

## **BUSINESS PLAN**

**CEN/TC 366**

### **MATERIALS OBTAINED FROM END-OF-LIFE TYRES (ELT)**

#### **EXECUTIVE SUMMARY**

##### **BUSINESS ENVIRONMENT**

The suitable management of end-of-life tyres is becoming a significant recovery activity, with potential impacts on economy and environment.

Various management systems exist around the European Union for collecting and recovering end-of-life tyres.

Parties which may be involved:

- End-users of materials recovered from ELTs.
- Governments (regulate the waste activity in terms of defining responsibilities, conditions of approvals, recovery targets and etc.)
- Operators for the collection, transportation, processing and recovery of ELTs
- Tyres manufacturers and importers.

##### **BENEFITS**

This TC's activities aim to enable the field of ELTs to become more reliable, long-lasting, industrially and economically balanced and to better respond to the needs of industry by standardizing relevant physical and chemical properties of tyre derived materials.

The development of EU standards will contribute to a significant increase of the evaluation of the quality of tyre derived products, thus encouraging the development of new applications and innovation, promoting technology exchanges, improving the access to know-how and the protection of the environment in order to promote materials coming from ELTs in comparison with virgin one or substituted materials.

##### **PRIORITIES**

- Validating the existing TS 14243 in order to replace it with an EN
- Establishing standards for certain physical characteristics of the materials produced from ELTs
- Establishing standards for certain composition characteristics of the materials produced from ELTs
- Determining general properties of whole tyres as required for subsequent ELTs processing.

## **1 BUSINESS ENVIRONMENT OF THE CEN/TC**

### **1.1 Description of the Business Environment**

The following political, economic, technical, regulatory, legal, societal and/or international dynamics describe the business environment of the industry sector, products, materials, disciplines or practices related to the scope of this CEN/TC, and they may significantly influence how the relevant standards development processes are conducted and the content of the resulting standards.

Pneumatic tyres have been engineered to resist and to perform in extreme conditions: on one hand this makes recovering ELTs very difficult, on the other hand this is the reason why crumb rubber is a valuable material that can be recovered in hi-tech applications if correctly managed.

The Landfill Directive (1991/31/EC) has banned the landfilling of end-of-life tyres (ELT) since July 2006. This has led to the gradual creation of national End-of-Life Tyres management companies backed by a proper statutory regime.

Various management systems exist around the European Union for collecting and recovering end-of-life tyres. End-of-life tyre management approach varies, three main frameworks, or combinations, are usually implemented:

- Producer Responsibility
- Free market
- Government Responsibility

For each situation the stakeholders may differ and where the activity is covered by national legislation, each role is precisely framed.

Producer Responsibility System:

Tyre manufacturers (often in collaboration with distributors and retailers) take responsibility under stewardship systems for the recovery ,recycling and/ or disposal of ELTs, and funding is based on the number of units sold within that country.

Such systems are typically administered by a non-profit making body. ELT management companies organize collection and recovery, participate in research and development activities for new recovery routes, liaise with local authorities, comply with reporting obligations and promote the introduction of product standards.

Free Market System:

A free market is based on the tyre price as the essential factor for the allocation of services and goods such as the collection and recovery of ELTs. The price level is the outcome of supply and demand agreed by independent parties. As in any free market systems the players have to comply with stringent legal requirements in particular in the field of waste management.

ELT operators are building the country wide infrastructure for collecting ELTs and they are running the recycling and recovery processes. The ELT operators' network is either supervised by environment authorities or subject of certification.

Government responsibility:

A tax amount is set by the government who takes the responsibility for the recovery, recycling and/or disposal of ELTs. Under the tax system each country is responsible for the recovery and recycling of the end of life tyres.

It is financed by a tax levied on (tyre) production and subsequently passed on to the customer. This is

an intermediate system whereby the producers pay a tax to the State, which is responsible overall for the organisation and remunerates the operators in the recovery chain.

Figure 1 provides a graphical representation of the current EU business environment.

