rui Cabrita
47	SE	Caroline Nilsson

WG members

	Country	Name
1	CZ	Oldřich Jarolím
2	DK	Ida Scharff
3	DK	Maria Thestrup
4	ES	Almudena Ovejas
5	NL	Peter Hellema
6	PT	Neide Lourenço
7	ECHA	Rossella Demi

European Commission representative

	DG	Name
1	RTD	Aleksandra Malyska
2	ENV	Enrique Garcia John
3	JRC	Erika Pierri
4	JRC	Lukas Egle

ECHA

	Name	Unit
1	Eduardo Barreto Tejera	Support and Enforcement Unit
2	Erwin Annys	Support and Enforcement Unit, Head of Unit
3	Maciej Baranski	Support and Enforcement Unit
4	Tania Mateus	Support and Enforcement Unit

Annex III. Glossary

Term	Description
CLP or CLP Regulation	Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures
COM	European Commission
ECHA	European Chemicals Agency
End of waste (EoW) or EoW material	Any material that has formally lost its status of waste. Article 6.1 of the Waste Framework Directive (WFD) imposes the conditions that have to be met for a material to lose its waste status (see Table 4).
Forum	The Forum for Exchange of Information on Enforcement: Network of authorities responsible for the enforcement of the REACH, CLP, PIC and BPR regulations in the EU, Iceland, Liechtenstein and Norway.
IMPEL	EU Network for the Implementation and Enforcement of Environmental Law.
Mixture	A mixture or solution composed of two or more substances (REACH Article 3(2)).
Pilot enforcement project	A coordinated enforcement project of the Forum to which usually a limited number of Member States participate, often by way of a test project.
REACH or REACH Regulation	Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals
Recovered substance	In the context of this project, the term 'recovered substance' is synonymous with 'end-of-waste material'.
SCIP	Is the database for information on Substances of Concern In articles as such or in complex objects (Products) established under the Waste Framework Directive
SDS	Safety data sheet.
Substance	A chemical element and its compounds in the natural state or obtained by any manufacturing process, including any additive necessary to preserve its stability and any impurity deriving from the process used, but excluding any solvent which may be separated without affecting the stability of the substance or changing its composition (REACH Article 3(1)).
Waste	Any substance or object which the holder discards, intends to discard or is required to discard. National rules define which authority is competent for declaring a substance or object as waste (Waste Framework Directive Article 3(1)).
Waste Framework Directive (WFD)	Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives
WG	Working group of the ECHA Forum.

Annex IV. List of presentations

Item	Subject	Presentation
2.	**Presentation of the project results –** *WG Chair*	**See attachment IV.1**
3.	**National experiences: Challenges with pyrolysis oil and REACH registration** – *Lars Wassmann,* DK	**See Attachment IV.2**
4.	**Chemical Management in Circular Economy: IMPEL guide on REACH Regulation and Circular Economy** - *Topi Turunen, IMPEL*	**See Attachment IV.3**
5.	**Compliance and quality expectation for recycled plastics -** *Monica Pfeifer, European Waste Management Association (FEAD)*	**See Attachment IV.4**
6.	**REACH / CLP compliance of complex mixtures: the successful case study of ELT-derived rubber** - *Alejandro Navazas (European recycling industries, EuRIC) and Daniele Fornai (Ecopneus)*	**See Attachment IV.5**

Annex IV.1

ECHA
EUROPEAN CHEMICALS AGENCY

Workshop on the results of the Forum pilot project on Recovered Substances exempted from REACH registration

2. Presentation of the project results

30 November 2022

Oldřich Jarolím
WG Chair

Content

- Project overview
  - Background
  - Objectives
  - Scope
  - Target groups and substances
  - Timeline
- Results
- Conclusions
- Recommendations
- Next steps

Project overview

- Background
- Objectives
- Scope
- Target groups and substances
- Timeline

Background

→ pilot project of the Forum explored, for the first time, the interface between REACH and Waste

→ project intended to investigate the **exemption of REACH Registration obligation** (REACH Article 2(7)(d)) in the waste recycling sector

→ the REACH inspectors were encouraged to establish synergies with the Waste inspectors

Objectives

- → assess the target group's compliance with REACH provisions on the **registration** of recovered substances in the waste recycling sector
- → assess whether the recovered substance/mixture fulfils the **EoW criteria** required by the WFD
- → assess the level of compliance of **SDSs** or **CLP** (optionally)
- → where required, **enforce** compliance of target groups with REACH/CLP/POPs obligations covered in the project
- → foster **information exchange** between REACH and waste inspectors
- → **raise awareness** for REACH obligations among waste operators

Scope of the project

→ to better understand the criteria that are described in **REACH Article 2(7)(d)** regarding the exemptions of recovered substances from the REACH registration obligations

→ only recovered substances that lost their status of waste (i.e. **end-of-waste**) and that are put in the market

→ Optionally: CLP labelling and packaging ~~and POPs Article 3~~

Target groups

Companies

→ all companies who place recovered substances on the market that are subject to REACH requirements

- They can be waste operators that recycle waste and place recovered substances, that have become EoW, on the market

Substances

→ All recovered substances

→ Some materials were recommended

Timeline

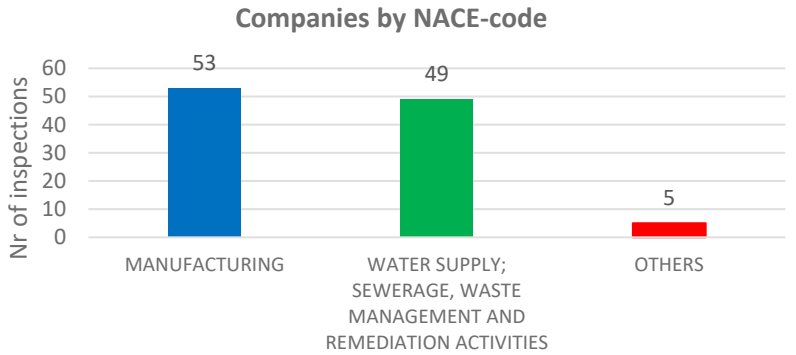
Preparation	Operation	Reporting	Follow-up
2020	2021	2022	Q4 2022
➢ Manual ➢ Questionnaire ➢ Training inspectors	➢ National inspections	➢ Analysis of national results ➢ Project report	➢ Workshop with stakeholders

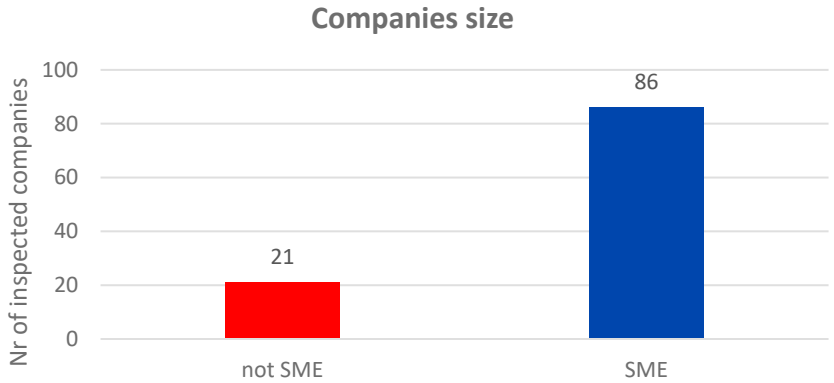
Proceedings of the Workshop

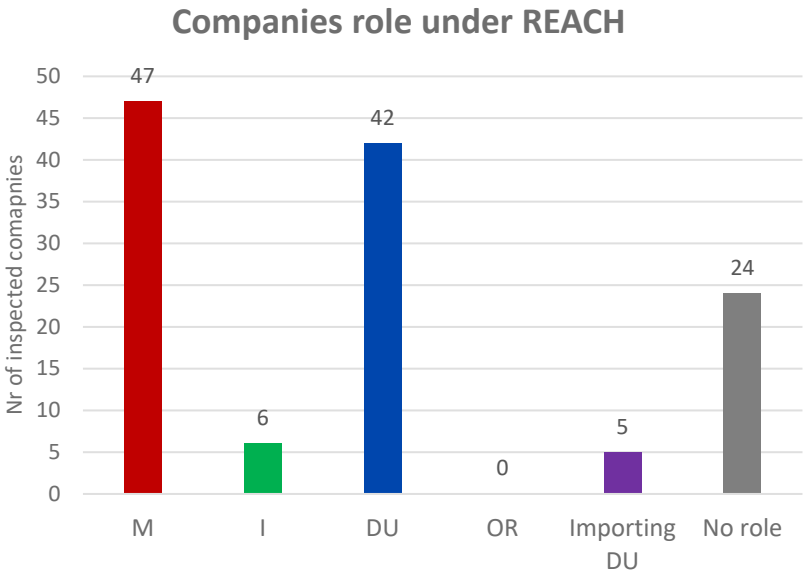
Results

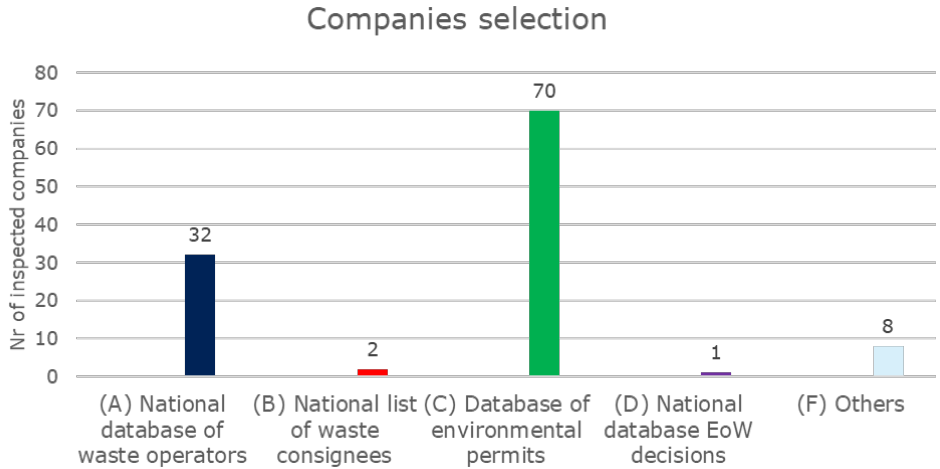
11 countries participated

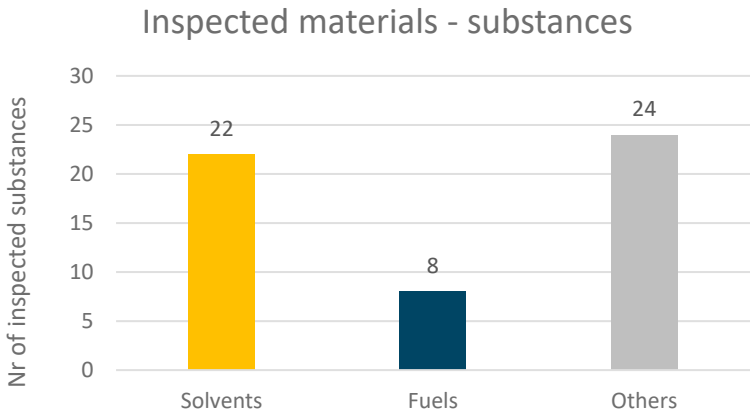
No	Country	Number of inspected products
1	BE	11
2	CZ	12
3	DE	2
4	DK	2
5	EE	3
6	ES	10
7	FR	3
8	NL	4
9	NO	1
10	PT	5
11	RO	54
SUM		**107**



