

**CODE OF PRACTICE
ON THE PURCHASE CONDITIONS
OF FRESH BLEACHING EARTH FOR OIL REFINING**

INTRODUCTION

Fresh bleaching earth is used at different stages in the oil refining process.

It is used as a filter, aiming to remove undesirable smells, colours and taste from the crude oil in order to improve the organoleptic properties of vegetable oils.

Fresh bleaching earth can also be used to remove the residues present in vegetable fats that have been subject to the hydrogenation process.

Three different raw materials are used for this bleaching process:

- Bentonite – montmorillonite (a natural clay)
- Silica gel (silicic acid)
- Kieselgur (purified diatomaceous earth)

Fresh bleaching earth is used by FEDIOL members for the processing of food and feed products, and it should therefore be of food-grade quality.

CODE OF PRACTICE

1. FEDIOL members are committed to purchase fresh bleaching earth under the conditions specified in the FEDIOL Quality-Assurance Agreement on Fresh Bleaching Earth.
2. This Quality-Assurance Agreement shall be part of any fresh bleaching earth purchase contract between the FEDIOL members and the fresh bleaching earth suppliers at all times.
3. FEDIOL members shall inform FEDIOL of any failures in complying with the conditions mentioned above.
4. FEDIOL shall revisit the quality and safety aspects of fresh bleaching earth on a regular basis and shall inform its members accordingly.

This code of practice shall be binding to all FEDIOL members. Its conditions shall apply to all bleaching earth contracts signed as from December 2008.

**QUALITY-ASSURANCE AGREEMENT
ON FRESH BLEACHING EARTH (FBE)**

This agreement shall be part of any FBE purchase contract between FEDIOL member companies and FBE suppliers

Whereas the quality and safety of FBE must be guaranteed by producers,

Whereas any contamination of FBE can have a direct impact on human or animal health,

Whereas bleaching earth is used by FEDIOL companies for the processing of food and feed and it consequently needs to be a food-grade product,

Whereas Used Bleaching Earth can be included as such in a given percentage to animal feed,

The following rules should be applied to the production, storage and transport of bleaching earth in order to guarantee their quality:

I. QUALITY ASSURANCE

The quality assurance system of the supplier is based on ISO 9001 and/or ISO 22000 and/or is HACCP/GMP-System certified by an independent, qualified organisation.

Any modification in processing or changing origin of raw material has to be indicated to the customer.

II. QUALITY AND SAFETY CRITERIA

The supplier shall guarantee that the maximum levels with regard to the undesirable substances specified below complied with¹:

Sum of Dioxin and dioxin-like PCBs (sum of polychlorinated dibenzo- <i>par</i> adioxins (PCDDs), polychlorinated dibenzofurans (PCDFs) and polychlorinated biphenyls (PCBs))	< 1,5 pg WHO-PCCD/F-PCB-TEQ
Pb	< 30 mg/kg
Cd	< 2 mg/kg
Hg	< 0,1 mg /kg
Benzo[a]pyrene	< 2 µg/kg
Other undesirable substances	In compliance with relevant food/feed legislation

¹ Bleaching Earth is currently not regulated under the feed (Dir 2002/32/EC) and the food (Reg 1881/2006) regulations, however it can be considered similar to the category "Binders and anti-caking agents".

The FBE supplier has the responsibility to complete and communicate a risk assessment for any undesirable substances which could impact food/feed safety and regulatory compliance.

III. METHOD OF ANALYSIS TO BE USED FOR DETERMINATION OF THE ABOVE CONTAMINANTS

Dioxin and dl- PCBs

For the determination of PCDD/Fs and PCBs in bleaching earth, the method of analysis presented in the Annex shall be used.

Benzo-a-Pyrene

For the determination of benzo[a]pyrene in bleaching earth, ISO method 15302 – the reverse-phase high-performance liquid chromatography – shall be used. Prior to the benzo[a]pyrene determination, a suitable solvent extraction shall be performed.

Pb, Cd, Hg

For the determination of lead, cadmium and mercury, the sample preparation and the method of analysis shall comply with the criteria that are laid down in Commission Regulation 333/2007.

IV. EXTERNAL AUDIT

The FBE supplier accepts an audit of its customers. He accepts that a delegation of its customers' QM-responsible staff visits its entire production line (from mining areas to the final product). He accepts to co-operate with them and to provide them with all the additional information that they could eventually request.

ANNEX
TO THE QUALITY-ASSURANCE AGREEMENT
ON FRESH BLEACHING EARTH (FBE)

Determination of PCDDs, PCDFs and PCBs in bleaching earth

Sample pretreatment

Samples are received as powdered material with moisture content typically between 2 and 10%. The sample must be homogenised thoroughly before sub-sampling for analysis. Moisture content determination is not required. Results must be reported on the sample as received.

Extraction²

An appropriate amount of the sample should be taken for analysis.

A mixture of at least 15 ¹³C₁₂-labelled standards for 2,3,7,8-chlorinated PCDD/Fs and 12 ¹³C₁₂-labelled standards for dioxin-like PCBs must be added to the sample prior to extraction.

A Soxhlet or ASE extraction should be conducted in a way to make sure that the PCDDs, PCDFs and PCBs are quantitatively captured. The most suitable extraction medium would be a mixture of toluene and a polar substance (e.g. ethanol, acetone, isopropanol...); a substantial fraction of each solvent is required.

A digestion by high concentrated hydrochloric acid should not be used because it can lead to false positives.

Clean-up

The crude extract should be concentrated to near-dryness and exchanged into an appropriate solvent before clean-up is commenced. Further ¹³C₁₂-labelled compounds may be added to assess recoveries achieved during clean-up if required. As a minimum, clean-up should include adsorption chromatography using modified silicas plus either alumina or Florisil, plus (optionally) activated carbon.

GC/MS

PCDD/Fs should be analysed using gas chromatography/ high-resolution mass spectrometry, with a minimum MS resolution of 10 000 and acquiring the two most abundant ions for each homologue, following procedures such as EPA 1613 or EN 1948. Quantification should be by stable isotope dilution, using RRFs from a calibration series acquired either during the same acquisition sequence or recently before the sequence.

Non-ortho-PCBs (IUPAC 77, 81, 126 and 169) should be analysed and quantified using the same approach as for PCDD/Fs.

Quality Control

A reagent blank sample should be analysed simultaneously with the test samples.

Limits of Detection

Applying human exposure WHO-PCDD/F-TEFs from Van den Berg et al (1998), *Environmental Health Perspectives* **106**, 775-792, the limit of detection should be 0.15pgWHO-PCDD/F-TEQ/g fresh bleaching earth or less.

² Community Reference Laboratory for dioxins and PCBs in Feed and Food: Determination of dioxins in mineral feed, trace elements, premixtures and compound feed: Recommendation for extraction procedures.
<http://www.crl-dioxin-freiburg.eu/Images/Recommendation%20for%20extraction%20procedures%20-%20Feedingstuff%2012-2007.pdf>
[http://www.crl-dioxin-freiburg.eu/Images/Organohalogen%20Compd%2070%20\(2008\)%20902-905.pdf](http://www.crl-dioxin-freiburg.eu/Images/Organohalogen%20Compd%2070%20(2008)%20902-905.pdf)