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PEOPLE'S REPUBLIC OF CHINA

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Replacing GB/T 15688-1995

**Animal and Vegetable Fats and Oils -
Determination of Insoluble Impurities Content**

动植物油脂 不溶性杂质含量的测定

(ISO 663:2007, MOD)

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Animal and Vegetable Fats and Oils - Determination of Insoluble Impurities Content

1 Scope

This Standard specifies the method for the determination of insoluble impurities content in animal and vegetable fats and oils.

This Standard is applicable to animal and vegetable fats and oils. If soaps (especially calcium soaps) or oxidized fatty acids are not calculated as insoluble impurities, different solvents and operating methods shall be used to make the determination of insoluble impurities meet the relevant requirements.

2 Normative References

The provisions in following documents become the provisions of this Standard through reference in this Standard. For dated references, the subsequent amendments (excluding corrigendum) or revisions do not apply to this Standard, however, parties who reach an agreement based on this Standard are encouraged to study if the latest versions of these documents are applicable. For undated references, the latest edition of the referenced document applies.

GB/T 15687 Oils And Fats – Preparation of Test Sample (GB/T 15687-1995, eqv ISO 661:1989)

3 Terms and Definitions

For the purpose of this Standard, the following terms and definitions apply.

3.1 Insoluble impurities content

Under the conditions specified in this standard, the amount of substances and foreign impurities insoluble in n-hexane or petroleum ether.

NOTE 1: The content is expressed by mass fraction.

NOTE 2: These impurities include mechanical impurities, minerals, carbohydrates, nitrogen compounds, various resins, calcium soaps, oxidized fatty acids, fatty acid lactones and (partial) alkaline soaps, hydroxy fatty acids and their glycerides, etc.

7 Sampling

The sampling is not the content of this Standard, it is recommended to use GB/T 5524.

The samples received by the laboratory shall be representative and shall not be damaged or changed during transportation or storage.

8 Preparation of Specimen

Prepare the specimen according to the method in GB/T 15687.

9 Operating Procedures

9.1 Specimen

In a conical flask (6.3), take about 20g of the specimen (Clause 8), accurate to 0.01g.

9.2 Determination

9.2.1 Put the filter paper and filter with lid (6.5) or crucible filter (6.6) in the oven (6.2); the temperature of the oven is 103°C; heat, bake and dry. Cool in a dryer (6.4) and weigh it, accurate to 0.001g. For acid oils, prepare the crucible according to 9.2.7; and then operate according to 9.2.2.

9.2.2 Add 200mL of n-hexane or petroleum ether (5.1) to the conical flask containing the specimen (9.1); cover the stopper and shake. For castor oil, the amount of solvent may be increased to facilitate operation; so that a larger conical flask may be used. Stand at 20°C for 30min.

9.2.3 Filter through ashless filter paper in a suitable funnel; and suction filter through a crucible filter if necessary. When cleaning the conical flask, make sure that all impurities are washed into the filter paper or crucible.

Clean the filter paper or crucible filter by a small amount of solvent (9.2.2) until the solvent is free of grease. If necessary, properly heat the solvent, but the temperature shall not exceed 60°C, so to dissolve some solidified fat on the filter paper.

9.2.4 Move the filter paper from the funnel to the filter (6.5); let it stand; make most of the solvent on the filter paper evaporate in the air; and completely evaporate the solvent in the oven at 103°C. Then take it out from the oven; cover the lid; cool in a dryer (6.4) and weigh it, accurate 0.001g.

9.2.5 If using a crucible filter, make most of the solvent on the crucible filter evaporate in the air; and completely evaporate the solvent in an oven at 103°C; and then cool

Appendix A summarizes the inter-laboratory test conditions of the precision of this method. The values obtained from these tests may not be applicable to other concentration ranges and other test objects.

11.2 Repeatability

In the same laboratory, the same operator uses the same equipment, according to the same test method, and the same test object is tested independently in a short time. The condition that the absolute difference between the two independent test results is greater than the repeatability limit (r) given in Table A.1 does not exceed 5%.

11.3 Reproducibility

In different laboratories, different operators use different equipment and use the same test method to test the same test object independently of each other. The condition that the absolute difference between the two independent test results is greater than the reproducibility limit (R) given in Table A.1 does not exceed 5%.

12 Test Report

The test report should explain in detail for the following:

- All relevant information required for the test sample;
- If the sampling method is known, please indicate it;
- The adopted inspection method and reference standard;
- The used Solvent;
- Not specifically stated in this Standard, or considered optional, and all operational details that may affect the results;
- The measurement results. If a repeatability test is carried out, the results of the two measurements and the average result shall be stated.

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