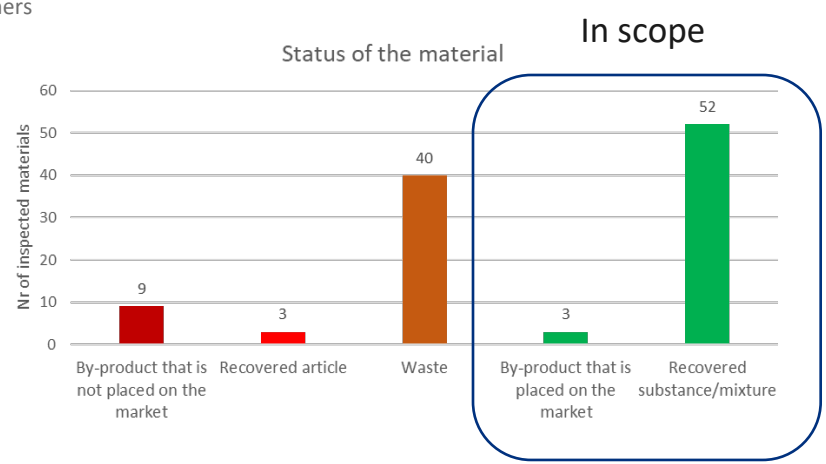



Companies role under REACH
Nr of inspected comapnies
50
45
40
35
30
25
20
15
10
5
0
47
6
42
0
5
24
M
I
DU
OR
Importing DU
No role


Companies selection
Nr of inspected companies
80
70
60
50
40
30
20
10
0
32
2
70
1
8
(A) National database of waste operators
(B) National list of waste consignees
(C) Database of environmental permits
(D) National database EoW decisions
(F) Others

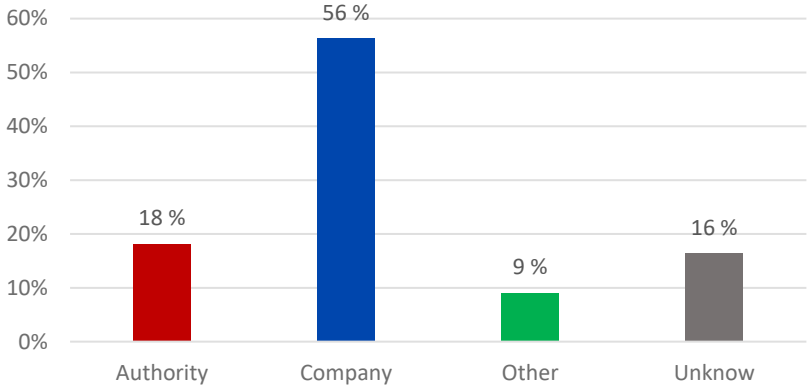


most frequently investigated waste: "*other organic solvents, washing liquids and mother liquors*"

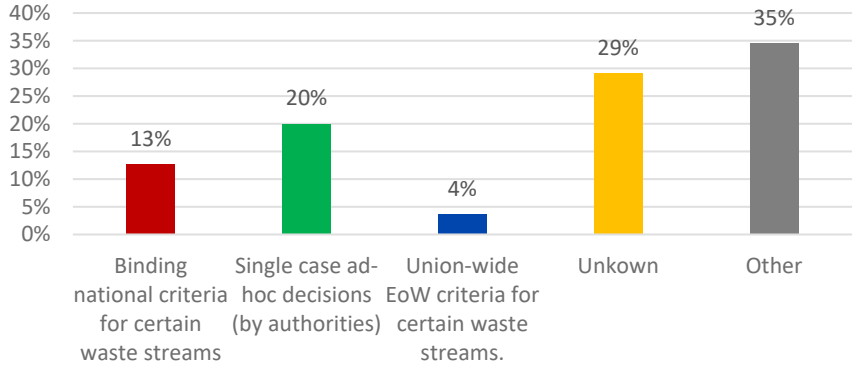


- **46 Exempted REACH 2(7)d**
- 6 other exemptions
- 3 Registered

Who granted EoW status



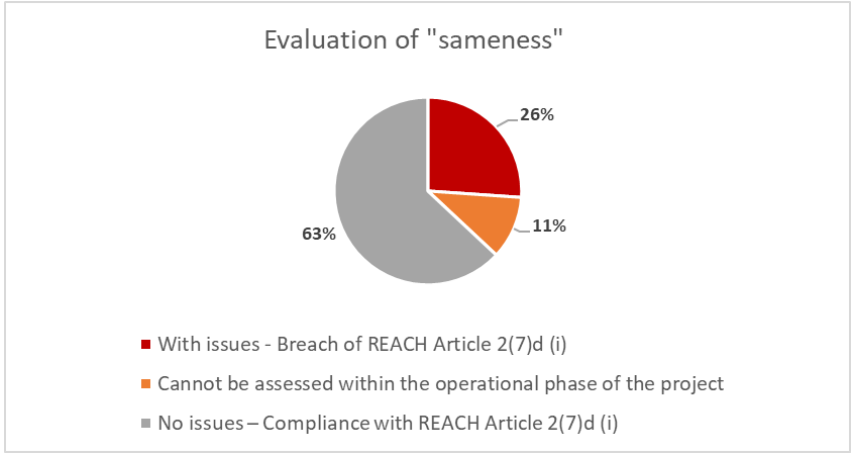
Background of EoW



Sameness - Art 2(7)(d) (i)

→ Dutyholder to collect sufficient information and data to demonstrate that he has identified his recovered substance

→ knowledge of the variability of the composition; substance corresponds sufficiently (“sameness”) in all its components with already registered substances

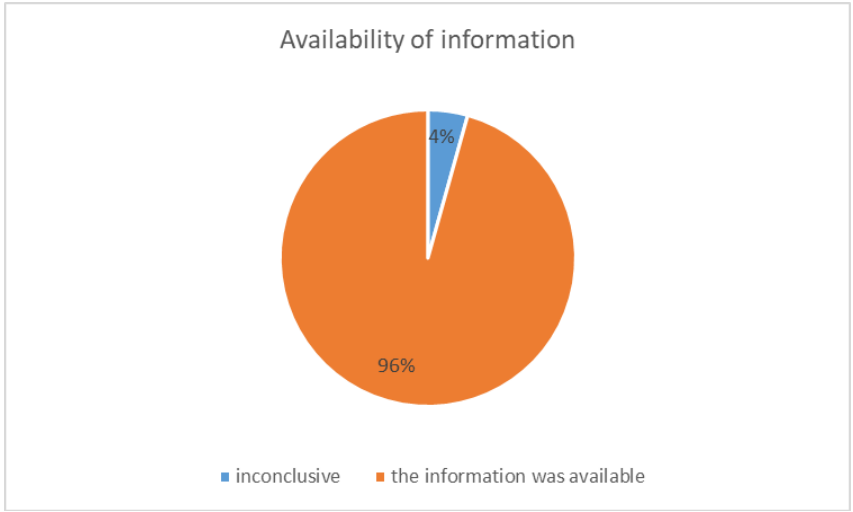


Availability of information

→ **Second condition** for application of registration exemption

- „the information required by Articles 31 or 32 relating to the substance that has been registered in accordance with [REACH] Title II is available to the establishment undertaking the recovery”
- Does not mean that the waste operator has to get the safety information from the registrant

- It was checked the availability of information, disregarding the quality of such information



Other investigations

→ 19 inspections CLP on Classification, labelling, notification – 37 % non-compliances

CLP Obligation	Number of non-compliances
Classification according to title II	3
Labelling according to title III	2
Packaging according to title IV	0
Notification to ECHA Art 40	5
Notification according to the SDS	4

→ POPs regulation – no reports

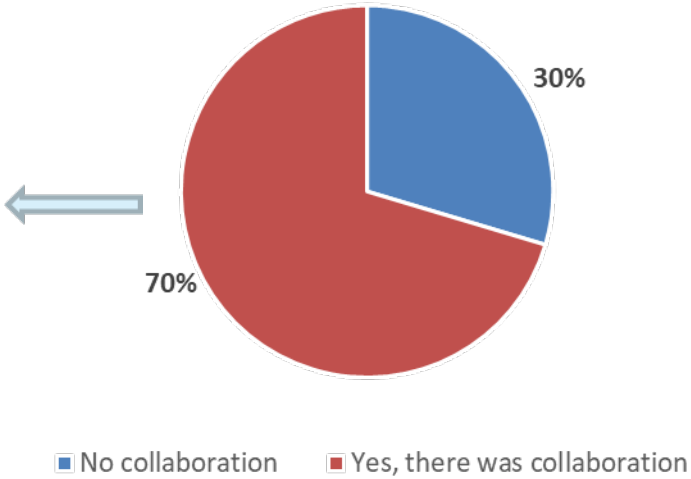
Enforcement actions

Enforcement measures	Number of non-compliances	%
Written advice	7	39 %
Others: e.g. assessment still ongoing	7	39 %
Administrative order	3	17 %
Fine	1	6 %
No measures	0	-
Verbal advice	0	-
Criminal complaint / Handing over to public prosecutor's office	0	-

Cooperation

92 % Waste authorities

Collaboration with other authorities



IMPEL project "Interaction between REACH and waste" during 2021

- Inspectors encouraged to liaise with national IMPEL contact points and organise joint inspections

