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A Greenpeace brief on the report

## **Chemical Recycling of Plastics Waste (PVC and other resins)<sup>1</sup>**

published by the European Commission

*"This whole picture suggests that chemical recycling is financially still a rather uncertain business, a view that is indeed reinforced by our cost calculations."*

Key findings:

- the economics of chemical recycling are very uncertain - of three purpose-built chemical recycling plants, two have been shut down
- chemical "recycling" of mixed plastic waste containing PVC would, in the future, consist mainly of burning it in blast furnaces, where the chlorine part would not be "recycled"
- upper limit achievable for chemical recycling of PVC by 2010:
  - mixed plastic waste: 50,000 tonnes pure PVC
  - PVC-rich waste: 100,000 tonnes pure PVC
- the total amount of PVC waste in 2010: 2,800,000 tonnes pure PVC

### **Chemical recycling - is it recycling?**

Chemical recycling or feedstock recycling originally meant that a product could be broken down into its individual components and that these components could then be fed back as raw material to reproduce the original product. This was a concept introduced by the plastics industry when it became apparent that it was impossible to reach recycling targets with mechanical recycling.

It has been debated for years whether this should be regarded as recycling on the same level as mechanical recycling or even classed as recycling at all. At the same time the plastics industry has lobbied to even further weaken the definition of chemical recycling and this report shows the result of this. The option that is presented as the most likely chemical "recycling" option for mixed plastic waste containing PVC is to burn it in a blast furnace, instead of coal, coke or heavy oil. Recycling?

According to the report "*Chlorine has no added value in the process, and may only contribute to problems like corrosion in the blast furnace, etc.*" Pure PVC consists of about 57% chlorine so there is not even an attempt to "recycle" the main part of the polymer itself. Surely this cannot be regarded as recycling.

### **The future of PVC chemical recycling**

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<sup>1</sup> Dr. A. Tukker (TNO-STB), Ing. H. de Groot (TNO Industrial Research), Ir. L. Simons (TNO-STB), Ir. S. Wiegiersma (TNO Industrial Research), December 1999

Despite this absurd, and for the plastic industry very generous, redefinition of recycling, the report concludes that for mixed plastic waste (mainly packaging) at best only 50,000 tonnes of pure PVC could be chemically "recycled" by 2010.

As for chemical recycling of PVC-rich waste the report states that:

*"This whole picture suggests that chemical recycling is financially still a rather uncertain business, a view that is indeed reinforced by our cost calculations."*

The PVC industry has put a tremendous amount of resources into trying to prove that chemical recycling is a viable option, but the costs are so high that of three purpose-built chemical recycling plants in Europe, two have been shut down. The conclusion of the report is that the upper limit achievable for PVC-rich waste in 2010 is only 100,000 tonnes of pure PVC. Compared with the estimated total waste supply of 2,800,000 tonnes of pure PVC by 2010, the total chemical "recycling" rate would be 5%.

And even that estimate may be very optimistic, given the development so far. The report, after a broad survey of several dozen potential chemical technologies and initiatives, found that:

*"However, in practice during the last 5 years, there have been only a limited number of initiatives that either have lead to the realisation of a concrete plant, or may lead to the realisation of such a plant in the near future".*

#### **Adapt to PVC at all costs?**

What is evident from this report, as well as in the other reports on waste disposal options for PVC, is the amount of problems chlorine creates for all waste disposal systems. We are sub-optimising the whole waste management system because we are forced to take care of PVC. We are even, as described in this report, trying to create far-fetched, uneconomical high-tech solutions that nobody really wants or needs. As a matter of fact we are for the moment trying to adapt society to a product, instead of trying to adapt products to the society we want.

Keep it simple - phase out PVC.