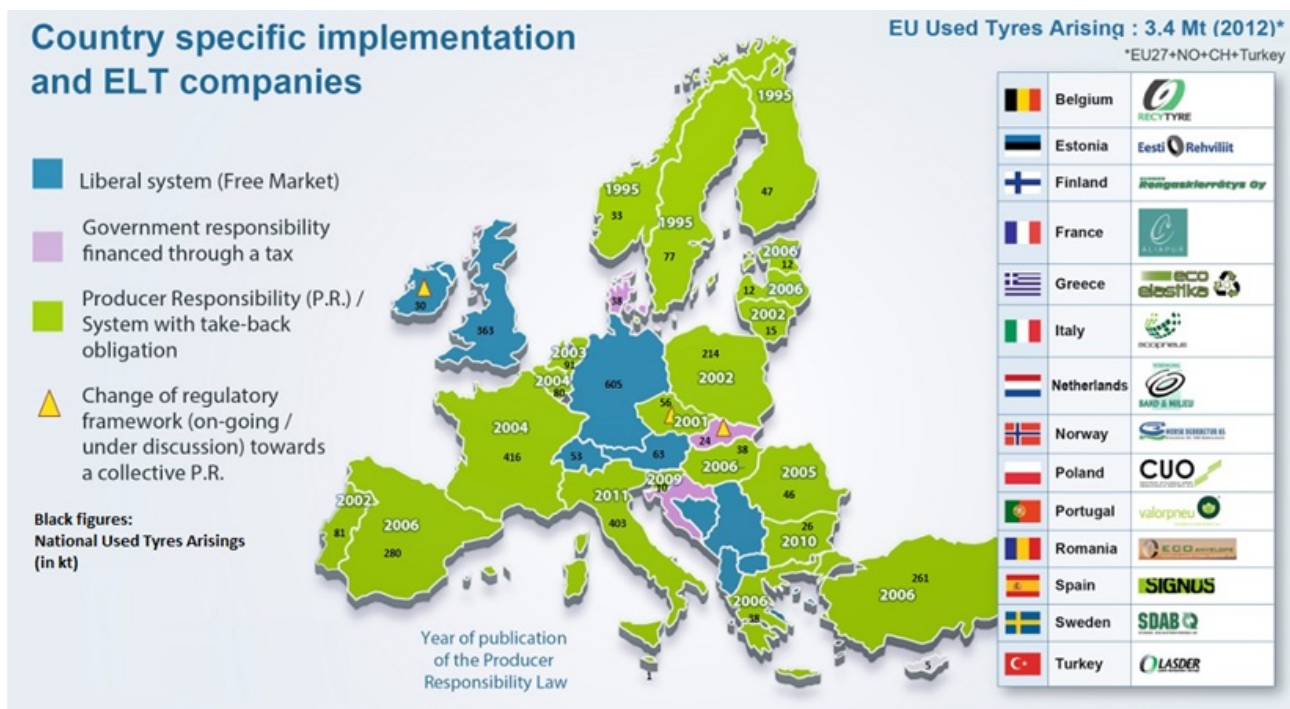


Figure 1. EU Business Environment

## 1.2 Quantitative Indicators of the Business Environment

To facilitate the activities of this TC the following quantitative indicators describe the business environment.

Every year 2.700.000 tons of End-of-life Tyres arise in Europe (EU 27): almost half of this amount is recovered as fuel in industries such as cements kilns, steel mills and thermal power plants. The remaining 1.300.000 tons ELT/year are usually shredded, grinded and/or mechanically treated for separation in the three main components of pneumatic tyres: rubber (70%), steel (25%) and textile (5%).

Figure 2 provides graphic representations of recovery rates.

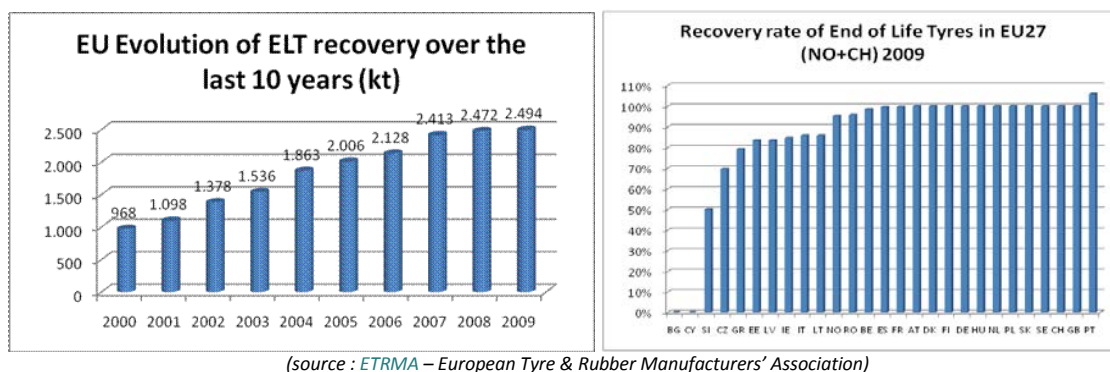


Figure 2. Overview of recovery rates.

## 2 BENEFITS EXPECTED FROM THE WORK OF THE CEN/TC

The lack of standardization in the tyre recovery field is a threat for the existing markets and a barrier for accessing new ones. For example, without specific standards, tyre derived materials are often compared with other substitute materials, or "virgin materials", by means of improper testing methods that sometimes are not even suitable for rubber-based goods.

The development of EU standards will contribute to a significant increase of the evaluation of the quality of tyre derived products, thus encouraging the development of new applications and innovation, promoting technology exchanges, improving the access to know-how and the protection of the environment.