Cooperation between authorities via

- Cooperation Agreement
- Information exchange protocol

Other findings

- **Registration duty only falls to the first registrant**: the wording of Article 2(7)(d) leads to the situation where only the first waste operator producing the recovered substance has to register this substance. All subsequent waste operators producing the same recovered substance can benefit from this registration by claiming sameness to a registered substance it has been "registered before"

- **Intermediate dossier used as registration of the recovered substance with limited amount of hazard information**: substance was not used as intermediate but as a way to create a "low cost" registration dossier, that can be used by other companies and thus benefiting from the exemption

- **How to prove "sameness" of a UVCB substance with an already registered substance**: Joint submission for the petroleum substances derived from crude oil: the registration itself excluded recycled materials and thus it would never be possible for recovery operators to claim the "sameness" requirements for the Article 2(7)d exemption

Conclusions

Main conclusions

- → Challenging to find suitable companies to investigate in this project due to a lack of experience in the area
- → In the majority of cases (56%), the end of waste claim was made by the recovery operator itself. Only in 18 % was the status granted by an authority.
- → In only 59 % of cases, the EoW claims of the inspected material were verified *ex post* by inspectors
- → 26% non-compliance with REACH Article 2(7)(d)
- → 96% of cases companies provided the information required to satisfy REACH Article 2(7)d(ii). However, not all were compliant in all its sections
- → Communication between authorities not always easy: to reach the objective of European Commission's Green Deal and its circular economy plan, national authorities need to learn to "**talk with one language**"

Recommendations

Recommendations

→ Industry / Waste operators

- ✓ Ask your customers about the real uses of the recovered substance they place on the market to be able to update their safety data sheets
- ✓ Ask the competent authorities or national helpdesks for advice and guidance
- ✓ Collect or produce more and better evidence to prove sameness of a recovered substance to a registered substance
- ✓ Strive to learn more about registration duties for recovered substances, with special attention to UVCB substances

Recommendations

→ REACH NEAs

- ✓ Monitor the situation of recovered substances placed on the market given the high percentage of non-compliance found in this project
- ✓ Inspection bodies to make more use of national databases of end of waste (EoW) decisions and waste operators

→ Waste authorities

- ✓ Put more effort in the assessment and confirmation of the EoW status of recovered substances

→ Member States

- ✓ Promote close cooperation between REACH/Waste inspectors to ensure that the recovered substances placed on the market meet requirements of all EU chemicals legislation
- ✓ Raise awareness with waste operators about their obligations with chemicals legislation

Recommendations

→ Forum

- ✓ Cover the scope of this project in a future REF project due to the significant number of detected non-compliances
- ✓ Exchange information with IMPEL on the issue of recovered substances and raise awareness in this network

→ European Commission

- ✓ Work towards the harmonisation of the EU criteria for EoW in other areas not yet covered by EU legislation
- ✓ Revise REACH Article 2(7)(d) so that the burden of the registration is not just on the first waste operator that registers the recovered substance

Recommendations

→ **ECHA**

- ✓ Review the Guidance on waste and recovered substances of May 2010 by removing the rule that the use of a recovered substance is not limited to the identified uses of the “original” registered substance. The uses of recovered substances should be limited to the identified uses in the registration dossier

- ✓ Clarify the fact that every recovery operator is a potential registrant, and that the substance identification data must be generated according to Section 2 of Annex VI to REACH in order to provide evidence to support the exemption

Final considerations

→ First Forum project investigating the interface between REACH and Waste

→ Important project findings shared with all actors (Forum, COM, Industry)

→ Actors to take note of the recommendations and implement them as much as possible

Thank you!

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EUchemicals

Introduction

Lars Wassmann working at Mediator

Working with REACH, CLP, Dangerous gods

Mediator is a consultancy company active in the fields of chemistry, the environment, and dangerous goods with a focus on finding dynamic and flexible solutions for our customers

Mail: LW@mediator.as

Technology

- The technology is based on pyrolysis which processes the plastic at high temperatures. Pyrolysis can be used to treat polymers that have exhausted their potential for mechanical recycling or otherwise cannot be recycled

Technology

- The pyrolysis facilities can process batches containing almost all kinds of plastic waste – homogeneous and nonhomogeneous. It creates a stable production and limits the resources needed for waste sorting before the pyrolysis process.
- The plastic oils can be used in the production of new plastic products or as fuels.

REACH tasks

- Identification of the recovered substance

FTIR analysis

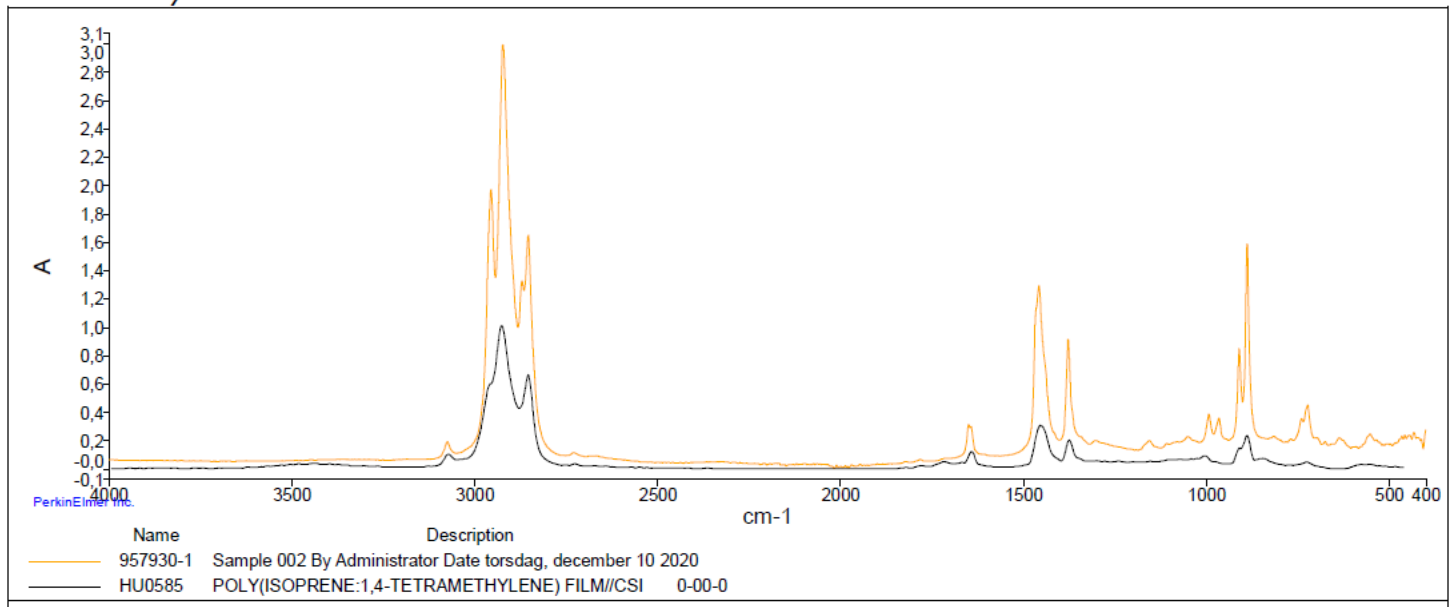


Figure 1: FTIR spectrogram from sample 957930-1 is shown using bronze colour. The black line shows the closest match in the FTIR library (correlation 91%).

REACH tasks

- Identification of the recovered substance

GC/MS analysis, most dominant peaks

Component	RT [min]	CAS no.	Concentration* [mg/kg]	Area of total detected
2,4-Dimethyl-1-heptene	4.555	19549-87-2	59000	10%
1-Nonene	6.010	124-11-8	6100	1.0%
Not identified, co-elution of several compounds	6.101	-	13000	2.3%
Nonane	6.261	111-84-2	7000	1.2%
1-Decene	7.652	872-05-9	6500	1.1%
Decane	7.796	124-18-5	6200	1.1%
Not identified	8.657	-	8200	1.4%
Not identified, likely an unsaturated alifatic compound	8.695	-	6900	1.2%
Dodecane	9.706	112-40-3	6100	1.0%
1-Tridecene	10.374	2437-56-1	7200	1.2%

REACH tasks

- Result of identification
- The FTIR analysis showed a correlation with three technical mixtures for polymers and two specific organic compounds: nonane and methylheptane. This result confirms the findings in the GC/MS screening.

REACH tasks

- Result of identification
- A total of at least 295 different compounds were detected in the GC/MS screening
- All identified compounds were either alkanes or alkenes.

REACH Article 2(7)(d)

- The following shall be exempted from Titles II, V and VI:
- Substances, on their own, in mixtures or in articles, which have been registered in accordance with Title II and which are recovered in the Community if:

1. the substance that results from the recovery process is the same as the substance that has been registered in accordance with Title II; and
2. the information required by Articles 31 or 32 relating to the substance that has been registered in accordance with Title II is available to the establishment undertaking the recovery.

Already registered substance

Identification

Display Name:	Pyrolysis light oil from waste plastics
EC Number:	940-514-0
Molecular formula:	Not required for a UVCB-substance (mixture of multiple (>100) organic substances)
IUPAC Name:	Pyrolysis light oil from waste plastics

Already registered substance

- Pyrolysis light oil from waste plastics

Constituent 1		
	Reference substance name:	n-alkane
	IUPAC Name:	n-alkane
Constituent 2		
	Reference substance name:	n-alkene
	IUPAC Name:	n-alkene
Constituent 3		
	Reference substance name:	Branched Alkene
	IUPAC Name:	Branched Alkene
Constituent 4		
	Reference substance name:	Branched Alkane
	IUPAC Name:	Branched Alkane

REACH question

- Is it the same substance as the one already registered and who can decide if it is?
- What about the tonnage band for the registered substance (<10 ton)?
- The oil needs purification for use as a chemical. What if I sell the oil for purification is it then still considered a waste product?

REACH question

- Tried to perform an inquiry
- ECHA answer was:
  - the information on the source material is limited to "waste plastic". This is however overly generic description and may cover different polymeric materials, e.g. polyethylene, polypropylene, polystyrene, polycarbonate, polyvinyl chloride etc. Therefore please provide more detailed information on the identity and composition of the starting materials including their origin.

