SEPA Briefing Note

Ozone Depleting Substances (ODS) and the Construction Industry

Background

Building foams are a significant store of ODS in the UK and occur in a wide range of building products. For example, some foam will be in the form of panels in cold stores or refrigerated warehouses. Additionally, foam may be present as insulation materials contained within some brickwork. As with refrigerators, Chlorofluorocarbons (CFC) were used in building foams until the 1990s when they were replaced by Hydrofluorocarbons (HFC's). The concentrations of ODS in construction materials will vary however they are likely to be present in concentrations that make those materials hazardous when discarded as waste. The use of these foams began in the 1960s and became common in the 1970s and 1980s. The lifetimes of the foams are tied to the lifetimes of the building and the EU has suggested that this will be between 30 – 70 years.

The Regulation of ODS in the EU and in the UK

Regulation (EC) No 2037/2000 on substances that deplete the ozone layer gives effect to the requirements of the Montreal Protocol and its amendments and in some respects goes further than the Protocol. The ODS regulation explicitly requires the recovery of ODS from certain equipment such as refrigerators and air conditioning equipment (Article 16(1) and 16(2). The recovery of ODS from building foams is currently covered by Article 16(3) which rather more vaguely states that substances in "other" products, installations and equipment shall be recovered "if practicable". It does not define what this might mean or establish clear expectations for implementation.

The UK government has introduced specific legislation to ensure that ODS from fridges is captured using fridge recycling plants however there is no legislation to explicitly require the capture of ODS from building foams or to specify treatment routes. To date there has been no concerted effort to recover ODS in building foams in Europe or elsewhere[1].

The ODS Regulations are currently under review at EU level. At this point in the review of the Regulations a proposal to require Member States to require recovery of ODS in building foams, where technically and economically feasible, has been suggested. Member States have recently responded to the European Commission on this issue (SEPA responded through the Defra working group) and it is hoped that this will assist in defining what should be regarded as "practicable". The UK will have the opportunity to input further, once the draft regulations are published.

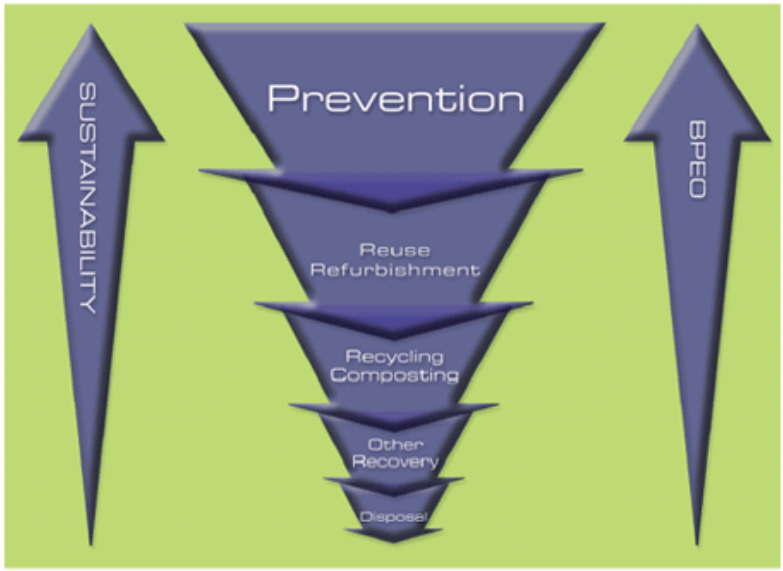
[1] Milieu Ltd 2007 Review of the Implementation of Regulation (EC) No 2037/2000 on substances that deplete the ozone layer.

Other Relevant Legislation

Waste legislation applies a range of controls to the recovery and disposal of ODS containing wastes. However, those controls provide a general framework of protection to cover all wastes: there is nothing specific or explicit regarding ODS containing wastes; nor is there anything that compels those discarding such wastes to follow a specific recovery or disposal route.

The principals underpinning waste legislation express a preference for recovery over disposal. The "waste hierarchy" is set out in Article 3 of the Waste Framework Directive (2006/12/EC) as something that "Member States" should "encourage". Scottish waste regulations do not place any specific duty on SEPA to require or enforce this although we do have a general duty under the Environment Act to promote sustainability. Recovery of wastes is not something that SEPA can legally compel a waste producer/contractor to do, although clearly SEPA makes significant efforts to promote the waste hierarchy in its day-to-day work.

Fig. 1: Waste Hierarchy



The waste regulations require waste to be described accurately by waste producers. In particular, they are responsible for determining which wastes are hazardous (a.k.a 'special waste' in Scotland). The most likely hazard associated with wastes containing ODS is their ecotoxicity. If they are present in demolition materials in concentrations above 0.1%, the waste will be classified as hazardous and the recovery/disposal options will be restricted to those facilities that are authorised to accept hazardous wastes. Authorised hazardous waste facilities (e.g. hazardous wastes recovery facilities, hazardous waste landfills, etc.) are generally required to operate to tighter environmental standards than non-hazardous facilities.

Further information on the classification, movement and treatment of Special Waste is available on our website (www.sepa.org.uk) or from your local SEPA office.

Waste Management Issues

For various technical or commercial reasons specialist fridge treatment plants will not always accept construction waste contaminated with ODS foam. Some panels (mainly from large-scale refrigeration equipment) contain reinforcement that needs to be removed or it will damage the fridge plant. Panels also need to be cut to fit in the hopper and they can jam fairly easily. There is also a risk of foam being wrongly classified. If too much foam containing pentane is treated by mistake there is a significant risk of fire in any plant that does not operate with an inert atmosphere - most don't at present. Panels are more expensive to treat than an equivalent volume of fridges as the value of metals recovered from fridges helps to subsidise the overall treatment costs. For insulation panels, there is little or no metal to recover (some might be bonded to a metal sheet).

It ought to be reasonably practical to remove panels from cold stores and refrigerated warehouses during refurbishment or demolition. However, this is unlikely to be the case where the foam is incorporated within the fabric of the building i.e. between layers of masonry. In addition to sandwich panels, building foams are found in roads and runway construction, sprayed foams, brown between masonry and a number of other applications from which it would not be possible to insist that on demolition all foam was recovered.

SEPA's Current Position

SEPA's current position is that where "practicable" building foams should be recovered and on-site shredding is not permitted. In looking at term "practicable", some consideration should be given to economic feasibility.

The shredding of ODS containing materials as part of site demolition operations is prohibited where it would result in the release of ODS to the environment.

SEPA continues to input to work being undertaken by Defra's stakeholder group that aims to develop an agreed UK policy on "practicable". SEPA also provides advice to ensure hazardous wastes are transported to a suitable facility.

Sources of Further Information

SEPA Guidance on the Interpretation of the definition and classification of hazardous waste (Second Edition):
http://www.sepa.org.uk/guidance/waste/hazardous/index.htm

SEPA guidance on consigning special waste:
http://www.sepa.org.uk/pdf/guidance/waste/consigning_special_waste.pdf

NetRegs Guidance on Duty of Care:
http://www.netregs.gov.uk/netregs/275207/275430/?version=1&lang=_e

SEPA guidance on waste carriers:
http://www.sepa.org.uk/regulation/rocas/index.htm