There are several reasons why it is important to ensure the efficient treatment of ELTs because:

- tyres incorrectly re-treaded or improperly sold as second hand goods could cause accidents and serious harm.
- tyres' fly tipping can be hazardous to the environment and human health

These TC's activities will enable the field of ELTs to become more reliable, long-lasting, industrially and economically balanced and to better respond to the needs of industry by standardizing relevant physical and chemical properties of tyre derived materials.

## 3 PARTICIPATION IN THE CEN/TC

All the CEN national members are entitled to nominate delegates to CEN Technical Committees and experts to Working Groups, ensuring a balance of all interested parties. Participation as observers of recognized European or international organizations is also possible under certain conditions. To participate in the activities of this CEN/TC, please contact the national standards organization in your country.

## 4 OBJECTIVES OF THE CEN/TC AND STRATEGIES FOR THEIR ACHIEVEMENT

### 4.1 Defined objectives of the CEN/TC

a) Validating the existing TS 14243 in order to replace it with an EN. The robustness, reproducibility and repeatability of the test methods must be assessed before upgrading the TS to an EN:

- Determination of particle size for shreds (including sampling methods both laboratory and "in the field")
- Determination of particle size in granulates and chips (including sampling methods both laboratory and "in the field")
- Determination of particle size for powders (including sampling methods both laboratory and "in the field")
- Determination of protruding wires in shreds
- Determination of free steel content for granulates
- Determination of free steel content for powder
- Determination of other impurities for granulates
- Determination of other impurities for powder
- Determination of impurities for metallic fibres
- Determination of impurities for textile fibres

b) Developing standards for certain physical characteristics of the materials produced from ELTs including:

- Classification of materials produced from tyre. Terminology and characteristics
- Bulk density for shreds
- Bulk density for granulates
- Bulk density for powder
- Bulk density for textile
- Bulk density for steel
- Density of rubber material
- Determination of surface and geometry of granulates
- Determination of specific surface for granulates
- Determination of specific surface for powder
- Determination of hydraulic conductivity, permeability, settlement and compressibility for shreds
- Abrasion resistance of granulates
- Determination of free and bonded textile content in granulates and powders
- Preparation and application of testing program

c) Developing standards (including sampling) for certain composition characteristics of the materials produced from ELTs including:

- Determination of NR/synthetic rubber
- Determination of biomass content
- Determination of type of rubber (tyres)
- Determination of non-elastomeric content in rubber
- Determination of oil content in rubber
- Determination of Carbon Black content in rubber
- Determination of silica content in rubber
- Determination of moisture content for granulates
- Determination of moisture content for powder
- Determination of moisture content for textile fraction
- Determination of non-metallic content for steel
- Determination of non-textile content for textile fraction
- Determination of main PAH content for granulates
- Odor characteristics of rubber materials and products
- Fogging behavior of rubber materials and products
- Preparation and application of testing program

d) Determining general criteria for the selection of whole tyres to be submitted to recovery and recycling processes.

#### **4.2 Identified strategies to achieve the CEN/TCs defined objectives.**

The work carried out by the CEN/PC 366 demonstrated the European stakeholders' ability to work together for common benefits. Their efforts were rewarded with the recent publication of the first TS dedicated to ELTs; however more work must be done, the robustness, reproducibility and repeatability of the test methods must be assessed before upgrading the TS to an EN, in line with CEN Guide 13 "Validation of environmental test methods".

The TC is expected to develop documents having the status of European Standards (EN) and Technical Specifications (TS) for each kind of materials derived from ELT.

It will be important to strengthen links with other CEN/TCs and ISO/TCs which may be of relevance to the ELTs field.

#### **4.3 Environmental aspects**

One of the greatest and most ambitious EU challenges for the coming years is the change from a "One-way Society" to a "Recovery-based Society"; therefore a common and standardized

language is required for developing a sound networking of the recovery sector and of the end users industry.

The whole activity of TC 366 has a positive impact on the environment.

According to CEN policy, the CEN Guide 4 "Guide for addressing environmental issues in product standards" should be used by standards writers as basic reference to define which environmental aspect can be considered in the standard process. TC 366 could adopt the environmental checklist specified in the CEN Guide 4 when preparing European standards.

When preparing European standards TC 366 will ensure that environmental aspects are taken into consideration in the selection and/or development of standards applicable to material derived from ELTs.

## **5 FACTORS AFFECTING COMPLETION AND IMPLEMENTATION OF THE CEN/TC WORK PROGRAMME**

According to the purpose of the CEN committee, a wide participation of all European stakeholders will be fundamental.

The vast subject area and the required varied abilities and know-how for the development of the standards in this field could be a threat for the completion and the implementation of the work of the TC. Pneumatic tyres have been engineered to resist and to perform in extreme conditions and this makes recovering ELTs very difficult.

Moreover different Countries environmental legislation could affect the development of European standards. TC 366 should collect main legislative references of each country in order to prepare common basis for standards activity not in conflict with regional regulations.