REACH question

- I hope to get a better and more detailed guidance on recovered substances and a kind of help desk to ensure, the same practice in all EU

Annex IV.3

Chemical Management in Circular Economy – IMPEL guide on REACH Regulation and Circular Economy

30.11.2022

SYKE: Topi Turunen

Introduction to IMPEL

- The European Union Network for the Implementation and Enforcement of Environmental Law (IMPEL) is an international non-profit association of the environmental authorities of the EU Member States, acceding and candidate countries of the European Union and EEA countries.
- The core of the IMPEL activities concerns awareness raising, capacity building and exchange of information and experiences on implementation, enforcement and international enforcement collaboration as well as promoting and supporting the practicability and enforceability of European environmental legislation.
- Waste management and circular economy group of IMPEL is currently drafting a guidance on REACH Regulation and Circular Economy

SYKE

Overview on the new guidance

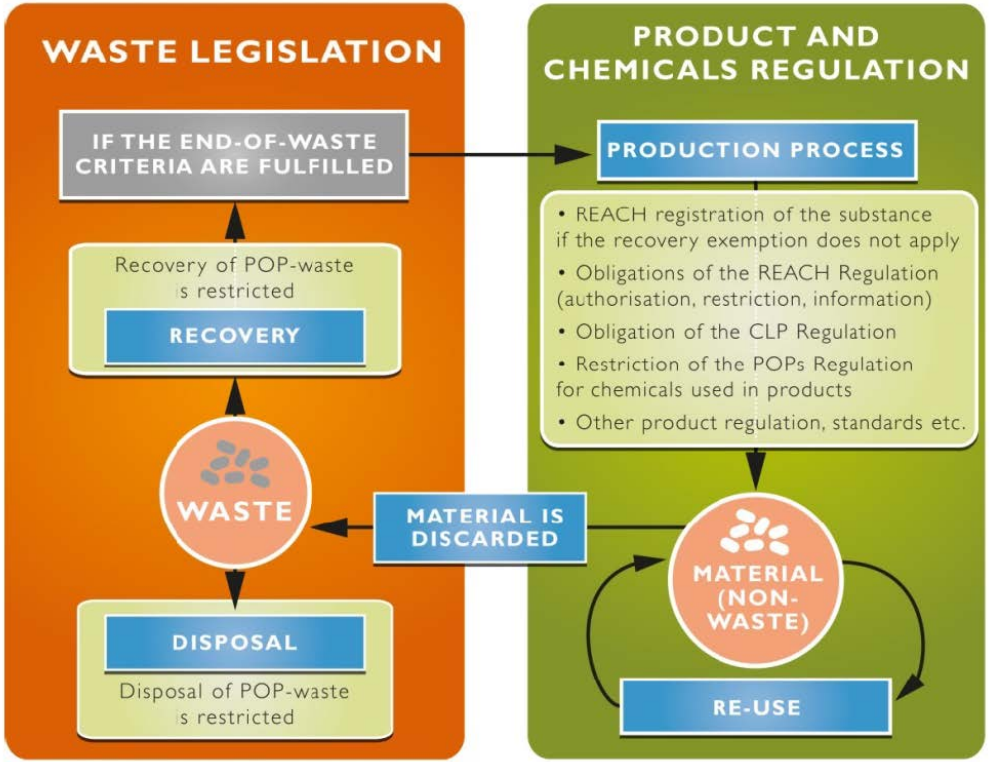
- Guidance is needed for applying REACH Regulation in CE: ” 1/4 substances recovered from waste non-compliant with REACH”
- The aims to provide a stand-alone document on guidance for REACH and WFD: Practical guidance with example
  - Going beyond the existing IMPEL guidance on the subject but less technical than ECHA’s REACH guides
  - Finalizing the document by end of 2022/start of 2023.

SYKE

Table of content

SYKE

Applicability of REACH



SYKE

Basic requirements of REACH Regulation

- As the exemptions are quite rarely applied, the guidance for basic requirements is crucial also for CE operators
- Once the material has ceased to be waste or is classified a by-product, it can fall under the application of REACH Regulation
- Registration: well-defined substances and UVCBs
- Authorisation
- Restrictions
- Information on SVHC’s and SCIP database

SYKE

Exemptions

- **By-product exemption**: REACH registration shall not apply to by-product, unless they are imported or placed on the market themselves.
- **Recovery exemption**: REACH registration is not applied to recovered substances if the substance that results from the recovery process is the same as a substance that has already been registered and the information required by articles 31 or 32 relating to the substance that has been registered in accordance with Title II is available to the establishment undertaking the recovery.
- **SR&D exemption**: applicable for a substance manufactured in scientific research and development (registration, authorization and restrictions)
- **PPORD exemption:** exemption from the obligation to register for a period of 5 years for substances manufactured or imported at tonnages >1 tonne/year when they are used in product and process orientated research and development (PPORD) or imported for the purpose of PPORD.

SYKE

Dutch examples of recovery exemption

Example: Pyrolysis oil is a recovered substance from a recovery process of waste car tyres. It did not have a “normal” substance registration so it had not been registered “before”. Thus article 2.7d was not applicable and the first manufacturer had to register this recovered substance in accordance with title II. The wording of Article 2(7d), leads to the conclusion that from now on, for other manufacturers of this recovered substance it fulfills the requirements to be exempted from registration: because now it has been registered “before”.

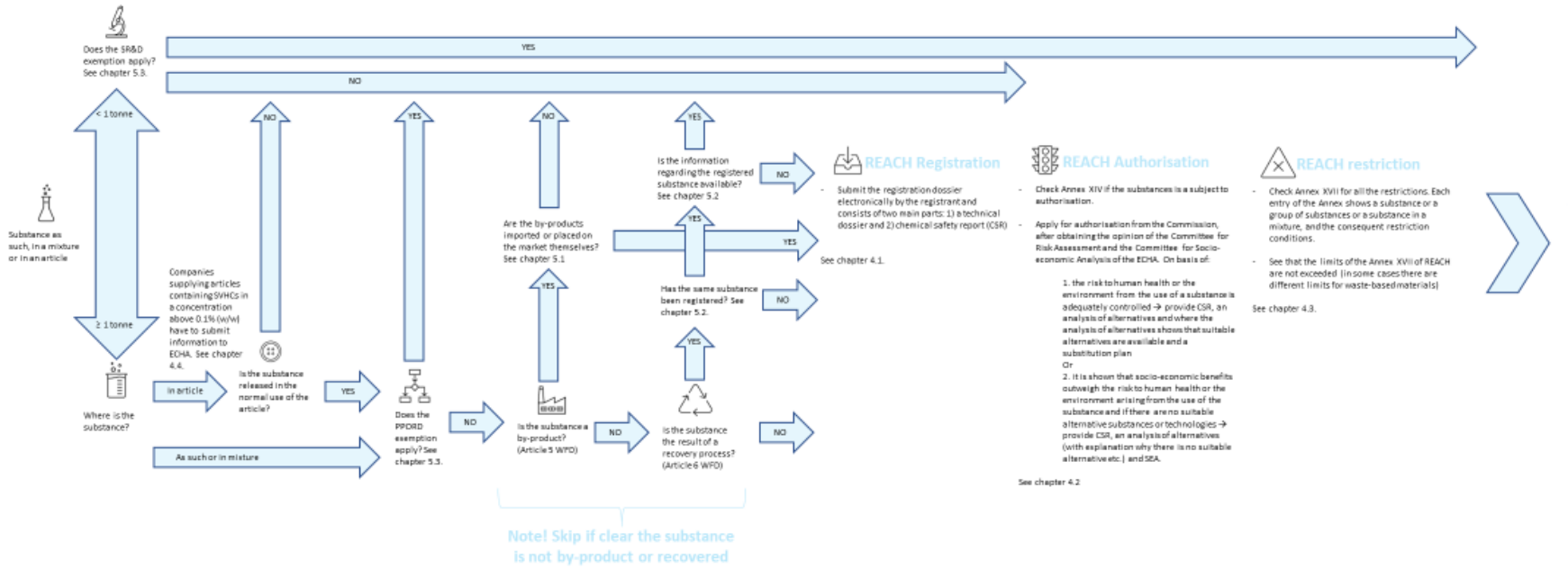
SYKE

Enforcement in Recovery Plants

- ECHA Forum Report on the pilot project on recovered substances exempted from REACH registration published in 4th of November.
- Recommendations
  - Waste operators placing recovered substances on the market should contact national authorities and helpdesks to gain knowledge about their substances. They should also be aware how the substances will be used by their customers.
  - National authorities enforcing REACH and the Waste Framework Directive should strengthen cooperation so they can jointly monitor the situation of recovered substances placed on the market and improve safety for humans and the environment.
  - The Enforcement Forum should pursue this subject and consider including it in the scope of an EU-wide enforcement project in the future.
  - ECHA should look into revising the current Guidance on waste and recovered substances.
  - The legal text would benefit from a revision to mitigate the shortcomings identified during the project. The European Commission should also work on harmonising the EU's end of waste criteria.

SYKE

REACH flowchart



SYKE

Questions? Thank you!

topi.turunen@syke.fi

SYKE

Annex IV.4

Compliance and quality expectation for recycled plastics

Forum pilot project on Recovered Substances exempted from REACH registration
30.11.2022

FEAD
European Waste Management Association

There are many legislations being updated currently, all supporting the transition to circular economy

FEAD
European Waste Management Association

Recycled Plastics: status quo

Recycled content in products rising slowly (about 11,7% in Germany, of which 9,1% are PCR and 2,6% PIR) and mostly used in construction products, packaging and agricultural products[1]

Almost all recycling of plastic is recovered through mechanical processes and falls under REACH article 2.7 d):

(d) substances, on their own, in preparations or in articles, which have been registered in accordance with Title II and which are recovered in the Community if:

> (i) the substance that results from the recovery process is the same as the substance that has been registered in accordance with Title II; and
>
> (ii) the information required by Articles 31 or 32 relating to the substance that has been registered in accordance with Title II is available to the establishment undertaking the recovery.

