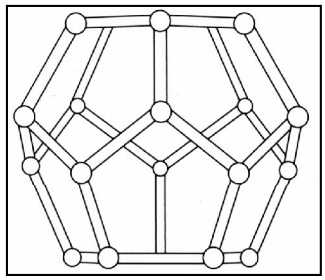
Zotefoams plc



Technical Information Sheet – TIS 26
Recycling and Reuse of Zotefoams Azote® materials

INTRODUCTION

Recycling and re-use of materials is increasingly seen as a means to relieve the environmental burden of a material as they reduce the dependence on landfill. In the European directive 1994/62/EC[1], which is enacted in the UK through the Producer Responsibility Obligations (Packaging Waste) Regulations 1997 and the Packaging (Essential Requirements) Regulations 1998, the following definitions are given for re-use, recycling and energy recovery:

- *'reuse` shall mean any operation by which packaging, which has been conceived and designed to accomplish within its life cycle a minimum number of trips or rotations, is refilled or used for the same purpose for which it was conceived, with or without the support of auxiliary products present on the market enabling the packaging to be refilled; such reused packaging will become packaging waste when no longer subject to reuse*

- *'recycling` shall mean the reprocessing in a production process of the waste materials for the original purpose or for other purposes including organic recycling but excluding energy recovery*

- *'energy recovery` shall mean the use of combustible packaging waste as a means to generate energy through direct incineration with or without other waste but with recovery of the heat*

RE-USE

Due to their crosslinked nature Azote® foams are extremely durable and find use in returnable packaging and re-useable transport packaging in various industries such as automotive manufacturing and museums display and conservation.

The re-use of packaging in this way limits the demand for new packaging and therefore reduces the environmental impact of plastics by reducing the demand for processing of new product and also by extending the lifecycle of existing materials.

[1] European Parliament and Council Directive 94/62/EC of 20 December 1994 on packaging and packaging waste

Furthermore at the end of its life the re-usable packaging can still be recycled or used in energy recovery.

RECYCLING

The public perception of recycling is more limited. Generally when people speak of "recycling of plastics" they have only one aspect of this process in mind, i.e. re-melting of polymer (waste) products to form a new product. While it is technically feasible to recycle Azote® foams in this manner it is not the preferred route due to the high energy requirements for re-melting, and generating flow in, a crosslinked polymer.

Other aspects covered under the definition of recycling include the shredding and densification of foam waste and use of materials obtained from these processes in new applications.

There are companies that specialise in recycling of crosslinked polyolefin foams by shredding the material for use in a variety of applications:

- Playground fall protection
- Synthetic sport pitches
- Construction projects (e.g. insulation applications)
- Horticulture
- General impact protection

For these applications the foam can either be shredded and rebonded using heat or a suitable adhesive to form a composite foam or shredded foam pieces can be used as a filler material within resins or concrete.

Another form of recycling the foam material, which is currently used by Zotefoams plc, is densification of the material into pellets. These systems typically produce around a 1o-fold increase in the density of the material. Pellets produced in this process could either be sent to landfill, taking up a much lower volume than the original waste foam material. They can also be used in new applications, for example as a substrate for water treatment.

ENERGY RECOVERY

Plastics have a very high calorific value (35 MJ/kg) which is higher than that of coal. Without general plastics, including (packaging) foams, most domestic waste could not be incinerated. Energy gained from the incineration of waste can be used in form of heat or transformed into electricity.

GENERAL INFORMATION

Information on the impact of plastics in general and Azote® foams in particular can be found in our technical information sheet TIS 04. This document gives further information and data on the environmental perspective of the use of Azote® foams.

USEFUL CONTACTS

Schmitz Foam Products B.V. recycles all closed-cell cross-linked Polyethylene foams including skins and off-cuts. All materials received free of charge with only the transportation to pay; either delivery or collection. For regular collections (monthly/bimonthly), back load collections using Schmitz transport fleet can be organised to reduce transport costs. Off-cut foam can be packaged in large plastic sacks or baled using plastic ties or thin plastic film (e.g. Lely Welger below). Foams should be kept dry and free from non-PE contamination.

Contact information:
Mr Andre Piels
Schmitz Foam Products B.V.
Email: a.piels@schmitzfoam.com
Website: www.schmitzfoam.com
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To assist in waste management, transportation and reduce bin space, PE foam can be compacted and baled. This is particularly useful when foam skeletons are produced from a die-cutting process. Lely-Welger Recycling offer a range of waste balers for paper, cardboard, plastics, textiles, PET bottles, aluminium cans etc.

UK referral and contact:
Mr Robert Shepherd
Lely (UK) Ltd
Email: rshepherd@lely.co.uk
Website: www.welger.com
Tel: +44 (0)1480 226800

EREMA is a world leader in plastic recycling equipment. They produce a number of shredding and densification systems for thermoplastics such as the Azote® range.

Website: http://www.erema.at

An old generation EREMA system is used at Zotefoams plc, Croydon to produce densified granules from skins and off-cut material. The resultant recycled granules are sent to EcoPlastics Industries, France for use within a water purification system.

If you have any further questions regarding recycling or re-use of Azote® foams please contact our technical support team.

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