

## REGULATORY POSITION STATEMENT

### Reuse and Recycling Routes for Waste Tyres in Northern Ireland

#### Introduction

Waste tyres are a significant waste stream in Northern Ireland however, options for re-use and recycling are increasingly available, as well as the potential to achieve End of Waste. This paper sets out options available to processors.

#### Tyre Derived Rubber Material Quality Protocol (TDRM QP)

A revised Quality Protocol (QP)<sup>1</sup> is now in place, which sets out End of Waste criteria for the production and use of tyre-derived rubber materials from source-segregated waste tyres, for use in a range of market sectors. The QP applies only to source-segregated waste tyres under List of Waste Codes (LoW) code 16 01 03 end-of-life tyres.

Producers of tyre-derived rubber materials are advised that, this QP does not negate the need to have the necessary authorisations and consents, particularly if you propose to carry out new processes/treatments with waste tyres. Compliance with all conditions and Duty of Care requirements must be undertaken at all times.

The TDRM QP helps to:

- Clarify when tyre-derived rubber materials cease to be waste;
- Reassure customers that the materials conform to certain standards (PAS 107:2012) and are suitable for a number of designated uses; and
- Protect the environment and human health.

The tyre-derived rubber materials produced must comply with the size categories stated in PAS 107:2012 'Table 5 - Characteristics of all size reduced tyre materials' in order to comply with this QP. PAS 107: 2012 'Specification for the manufacture and storage of size reduced tyre materials'<sup>2</sup> is a publication that, provides a standard for producing grades of size reduced tyre rubber material, which are of consistent and verifiable quality. Size reduction means cutting and grinding the tyres at or above ambient temperature, into increasingly smaller rubber particles that, are suitable for a range of new end uses. The process is referred to as 'ambient' because, the size reduction process takes place at or near ambient temperatures, i.e. no cooling is applied to embrittle the rubber particles. PAS 107:2012, Table 1 provides examples of material categories and applications and Table 5 lists the characteristics of all size reduced tyre materials and material category codes. Tyres must be free from contaminants that would obstruct or prevent the size reduction process. The PAS excludes the use of whole or baled tyres in end use applications and technologies, such as, cryogenic treatment, pyrolysis and vulcanisation.

There is a wide range of acceptable uses for the TDRM including; noise insulation, road infrastructure, walkways and safety surfacing, automotive components etc (see the QP Section 4 for full list).

Producers/processors intending to export or import QP compliant material, may also be subject to the controls set out in the Waste Shipment Regulations. It would be advisable for them to check with the competent authority in both the country of dispatch and destination.

1. <http://www.tyrecovery.org.uk/specification/pas-107/>
2. BSI January 2012: ISBN 978 0 580 74112 8

## Other Technologies & uses

There are a growing range of applications for reusing/recycling waste tyres. The civil engineering and construction sectors tend to use larger sized tyre materials, i.e. shred and chips. Surfacing treatments would require smaller sized materials, including granulate for equestrian, garden, sports track and play surfaces and specialised powders for sealants and coatings. Consumer and industrial applications generally use smaller size granulates and powders. Granulate can also be further processed to produce a diverse range of matting products, moulded into low-tech products, such as rubber tiles, kerbs, edging & ramps, railroad crossings, removable speed bumps or added to asphalt for road applications.

In recent years there has been a growth in the incineration of whole tyres or tyre chips in industrial furnaces for energy recovery e.g. the use of tyre derived fuel as fuel supplement in cement kilns, paper mills or power plants.

Other available technologies include:

- The Cryogenic process which involves extremely low temperatures to facilitate the fragmentation of tyres into very small, smooth surfaced particles.
- The Pyrolysis process which requires heating the tyres in the absence of oxygen to produce steel, oil, gas and char.
- Vulcanization which is a mechanical process that produces crosslinks between the rubber polymer strands to improve the physical properties of the rubber.