Documentation for recycled polymers:

1. Safety Data Sheet
2. Material Technical Data Sheet (contains information on purity)

FEAD
European Waste Management Association

[1] Source: Conversio Study 2021, PCR: Post Consumer Recyclates, PIR: Post Industrial Recylates

Recycling industry initiatives and development

Transition towards circular economy: More amount at better quality

Currently industry is working on developing standards for quality assessment and documentation:

DIN 1534*, DIN Spec 91446, PRE Standards, Standardization Roadmap DIN/ISO, CPA (Technical data sheet, EoW criteria)

Cospatox, PRE 1000 (Contamination, substances, applications)

Recyclass (D4R, Recycled content verification model)

But pastics (products) are very „diverse“: Requirements, thresholds and contaminant list may differ for polymers and applications (Example: PBDE check in WEEE but not in packaging)

Overall goal in defining requirements:

→ Make recycling sustainable, trustworthy and cost-effective to succeed in circular economy

FEAD
European Waste Management Association

Recycling process at a glance

precise sorting

effective washing

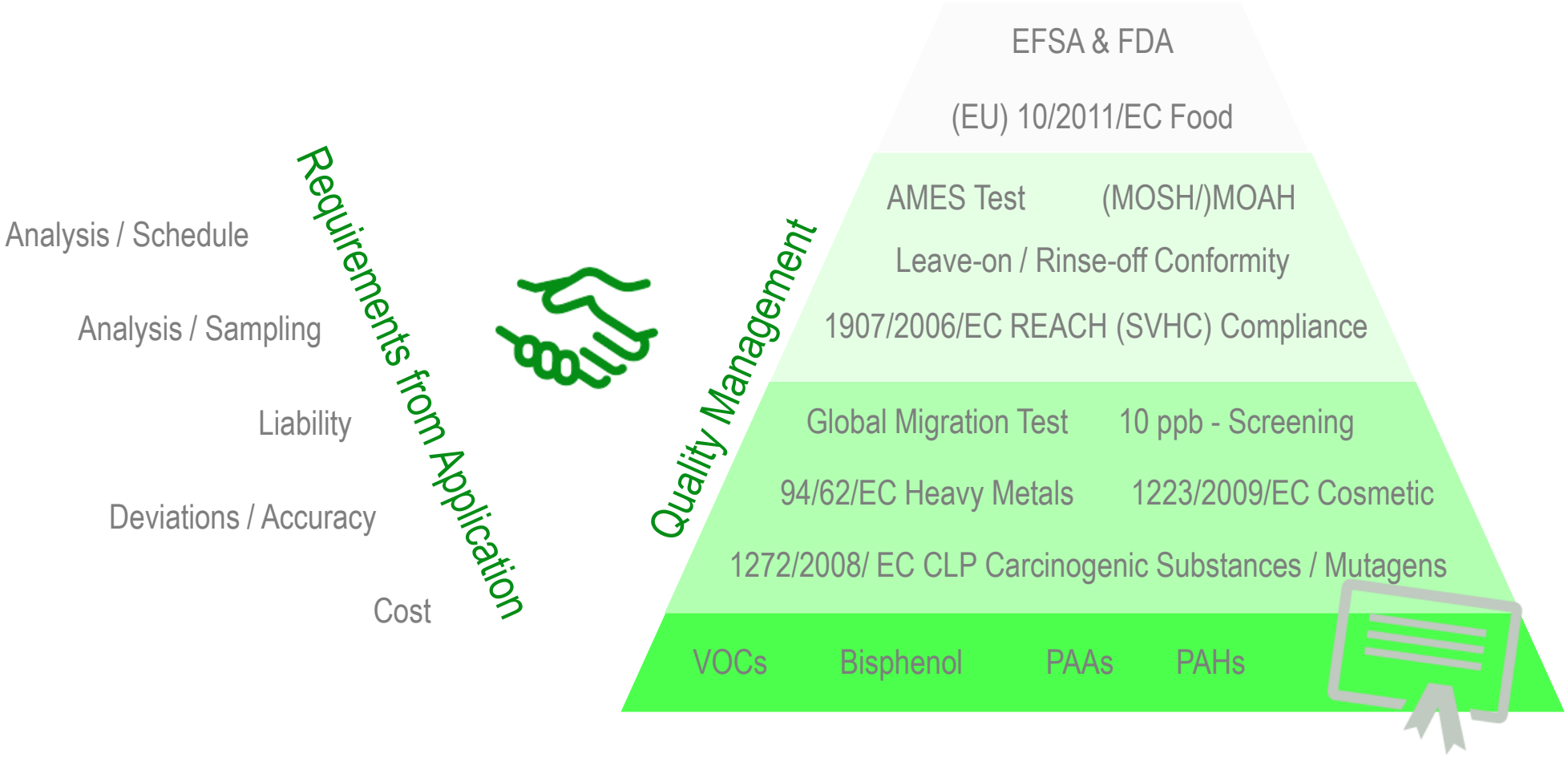
reliable granulating

innovative decontamination

of post-consumer plastics & preparing them for reuse in **high quality applications**.

FEAD
European Waste Management Association

Example: Quality Assurance in Recycling



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European Waste Management Association

To wrap up…

- Plastics (recycling) in transition, under high level of (legislative) attention.
  Many parallel actions → High effort of coordination needed
- Plastic recycling industry invested in further development, initiatives ongoing

Plastic recycling is key for circular economy and sustainability

FEAD
European Waste Management Association

ANY FURTHER QUESTIONS?

FEAD
European Waste Management Association

Thanks for the attention!

Contact details:
Monica Harting Pfeifer
Public Affairs Manager / Project Management Plastics Recycling

REMONDIS Recycling GmbH & Co. KG
monica.hartingpfeifer@remondis.de // remondis-recycling.de

FEAD
European Waste Management Association

Annex IV.5

The Forum for Exchange of Information on Enforcement (FORUM) Workshop on the results of the Forum pilot project on Recovered substances exempted from REACH registration

30 November 2022

REACH/CLP compliance of complex mixtures: the successful case study of ELT-derived rubber

Alejandro Navazas, Scientific Officer
anavazas@euric-aisbl.eu

Daniele Fornai, Technical director
d.fornai@ecopneus.it

EuRIC is the Confederation representing the interests of the European recycling industries at EU level.

23 EU and EFTA Member States

6,000+ companies including small and medium-sized entreprises

300,000 local jobs

An annual turnover of about €95 billion

Millions of tons of waste recycling every year

Ferrous metals

Non-ferrous metals

Plastics

Tyres

Paper

Textiles

EPRB
European Plastics Recycling Branch*

EFR
European Ferrous Recovery & Recycling Branch*

EuRIC MTR
Mechanical Tyre Recycling Branch*

ERPA
European Recovered Paper Branch*

EuRIC TEXTILES
Textiles Re-use & Recycling Branch*

EUROMETREC
European Non-Ferrous Metal Trade and Recycling Branch*

EuRIC

EuRIC MECHANICAL TYRE RECYCLING BRANCH (MTR)

EuRIC MTR Branch's main objectives are:

To monitor and analyse at EU level all legal, environmental, economic and technical issues relating to the collection, recycling, recovery, and shipment of ELT and its recyclates.

To ensure a proper representation of the European mechanical tyre recycling sector to the European institutions and liaise with relevant associations and other stakeholders inside and outside the EU that are active in the tyre value chain.

To provide expert input on EU policy and regulatory initiatives that could have an impact on the collection, recycling, recovery, and shipment of ELT and its recyclates.

To promote mechanical tyre recycling and the use of its end-products in various applications

EU-Circular Economy

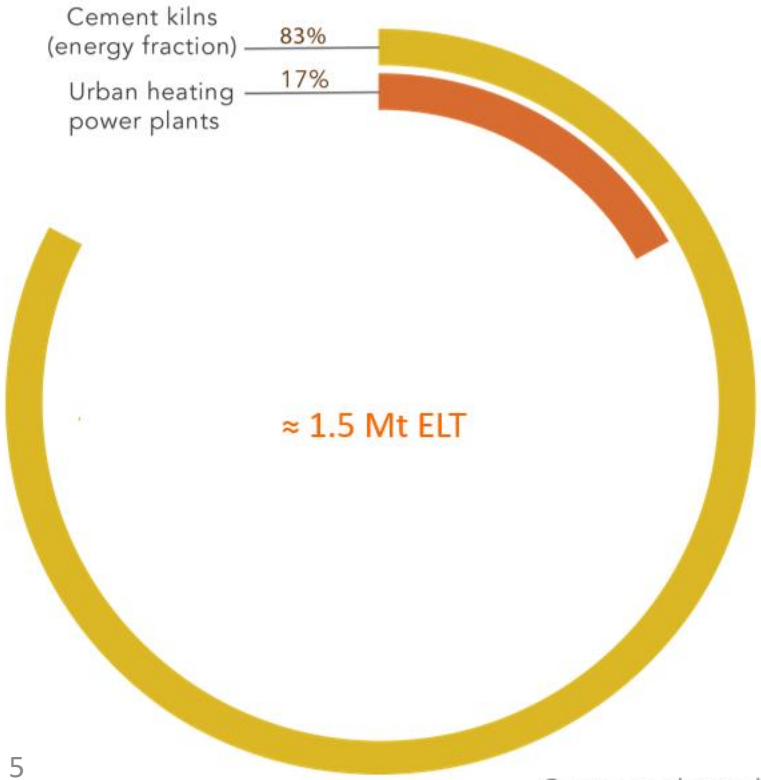
European industry only uses **12%** of recycled materials

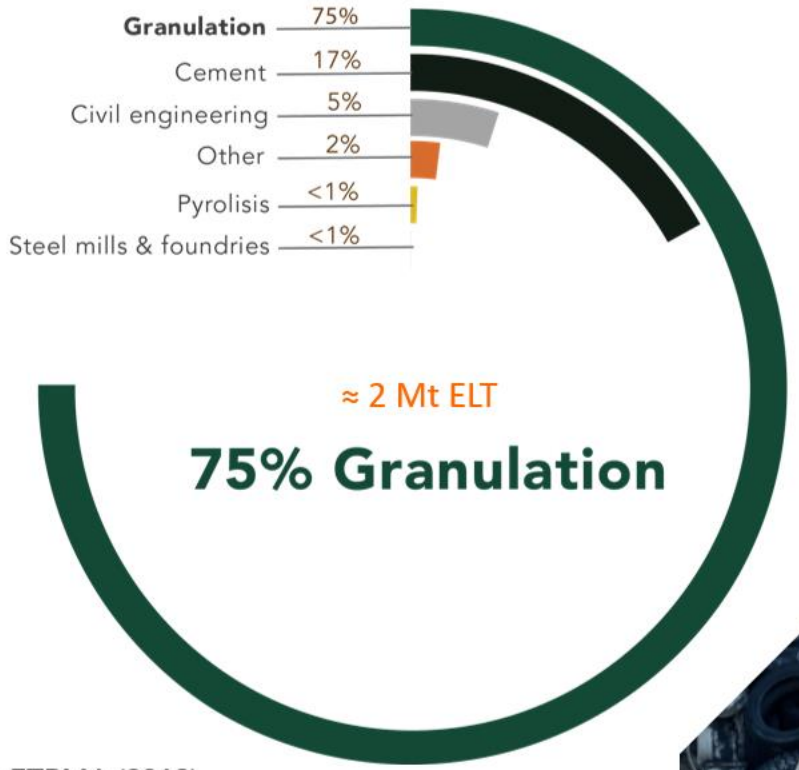
EU-Policy on waste:

- Eco-design
- Treatment at end-of-life
- Mandatory recycled content for some materials
- Standardisation

- Holistic policy framework is needed to enable the industry to grow
- Legislative clarity and certainty -imperative for investment decisions & capacity expansion
- Current EoL trends need to be reversed
- End of waste criteria harmonisation

In Europe 95% of all End-of-Life Tyres (ELT) were collected and treated





Tyre management trends in EU

Source: adapted from ETRMA (2019)

TYRES
YES, PLEASE!

