

**Bleaching of Edible
Oils and Fats
Efficiency, economics and
environmental effects**

**PROGRAMME
ABSTRACTS
DELEGATE LIST**

18-19 February 2003

Hotels van Oranje, Noordwijk, The Netherlands

PROGRAMME - WEDNESDAY 19 FEBRUARY 2003

- 08.30 **Chair's Introduction**
Dr K Kövári, CEREOL, Hungary
- 08.35 **Two-stage bleaching**
Dr G van Duijn, Unilever Research, The Netherlands
- 09.00 **New developments in bleaching from a filtration point of view**
Mr F Veldkamp, LFC LOCHEM BV, The Netherlands
- 09.40 **Outlets for spent earths - A Unimills' experience**
Mr J van Driel, UNIMILLS BV, The Netherlands
- 10.10 **Coffee**
- 10.45 **Recycling of bleaching earth - legal demands and economic aspects**
Mr C Bohling, Industrieberatung Umwelt Gbr, Germany
- 11.10 **The economics of bleaching**
Ir J De Kock, De Smet Technology Services, Belgium
- 11.40 **Summary and general discussion**
Dr A J Dijkstra, Consultant, France
- Close of conference**

Recycling of bleaching earth – legal demands and economic aspects

Claus Bohling

Industrieberatung Umwelt GbR

1. Used bleaching earth inserted to feed in combined crushing-refining plants

The technique of reusing bleaching earth as animal feed (recycle from bleaching to solvent extraction unit) in the extraction unit of oil mills is well established. Detailed investigations of the German VDOe (GOMA German Oilmillers Association) have proved that the bleaching earth of extraction units do not contain any harmful substance in an enriched concentration. All legal demands due to animal feed are met.

(Detailed figures are given in the power point presentation)

2. Recycling of bleaching earth coming from refining/hardening units

Since several refining plants use nickel-components and activated carbon in their refining step (hardening and bleaching) the bleaching earth/ activated carbon cannot be inserted into the feed (guideline of the FEDIOL: code of practise). Therefore external recycling/deposit solutions have to be elaborated. The different ways of techniques will be outlined in the talk of Managing Director Jan van Driel.

3. Legal demands for external recycling

3.1 Permission to move waste and accompanying documentation

Bleaching earth is not a dangerous waste according to the EU definition of waste. Nevertheless permission by the appropriate authority is required for the international movement of waste, e.g. from Germany to The Netherlands. In the case of movement of such waste within one country it is *advisable* to provide accompanying documentation, including a statement of the value of material being transported, even where such documentation is not required by the regulatory authorities concerned.

3.2 Waste disposal

Current changes in European legislation will mean that as from 2005 waste disposal in various types of disposal sites will not be permitted where such waste contains more than 5% of organic material, as measured by loss of weight by incineration. In some countries such regulations will come into effect even earlier than 2005. Producers of wastes which still make use of waste disposal sites must therefore endeavour to explore alternative routes, e.g. biological or thermal waste reduction.

3.3 Thermal recycling

The producer of the waste has to reassure that the recycling process is convenient to the waste material. The minimum information he has to ask for is:

- * authority permission (validity)
- * actual existence and proof that the recycling factory is in good working condition (audit)

3.4 "Biological" recycling

Since the used bleaching earth is heavily loaded with organic matter (oils) the ecologically favourable treatment takes place by micro-organisms (compost or biogas-plants. This way of recycling is subjected to further regulations (in Germany):

- * law to regulate the insertion of biomass on agricultural areas (BioAbfallVO)
- * law to allow the trading with biomass substances as fertiliser (DüngemittelVO)
- * law to subsidise the generation of electrical energy gained by biomass (EEG; BiomasseVO)

4. Biogas plants - ecologically an economically preferable technology in Germany

Several biogas plants in industrial scale are planned or have already been implemented in close co-operation with food industry partner. Special benefits are gained by the high subsidies guaranteed by the government for more than a decade. The industrial partner achieves certainty for recycling. Different co-operation models have been realised until now:

- * long term disposal contracts
- * partnership in holding companies founded for this purpose
- * establishing a new working field by self constructing and running of the biogas plant

5. Problems with the handling of bleaching earth in liquid phase

When considering the recycling of bleaching earth in biogas plants one has to be aware of the wear resistance of material (SiO_2), the sedimentation characteristics in the liquid phase that often causes trouble. Ways to handle this will be shown.