Brussels, 09 January 2017
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CODE OF PRACTICE & QUALITY ASSURANCE AGREEMENT ON THE PURCHASE AND USE CONDITIONS OF FRESH BLEACHING EARTH AND FILTER AIDS FOR VEGETABLE OILS AND FATS REFINERIES AND INTEGRATED PLANTS

The Code and Quality Assurance Agreement developed by FEDIOL, in cooperation with its members, is a non-binding recommendation developed for the use of members and non-members.

SCOPE

The Code and the enclosed Quality Assurance Agreement on Fresh Bleaching Earth (BE) and Filter Aids (FA) concerns the use of bleaching earth and filter aids in integrated oilseed crushing and vegetable oil/fat refining plants and stand-alone vegetable oil/fat refineries.

INTRODUCTION

Fresh bleaching earth and filter aids are adsorbents used at different stages in the oils and fats refining process. They are processing aids used by FEDIOL members for the refining process of vegetable oils/fats.

Fresh bleaching earth is used to achieve desirable organoleptic profile for refined vegetable oils/fats and to meet the desired stability.

Filter aids are sub-divided into three categories: perlite (naturally occurring volcanic glass based of sodium potassium aluminium silicate), diatomite (originated from diatomaceous earth) and cellulose and other organic media (produced by the sulfite or sulfate processing of hard woods). Filter aids are typically used to remove waxes and other solid components from crude oils and fats.

BACKGROUND

Bleaching earth and filter aids specifications as laid down in the FEDIOL Quality-Assurance Agreement have been set against the following background:

- FEDIOL is committed to ensuring the highest food and feed safety and quality of its products.

- Bleaching earth and filter aids containing activated carbon or which have been used for refining vegetable fats subject to hydrogenation are not allowed to be added to the oilseed meals (see FEDIOL Declaration on the safety of Used Bleaching Earth and Used Filter Aids in meal feed and expellers 13SAF195 for further details).

- Adherence by bleaching earth and filter aid suppliers to limits for mineral contaminants set in the EU legislation for feed material or feed additives categories is achievable and ensures food/feed safety and regulatory compliance of food and feed produced by FEDIOL members.

- By recommending the same limits for the sum of dioxins, furans, and dioxins-like PCBs that apply for feed materials and feed additives, we ensure food/feed safety and regulatory compliance for the production of vegetable oils and fats.

CODE OF PRACTICE

1. FEDIOL recommends its members to purchase and use bleaching earth and filter aids under the conditions specified in the FEDIOL Quality-Assurance Agreement on Bleaching Earth and Filter Aids.

2. FEDIOL further recommends this Quality Assurance Agreement to be part of any bleaching earth and filter aid purchase contract between FEDIOL members and the bleaching earth and filter aids suppliers at all times.

3. FEDIOL shall follow scientific developments and review the quality and safety aspects of bleaching earth and filter aid on a regular basis.

QUALITY ASSURANCE AGREEMENT ON FRESH BLEACHING EARTH (BE) AND FILTER AIDS (FA)

This Quality-Assurance Agreement developed by FEDIOL, in cooperation with its members, is a non-binding recommendation developed for the use in the BE and FA purchase contracts between FEDIOL members and their suppliers.

Whereas the quality and safety of BE and FA must be guaranteed by suppliers,

Whereas any contamination of BE and FA can have an impact on human or animal health,

Whereas BE and FA are processing aids, which may be used at different stages of the vegetable oil and fat refining process,

Whereas in integrated crushing and refining plants, used BE and FA can be included as such in a given percentage to animal feed and used in biogas production,

Whereas assessments show that some volatile undesirable substances tend to concentrate in distillates and not in the refined vegetable oils and fats, whereas these distillates can be a raw material in the food and feed chain,

Whereas clear specifications of BE and FA will contribute to food and feed safety,

The following rules should be applied to the production, storage and transport of BE and FA in order to guarantee its quality and the safe utilisation in the vegetable oil and fat industry.

I. QUALITY ASSURANCE

The quality assurance system of the supplier is based on ISO 9001 and/or ISO 22000 and/or HACCP/GMP-System certified by an independent, qualified organisation.
Any modification in processing, change in raw materials (incl. change in excavated BE layer or origin of raw materials) and new scientific developments has to be notified to the customer, unless the supplier has verified the absence of impact on the final product, its specification and its use.