THE CLEANER THE TYRES, THE BETTER THE RESULT!

OTHERWISE,
NO, THANK YOU!

BYCYCLE TYRES
or wheelbarrow tyres

PAINT OR ALGA
Coloured/painted tyres, old tyres used for silage covers or tyres covered with alga

TYRES WITH RIMS OR OTHER METAL OBJECTS

SELF-SEALING TYRES / LOW-NOISE TYRES
- neither passenger car tyres with self-sealing sealants or sound-absorbing foam nor bus or lorry tyres with fluid, coloured and chemical sealant

ALL RUBBER WASTE
e.g. rubber mats, inner tubes, elastic bands etc. – apart from passenger car tyres, lorry tyres, motorbike tyres and tractor tyres

=

75% rubber

+

15% steel

+

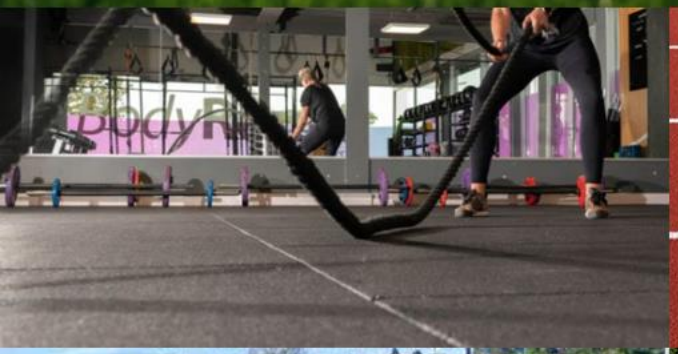
10% textile fibers

µm

mm



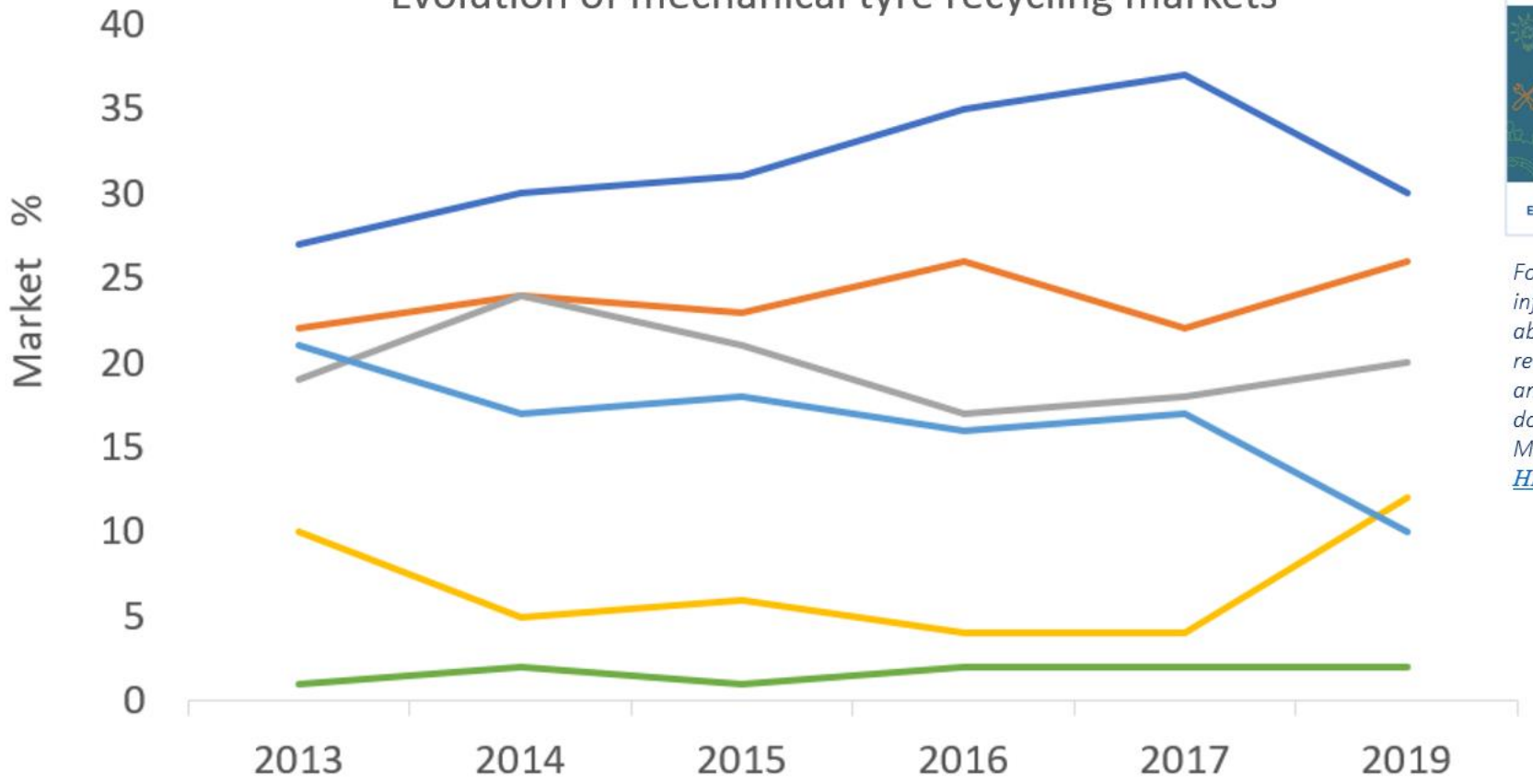




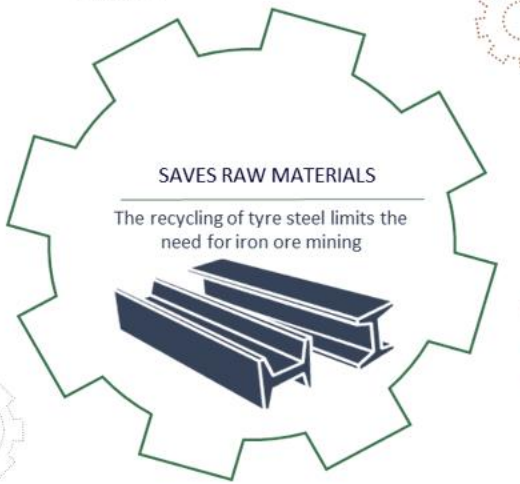
Infill	30%
Moulded objects	26%
Sports and playgrounds	20%
Other uses	12%
Export/trade	10%
Asphalt and road paving	2%

Evolution of mechanical tyre recycling markets



Source: adapted from ETRMA (2019)

For more information about tyre recycling, facts and figures, download EuRIC MTR Fact Sheet: HERE



EuRIC MTR-Priorities

Waste Shipment Regulation

No exports for whole tyres

More control on exports of rubber granulates from ELT (traceability)

Microplastics

Biggest ELT-market in danger

A ban proposal is on the table

Precautionary principle

Chemical strategy

Risk vs Hazard

Toxic-free world

Eco-design

Sustainability and recyclability from design

Quality mechanical recycling linked to circulatiry

To be applied on imports too

Recycled content targets

As a sure driver for more recycling

What products are more susceptible?

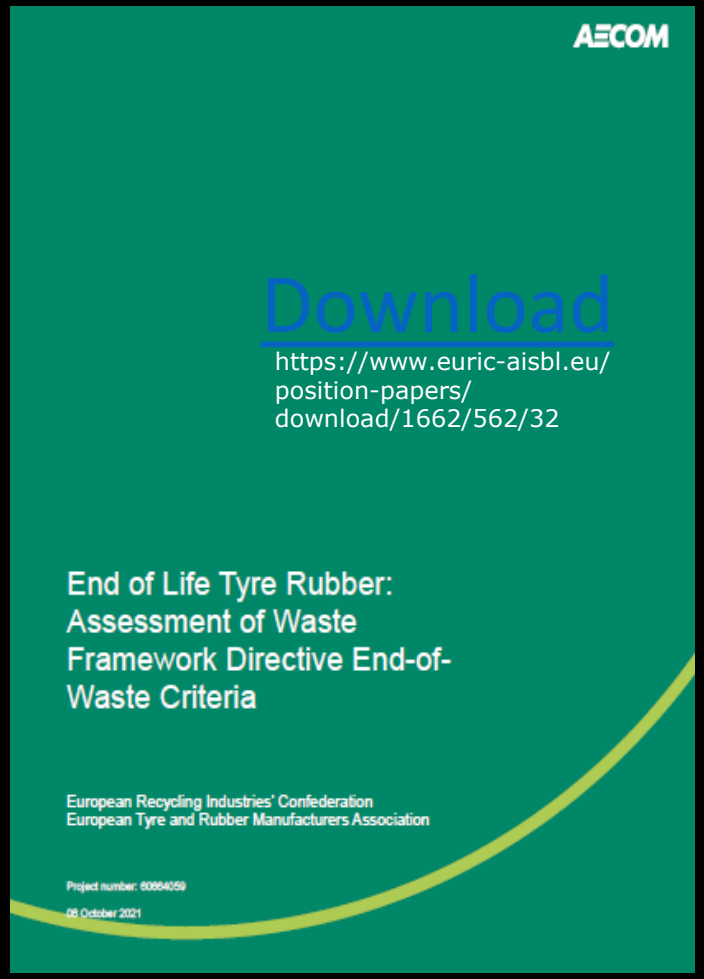
End-of-Waste

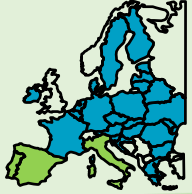
No date on the horizon for EU-wide – Prioritisation is needed

