

**Select Committee on Environment, Transport and Regional Affairs [Memoranda](#)**

MEMORANDUM BY DUPONT (UK) LIMITED (DSW 04)

We have been in active discussions with the Environment Agency for more than six years with regard to the waste/product classification of Dycal which is one of the co-products produced at our Wilton nylon 6:6 plant. In these discussions, the Environment Agency seems to have been faced with the gargantuan task of trying to interpret a constantly evolving set of rules and policies which can only be described as ambiguous and poorly defined. This has made it impossible for the Agency to come to a conclusion about Dycal within a reasonable amount of time or even to define clearly the decision making process which they are bound to follow.

The Agency's approach to this issue was to segment it and separately consider each of the Dycal production processes, its potential use as a fuel in cement kilns and its classification as a waste or a product. There does not appear to be a mechanism whereby the Agency can consider all of these issues together as part of a complex system.

Furthermore, it is our understanding that sustainable waste management was not considered by the Agency at all in connection with the classification of Dycal and that it is not even within the Agency's remit to consider future environmental impact when determining whether a co-product should be classified as a waste or a product.

If the ultimate decision of the Agency is to classify Dycal as a waste despite its optimal use in cement kilns where it can dramatically reduce emissions, we may be left with no option other than to continue to landfill approximately 6,000 tonnes of this product per annum.

Dycal has a high calorific value and contains no sulphur, chlorine or metal contaminants other than small amounts of boron and chromium. When burnt in a suitable facility it gives rise to lower emission levels than many other conventional fuels. In addition, when burnt in a cement kiln, most of the boron and chromium which are present in the Dycal are absorbed into the cement clinker, without any adverse impact on clinker quality.

The consequence of Dycal being classified as a waste rather than a product is that a significant barrier will be raised to the use of Dycal in the most technically and environmentally appropriate fashion.

In addition, from a purely technical perspective, it is difficult to draw a logical distinction between the production of Dycal, which is an essential co-product from the production of nylon, and the production of petcoke, which is an essential co-product from the oil refining process. Petcoke, is, of course, classified as a fuel.

In our opinion the guidelines and policies which have created this ambiguity and

contradiction should be refined to include a consideration of the future environmental impact that the classification of a co-product as a waste or a product is likely to have. In fact, we believe that this development is vital for the future of sustainable waste management.

BACKGROUND

Nylon 6:6 was first manufactured over 60 years ago. The only Nylon 6:6 plant in the United Kingdom is the DuPont site at Wilton on Teesside which has been operational since 1957. Nylon 6:6 is used in a wide variety of applications from fabrics to high performance paints and must be manufactured to a very high standard of purity. During this purification process, a wide variety of co-products are generated.

Our corporate policy fully supports the implementation of a sustainable waste management policy and a great deal of effort is put into minimising the production of co-products and/or funding other applications for them. However, we have been unable to totally eliminate the production of Dycal from our process or find any commercial applications for it other than as a fuel. There are actually two streams of Dycal produced at our plant. One of the streams has a calorific value of about 32MJ/kg (about three quarters of the calorific value of fuel oil) and the other has a calorific value of about 26MJ/kg. A blend of the two streams burns very cleanly.

All of the Dycal produced at the site used to be burnt as a fuel at the ICI Wilton power station. However, the boric acid in it gave rise to a white stack plume which was ultimately considered unacceptable. Subsequently, only the stream of Dycal 75 (which contains a relatively low level of boric acid) was used as a fuel in the plant furnaces while the other stream was sent to landfill.

In the early 1990's a programme was developed in conjunction with Rugby Cement to supply a Dycal blend to their kiln at Southam. Rugby Cement were interested in using Dycal as a fuel in order to reduce the emissions from the kiln because Dycal burns cleaner than petcoke or coal.

Another environmental advantage of using Dycal as a fuel specifically for a cement kiln, is that during combustion most of the boron and chromium which are present in the Dycal are absorbed into the cement clinker, without any adverse impact on clinker quality. Accordingly, this is a more environmentally sustainable way to utilise Dycal than sending it to landfill.

After extensive trials in 1994-95, authorisation was granted to supply the kiln at Southam in late 1996. This programme continued until the kiln was closed down earlier this year. Following the Southam site closure, Rugby Cement proposed using our Dycal stream at their kiln in Barrington instead. However, due to the new classification of Dycal as a special waste, it will not be possible for the Barrington kiln to use it.

WASTE/PRODUCT CLASSIFICATION

We entered into the ongoing discussions with the Environment Agency about the classification of Dycal as either a product or a waste after the authorisation for the use of Dycal at the Southam kiln was granted.

While it is clear that our nylon plant was not constructed specifically to manufacture Dycal as a fuel product, this high calorific value material is an integral product of our proprietary process and it has been used as a fuel for many years.

Since the start of these discussions, we have carried out some additional toxicological test on Dycal as a part of our ongoing product stewardship programme. Initial results from this testing indicate that Dycal is an eye irritant and potential skin sensitiser. At a purely technical level this reclassification will be of little significance; Dycal is handled within sealed systems and our existing standards of industrial hygiene are already more than adequate for it.

However, if Dycal is classified as a waste by the Agency, these new toxicological results will cause it to be classified as a special waste. The Hazardous Waste Incineration Directive prevents cement kilns from burning more than 40 per cent special waste by calorific value. Due to other contractual commitments, the Barrington kiln will not be able to use Dycal if it is classified this way. The following matrix may clarify the problems that arise as a result of the classification issue.

	CLASSIFICATION	
	<i>Product</i>	<i>Waste</i>
<i>Non-hazardous</i>		
Previous classification of Dycal	No restrictions on use	No restrictions on use. Dycal was used at Southam and may be used at Barrington
<i>Hazardous</i>		
Prospective classification of Dycal	No restrictions on use	"Special Waste." Restrictions of HWID apply. No possibility of using Dycal at Barrington

CONCLUSIONS

As a company we avidly support the benefits, both environmental and commercial, that can be achieved through sustainable waste management.

We also recognise the complexity of the regulatory framework and the inherent difficulty in making a clear distinction between materials which should be classified as wastes and those which can reasonably be classified as products.

Furthermore, we recognise that the manufacturing industry, the waste industry and the public may at times have different perspectives and conflicting needs with regard to these issues.

However, although we acknowledge that this is a difficult area for regulation, we believe that the key objective of the regulatory framework should clearly be to create conditions which generate the optimal use of resources taking their full environmental impact into consideration.

A key principle, described in the Sustainable Waste Management Report which was issued by the Government, is to move waste management solutions to the higher end of the waste hierarchy. We believe that this would be facilitated if the Environment Agency was empowered to take a more holistic approach to waste/product classification when

considering the co-products of manufacturing processes.

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