The BE and FA supplier shall undertake a monitoring of its products once per year.

II. QUALITY AND SAFETY CRITERIA

The supplier shall guarantee that bleaching earth and filter aids comply with the maximum levels with regard to the undesirable substances specified below:

Undesirable substances	**Bleaching Earth (BE) and Filter Aids (FA)**
Sum of dioxins and dioxin like PCBs (sum of polychlorinated dibenzo-*para*dioxins (PCDDs), polychlorinated dibenzofurans (PCDFs) and polychlorinated biphenyls (PCBs))	< 1.5 ng WHO-PCCD/F-PCB-TEQ/kg
Non dioxin like PCBs	< 10 µg/kg
Cd	< 2 mg/kg
Pb	< 10 mg/kg
Hg	< 0.1 mg/kg
As	< 12 mg/kg

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

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

Dioxin and dioxin like PCBs

For the determination of PCDD/PCDFs and PCBs in bleaching earth and filter aids, the method of analysis as described in Regulation (EC) No 152/2009 and as presented in the Annex to this agreement shall be used.

Non dioxin like PCBs

For the determination of non dioxin like PCBs, the sample preparation and the method of analysis shall comply with the criteria that are laid down in Commission Regulation (EC) No 152/2009.

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 (EC) No 333/2007.

As
For the determination of arsenic, the association of analytical communities (AOAC) Official Method 986.15 shall be used.

IV. EXTERNAL AUDIT

The BE and FA supplier accepts an audit by 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 the relevant information that they could eventually request. He also accepts to share annually its own analysis report at the request of its customers.

ANNEX
TO THE QUALITY ASSURANCE AGREEMENT
ON BLEACHING EARTH (BE) AND FILTER AIDS (FA)

Overall Regulation (EC) 152/2009 shall be followed.

In addition, the following steps apply:

Determination of PCDDs, PCDFs and PCBs in bleaching earth and filter aids

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.

Extraction[1]
An appropriate amount of the sample should be taken for analysis.
A mixture of at least 15 $^{13}C_{12}$-labelled standards for 2,3,7,8-chlorinated PCDD/Fs and 12 $^{13}C_{12}$-labelled standards for dioxin-like PCBs must be added to the sample prior to extraction.
A Soxhlet or ASE extraction should be conducted in such a way to make sure that the PCDDs, PCDFs and dl PCBs are quantitatively captured. The most suitable extraction medium would be a mixture of toluene and a polar substance (e.g. ethanol, acetone, isopropanol, *etc.*); 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 starts. Further $^{13}C_{12}$-labelled compounds may be

[1] 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

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/PCDFs, non ortho PCBs and mono ortho PCBs should be analyzed as mentioned in Regulation (EC) No 152/2009 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.

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 (2005), the 2005 World Health Organization Re-evaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like CompoundsToxSci Advance Access, 7 July 2006*, the limit of detection should be 0.15pg WHO-PCDD/F-TEQ/g fresh bleaching earth or less.

Determination of As and Pb in bleaching earth and filter aids
The determination of As and Pb should be done in the tartaric acid extract, by applying the sample preparation described in the Wein-Weinverordnung[2] and using ICP OES, AAS or ICP MS techniques.

[2] BGBl. I Nr. 31 vom 22.5.2002 S. 1583; 3.7.2002 S. 2513; 9.12.2002 S. 4495 02a; 28.3.2003 S. 453 03; 25.9.2003 S. 195003a; 4.3.2004 S. 338 04; 06.10.2004 S. 2579 04a; 22.12.2004 S. 3751 04b; 20.01.2005 S. 128 05; 21.6.2005 S. 1666 05; 30.11.2005 S. 3379 05a; 7.4.2006 S.837 06; 30.11.2006 S. 2729 06a; 20.12.2006 S. 3323 06b; 13.4.2007 S. 494 07; 8.8.2007 S. 1816 07aBegründung; 22.08.2007 S. 2129 07b; 27.09.2007 S. 2308 07c; 30.1.2008 Gl.-Nr.: 2125-5-7-1.