A united tyre value chain

NO TIME TO WASTE

EU-wide end-of-waste criteria for recycled rubber from tyres





EoW

EuRIC

ETRMA

Key benefits of EU-wide EoW for recycled rubber from tyres

Promote more material circularity

The existence of EoW for ELT-derived rubber is key to enhance ELT treatment way up in the waste hierarchy

Reduce waste and stockpiling

Stability of end- market applications is under pressure. EoW will release this pressure by activating the recycling market through enhanced recycled rubber demand

Non-waste but a product

Moving out from the waste status adds trust to the market of a material meeting the standards that the industry needs in terms of safety and quality criteria

Improve environmental footprint

By enhancing recycled contents, there is a reduction of imports from out-EU of natural rubber (a EU critical raw material) and synthetic rubber

Enhance investment

Investors' security will increase by leveling the playing field with virgin materials and supporting trade across EU borders in equal conditions and with equivalent opportunities

New applications

The development of innovative solutions for this valuable rubber resource comes by working with a product which is accountable for quality and safety

Click for more info on EoW: EuRIC / ETRMA

Today we are discussing this

26 % of checked substances are in breach of REACH

Recommendations:

- Awareness
- Collaboration with authorities
- Need for harmonisation

ECOPNEUS

Extended Producer Responsibility scheme
Operating since 2011

2.500.000 tons ELTs recovered in 10 years

Not-for-profit

DM78/2020: the Italian EoW for ELT-recycled rubber

Waste characterization

- Only ELTs can be used;
- Free of contaminants;
- Washing for removing mud and/or other impurities;
- ISO14001/EMAS

Technical specifications

- PAH < 20 mg/kg
- EOX, DOC
- Metals (leaching test)
- % free steel
- % free textile
- % other impurities

REACH compliance is a must

Specific uses

- Moulded articles
- Artificial turf infill
- Underlayer in playgrounds
- Asphalt & concrete
- Electric Arc Furnaces

ECOPNEUS

Recycled rubber: a complex mixture*

	Car tyres	Truck & Bus	Reacting during vulcanization?
Rubber/Elastomers	51%	57%	YES
Carbon Black and Silica	33%	33%	YES
Zinc Oxide	2%	3%	YES
Sulphur	1%	1%	YES
Accelerators/antidegradants	3%	3%	YES/NO
Stearic acid	1%	1%	YES
Oils	8%	2%	NO

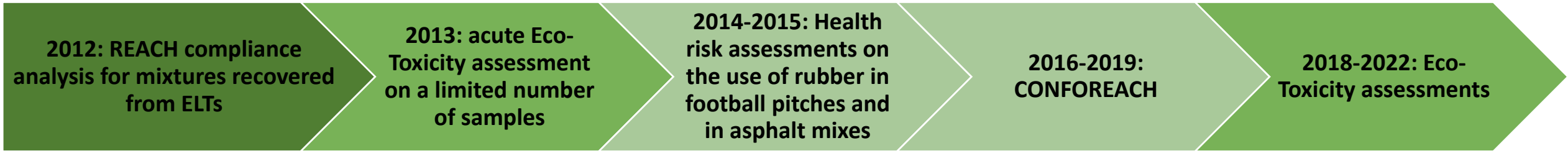
- Based on a literature search, **358 substances had been investigated in 96 international studies from 1991 to 2016**.

- ELT recyclers are **SMEs with limited resources**: a thorough REACH compliance assessment was beyond their reach.

ECOPNEUS

**at the 20th CARACAL-meeting (8/3/2016) rubber granulates were defined as "mixtures"*

CONFOREACH: a team effort



- Before 2016, Ecopneus had already carried out **several projects aimed at determining the safety-for-use of rubber granulates and powders**.
- The project CONFOREACH-GVG was launched in 2016 within the UNI working group dedicated to **ELT derived materials** (GL14).
- **20 tyre recyclers, 4 ELT management systems and 3 final-users** agreed to support the project.
- **The project technical advice was entrusted to Waste and Chemicals**, a consultancy company that Ecopneus had been working with since 2012.

Scope of the project

To provide companies involved in supply chain of ELT-recycled rubber with the necessary tools to comply with the provisions of the REACH Regulation

1.Tools needed to verify over time the compliance with REACH

Tools necessary to comply with the identified obligations

Tools to identify obligations under REACH they are currently subject to, through:

- Identifying their ROLE in the granule/powder supply chain
- The knowledge of the exact chemical composition of recycled rubber: identifying all SUBSTANCES “OF CONCERN” for REACH obligations

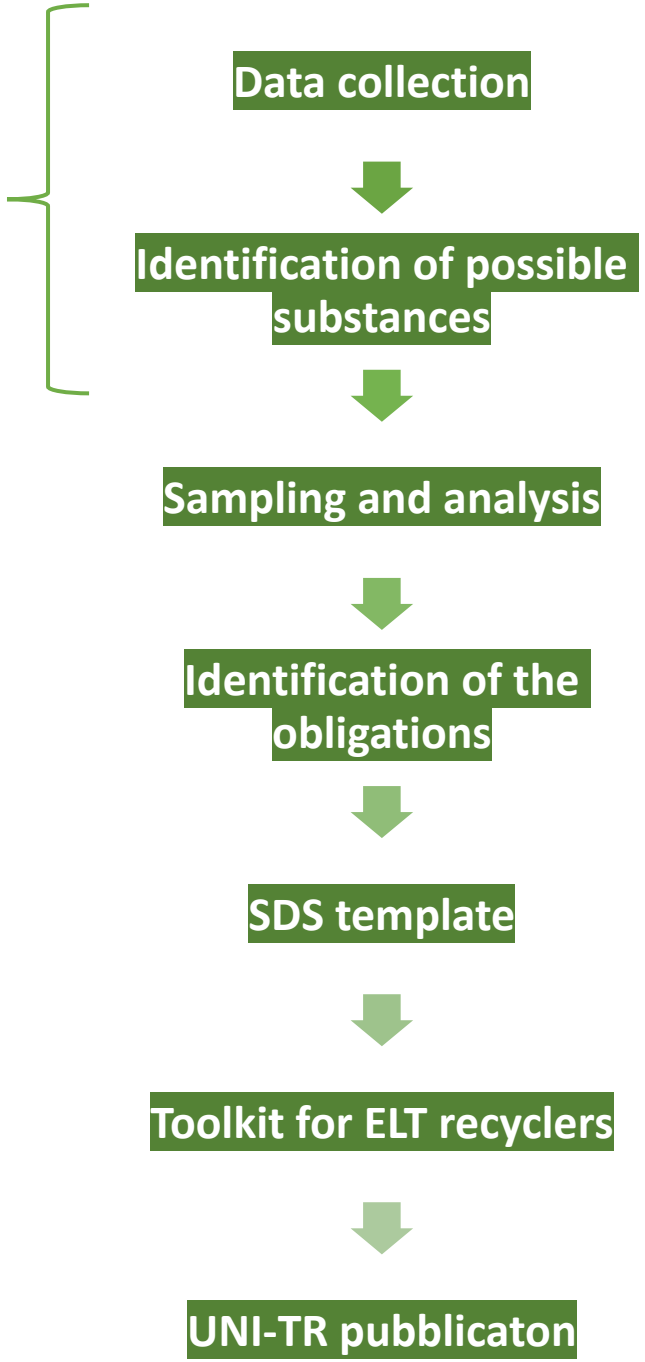
Phase 1 – pre-assessment

- **Collection of information provided by ELT Italian recyclers** about conventional testing of products, type of treatments, processing operations, final uses

- **Literature search to identify all the possible substances in rubber**:
  - EPA (2016) report on the use of rubber in artificial turf;
  - 96 international studies (1991-2016)
  - ETRMA-reports
  - List of registered substances (for rubber/tyre manufacturing)

- **Selection of the substances based on:**
  - Probability of presence in ELT products and
  - Importance of REACH obligations derived from their presence (e.g., CMR, SVHC, not-registered, PBT, vPvB)

→ n.167 possible substances



ECOPNEUS

Phase 2- sampling and analysis

20 recyclers → 20 samples

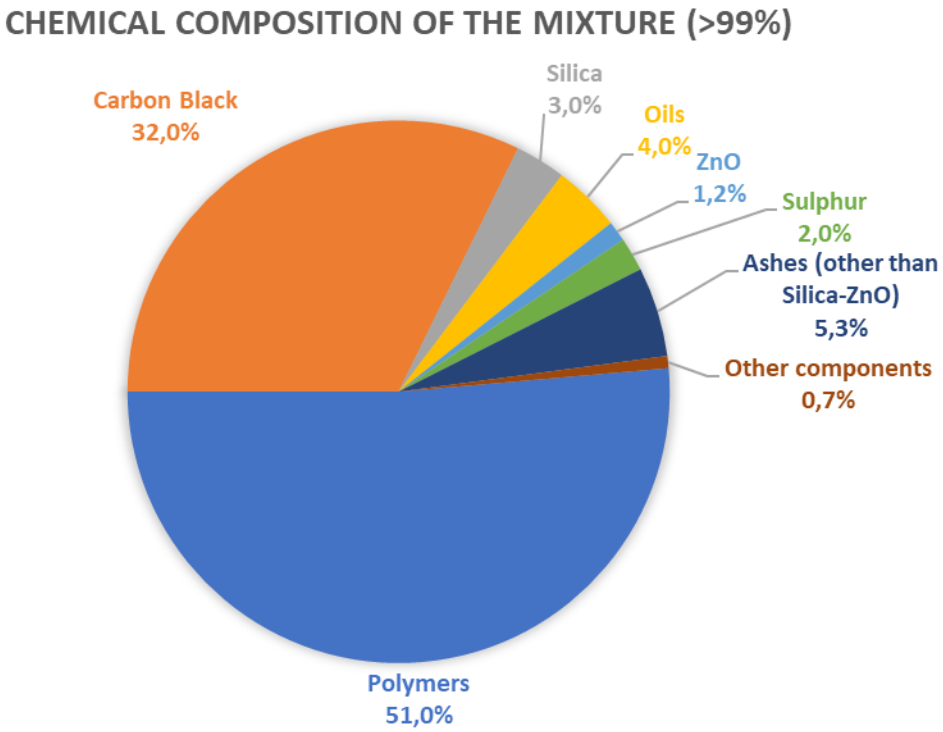
Sampling program:

