

FEDIOL

The Heating of Edible Oils during Processing

Introduction

During the processing of edible oils it is possible that a system failure may lead to the accidental contamination of an oil by the heating medium used. For this reason, FEDIOL members believe that all heating media must be toxicologically safe. Steam is the most acceptable medium and all FEDIOL members have agreed that all or any new installations will use only steam and that all existing plants will be converted to high pressure steam by not later than January 1, 1997.

In the intervening period, and commencing as from January 1, 1992, FEDIOL members have agreed to abide by a code of practice as outlined below.

Thermal Heating Oils Code of Practice

1. Heating media

If a heating medium other than steam is employed in the processing of edible oils it shall meet the following requirements :

- a) It shall be non-toxic or have acceptably proven low toxic properties and shall be non-reactive with oils and fats.
- b) The medium shall be of good thermal stability and must be both used and replaced in accordance with manufacturers' instructions. Relevant information on the heating medium must be readily available on an international basis.
- c) It shall be detectable at low levels by a practical, established detection method. The detection level must be below the "appropriate toxicologically significant level" in the processed oil.

It is recognised that, in well-known and widely used heating media, taste is a sensitive detection method which is universally used, practical and therefore acceptable.

Where such method is not pertinent, it is essential to have on site proper analytical equipment and skilled labour sufficient to determine any contamination down to the appropriate toxicologically significant level OR to have a contract with a qualified outside laboratory to perform the appropriate tests.

- d) If the heating medium used is of the evaporative type it shall have a boiling point of 160° C or less when used at a vacuum of 10 Torr.

(An example of a heating medium which meets the above criteria is THERMEX, which is a diphenyl/diphenyl-oxide eutectic mixture).

2. PROCESSING CONDITIONS / CONTROL SYSTEMS

When thermal heating oils are being used the processor must institute the following conditions :

a) For vapour liquid systems :

The edible oil in the processing vessel must be heated to a minimum of 180° C while under vacuum of 10 Torr or less under normal operating conditions. Engineering controls must be in place to stop discharge of the oil and to put the processing vessel on hold/recycle should the vacuum exceed 10 Torr to ensure that if any heating medium (meeting the requirements of this code) was present in the oil it would be volatilised and removed at this stage of the process. Regular checks for leakage or loss of the thermal heating medium must be carried out and any addition of such medium carefully recorded.

b) For liquid systems :

An accurate level control system must be installed, with an alarm level on the thermal heating oil expansion vessel, so that any loss of the heating medium is identified. Reading of the levels must be carried out and recorded at least twice per shift. Any addition of the thermal heating medium must also be recorded.

The system must be backed-up with suitable documentation, such that it can be verified by an independent party (i.e. auditors).

In the event of any loss of the thermal heating medium being recorded processing of the oil must be stopped immediately and all oil produced since the previous check must be analysed to ensure it is free from any contamination by the heating medium.

3. CONTAMINATED OIL

All processors must have in place a procedure for the storage and disposal of any edible oil that may have become contaminated by a thermal heating medium. Such contaminated oil must be stored separately in a vessel which is not to be used for the storage of edible oil and must not be re-processed, irrespective of whether such processing may be capable of removing the contaminant.

Any such contaminated oil must be disposed-of in such a way as to ensure that it cannot be introduced into the food chain or be used for animal feeding purposes.

4. CONTROL

Where any contract for the purchase/sale of oils/fats makes a reference to this code the following terms shall be deemed to apply :

- a) Sellers shall, if so requested, advise buyers in writing of the heating medium used in respect of any delivery/shipment including (unless only steam has been used) the specific name or nature of the heating medium employed. This information may be provided for each individual delivery/shipment or, where appropriate, may cover a number of deliveries/shipments included in one or more contracts.
- b) Failure to provide such information following a request from buyers shall not as such give rise to a right of rejection, but buyers shall be entitled to defer payment for the documents and/or discharge of the goods until such time as the information shall have been provided.

c) **A**t any time when a contract is outstanding or in the course of fulfilment between two parties, buyers shall have the right to arrange at their expense for an independent inspector to visit sellers' production facilities to check that sufficient controls are in place to ensure compliance with this code.

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**Thermal Heating Oils
Contract Clause Sticker**

Where the contract stipulates "FEDIOL THO code to apply" it is understood and agreed that :

- (a) **S**ellers are aware of the FEDIOL code of practice relating to the use of thermal heating oils and will make every effort to ensure that the conditions of use specified therein are complied with.
- (b) **S**ellers undertake that any oil which has been processed using steam as the heat transfer medium will not be shipped commingled with any other oil where a thermal heating fluid may have been used.
- (c) **S**ellers will declare in their invoice whether steam or a thermal heating oil has been used as the heat transfer medium and in the latter case will designate the actual thermal heating fluid used.
- (d) **I**n the event that parcels of oil are commingled in which more than one thermal heating fluid may have been used sellers will declare in their invoice(s) details of all such fluids which may be relevant to all parcels shipped commingled in the same tank.
- (e) **F**ailure to comply with the above shall not give rise to a right of rejection, but sellers shall be responsible for all costs and consequences that may arise as a result of buyers' decision to test for the presence, or otherwise, of all known thermal heating oils at the time of arrival.
- (f) **N**othing in the above shall prejudice buyers' right to claim rejection in the event that the oil at time of arrival is found to contain any presence of a thermal heating fluid.

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