- 5 increments/day (400g each)
- 1 week of production
- Mixing and sample reduction (2x 1kg)

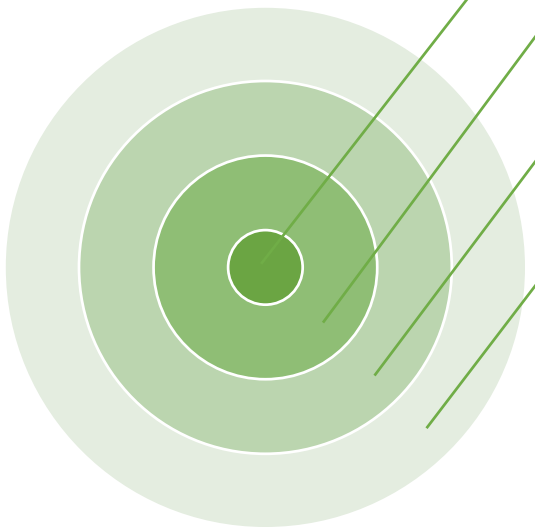
Chemical Characterization and statistical analysis

ECOPNEUS

Phase 2 – Analythical Results



- Consistency with the expected composition
- Limited variance of results



15/31 PAHs
19 /32 metals
5/8 benzothiazoles
4/6 phenols
5 /15 phthalates
0/5 pcb
1/1 Hydrocarbons
5/10 amines nitrosamines
0/9 halogenated organic compounds
12/35 others

Phase 2 – Identification of the obligations

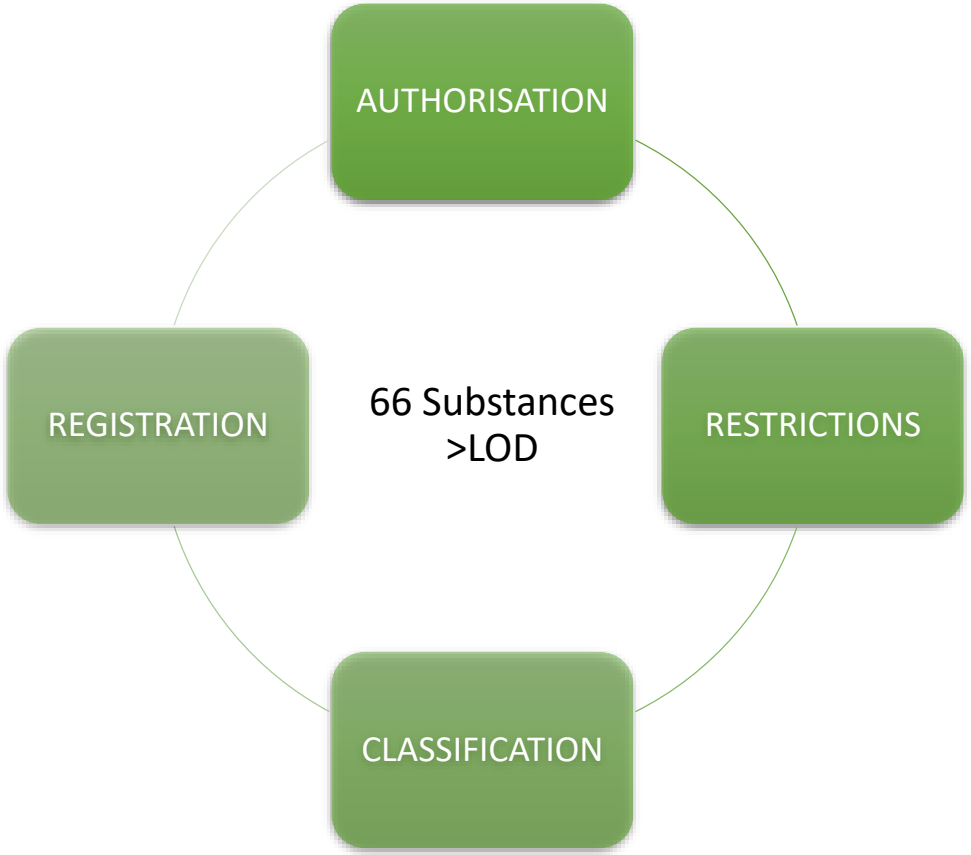
max. concentration measured in samples to study all kind of obligations

- Studied the **function of each substance** during the production of tyres

Deeper understanding of the metallic compounds (e.g., ZnS instead of ZnO)

- Identification of the **extractable oils**
- The **harmonized classification** was considered for each substance (another assessment is ongoing taking into account the registrants' classification)
- Proposed classification, **candidate list** and proposed restrictions were considered.

20.000 t/y production of recycled rubber



ECOPNEUS

Phase 2 – identification of the obligations

AUTHORISATION

- 3 substances included in annex XIV, 11 substances in the Candidate List
  No authorisation obligations associated to these substances under art.56 of REACh (none of the substances subject to authorisation has conc.>0,1% or conc. which makes the mixture hazardous under CLP).

REGISTRATION

- Assuming a 20.000 t/y production of recycled rubber, 32 substances exceed >1 t/y:
- **21 substances** can be considered as impurities of the manufacturing process**, 2 substances** as additives necessary to preserve the stability of the polymer → **no subject to registration**
- **9 substances** subject to registration obligations but **exempted under art.2.7(d)** being already registered (registration dossier available in the ECHA website).

RESTRICTIONS

- Restrictions «of concern» for recycled rubber and/or substances included: n.28,29,30, entry n.50, proposed restriction on microplastics
- None of the substances classified as C,M,R have concentrations which make mixture as hazardous→ **Restric.28,29,30 not applicable**
- Based on analytical results, restric.n.50 on articles (conc. PAHs>1mg/kg) applies and proper information is to be given to the articles manufacturers; restriction on infill in synthetic turf limit (sum PAHs<20 mg/kg) has to be considered for control although the measured values are far below.

CLASSIFICATION

- Physical hazards: testing based on the CLP regulation methods
- Human health hazards: none of the substances classifies mixture as hazardous
- Environmental hazards: there are many substance “of concern” for the aquatic toxicity. Applying summation method and harmonized classification, **mixture isn’t classified hazardous** **(NOTE: eco-toxicity testing was performed in a following step of the project)**

Eco-toxicity assessment

Sample preparation

CONFOREACH project:
20 samples of known composition
152 substances)

Selection of 6 samples:

Id1– ELT granulate, mix of all ELT samples
Id2– ELT powder, (obtained from Id1)
Id3 –ELT granulate, worst-case scenario (max concentration of substances "of concern" for the aquatic toxicity) (Zinc)
Id4- ELT powder, worst case scenario (obtained from id3)
Id5- ELT granulate, 2° worst case scenario (2° max conc. of substances «of concern»)(cobalt sulfide)
Id6- ELT powder, 2° worst case scenario (obtained from id5)

Development and validation of test settings for **maximum leaching of chemicals in water for all 6 samples**

Acute and chronic toxicity on granulates and powders (Id1, Id2 and Id4)

Eco-toxicity: results

Ecotest performed on ELT recycled rubber					
Purpose	**Method**	**Species**	**Classification category according CLP**	**RESULTS: GRANULATES**	**RESULTS: POWDERS**
Acute toxicity	OECD No. 203. "Fish, acute toxicity test"	zebra fish (Brachydanio rerio)	LC50 ≤1mg/l ACUTE 1	LC50>100mg/L	LC50>100 mg/L
	OECD No. 202. "Daphnia sp., Acute Immobilization Test"	Daphnia magna	EC50 ≤1mg/l ACUTE 1	EC50>100mg/L	EC50>100 mg/L
Chronic toxicity	OECD no 210 (Fish Early Life Stage)	zebrafish (Danio rerio)	NOEC ≤0,1mg/l CHRONIC1 NOEC ≤1mg/l CHRONIC2	NOEC=3,3 mg/L	NOEC=3.3 mg/L
	OECD No. 211, "Daphnia magna Reproduction test"	Daphnia magna	NOEC ≤0,1mg/l CHRONIC1 NOEC ≤1mg/l CHRONIC2	NOEC=3,1 mg/L	NOEC=100.0 mg/L
Acute/Chronic toxicity	OECD No. 201. "Freshwater Alga and Cyanobacteria, Growth Inhibition Test"	Pseudokirchneriella subcapitata	EC50≤1mg/l ACUTE 1 NOEC ≤0,1mg/l CHRONIC1 NOEC ≤1mg/l CHRONIC2	EC50=93,7mg/L NOEC=31.3mg/L	EC50>100.0 mg/L NOEC=31.3 mg/L

According to ecotoxicological test, **ELT granulates and powders <u>are not</u> classified as hazardous to the aquatic environment**

Toxics **2022**, *10*, 201. https://doi.org/10.3390/toxics10050201

CONFOREACH: final deliverables

- SDS template for manufacturers of recycled rubber

- Dossier with SDS of all recovered substances

- 6 UNI Technical Reports UNI/TR11810 «Guideline for compliance with the REACh and CLP Regulations of granules and powders from ELTs or products deriving from the treatment of ELTs”:
    - Part 1: General
    - Part 2: Manufacturers of ELT recycled granulates and powders
    - Part 3: Distributors of mixtures deriving from the treatment of ELTs
    - Part 4: Users of mixtures deriving from the treatment of ELTs
    - Part 5: Manufacturers of articles deriving from the treatment of ELTs
    - Part 6: Importers and manufacturers of mixtures, deriving from the treatment of ELTs, other than granules/powder from ELTs as they are (e.g. coated rubber, compounds, etc)

- **IN JUNE-2022, ONE OF THE ELT RECYCLERS THAT SUPPORTED THE PROJECT WAS AUDITED BY THE NATIONAL AUTHORITIES WHICH GAVE A POSITIVE FEEDBACK ON THE COMPLIANCE TO REACH.**

Conclusions

- Recycled rubber is a complex mixture of known composition
- Based on art. 2.7d of Reg. (EC) 1907/2006, the EU manufacturers of ELT-recycled rubber can benefit from the exemption from Registration of recovered substances
- Eco-toxicity tests showed that ELT-recycled rubber has not to be classified as hazardous to the aquatic environment
- **The CEN/TC 366 "Materials derived from ELT" has recently launched a PWI to replicate the CONFOREACH project at a EU level:** participation of ECHA-experts is welcome!

Acknowledgments