

Translated English of Chinese Standard: GB17376-2008

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## NATIONAL STANDARD

### OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 17376-2008 / ISO 5509:2000

Replacing GB/T 17376-1998

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## Animal and vegetable fats and oils — Preparation of methyl esters of fatty acids

### 动植物油脂 脂肪酸甲酯制备

(ISO 5509: 2000, IDT)

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## Foreword

This standard is identical to ISO 5509: 2000 *Animal and vegetable fats and oils — Preparation of methyl esters of fatty acids* (English Edition).

In order for ease of use, the following editorial changes have been made in this standard to ISO 5509: 2000:

- Delete “Foreword” of the international standard;
- Change “this international standard” to “this standard”;
- Replace the comma “,” that is used as decimal point to “.”

This standard is the revision of GB/T 17376-1998 *Animal and vegetable fats and oils - Preparation of methyl esters of fatty acids*.

Main differences between this standard and GB/T 17376-1998 are as follows:

- Replace heptanes reagent with iso-octane (color spectrum pure);
- Use trimethylsulfonium hydroxide (TMSH) method to replace “the alternate method not using boron-trifluoride” in the previous version;
- Replace “the special preparation method of fatty acid methyl ester (FAME) with C4 or above” in the previous version with ester exchange method;
- Some commonly used main analysis procedures in various methods and Chapter 6 in the previous version are changed to be in Annex A;
- Add informative Annex B.

This standard shall replace GB/T 17376-1998 from implementation date.

Annex A of this standard is normative; Annex B is informative.

This standard was proposed by State Grain Administration

This Standard shall be under the jurisdiction of National Technical Committee on Grain and Oil of Standardization Administration of China.

The responsible drafting organization of this standard: Xi'an Grease Science Research & Design Institute of State Grain Administration.

The participating drafting organizations of this standard: Shanxi Product Quality Supervision and Inspection Center, and Anhui Daping Industry & Trade Group Co., Ltd.

The chief drafting staffs of this standard: Meng Ju, Xia Tianwen, Chen Yong, Wang Huifang, Zhu Wenxin, and Ren Chunming.

This standard replaces the following historical edition:

- GB/T 17376-1998.

# Animal and vegetable fats and oils —

## Preparation of methyl esters of fatty acids

### 1 Scope

This Standard specifies methods of preparing the methyl esters of fatty acids.

It includes methods for preparing fatty acid methyl esters from animal and vegetable fats and oils, fatty acids and soaps. To cover different requirements, three methylation methods are specified, as follows:

- a) boron trifluoride (BF<sub>3</sub>) method (see clause 3);
- b) trimethylsulfonium hydroxide (TMSH) method (see clause 4);
- c) trans-esterification method (see clause 5).

Methyl esters so produced are used in various analytical procedures requiring such derivatives, for example gas- liquid chromatography (GLC), thin-layer chromatography (TLC) and infrared spectrometry (IR).

### 2 Normative references

The articles contained in the following documents have become part of this standard when they are quoted herein. For the dated documents so quoted, all the modifications (excluding corrections) or revisions made thereafter shall not be applicable to this Standard. For the undated documents so quoted, the latest editions shall be applicable to this Standard.

GB/T 6682 Water for analytical laboratory use - Specification and test methods (GB/T 6682-2008, ISO 3696:1987, MOD)

GB/T 15687 Animal and vegetable fats and oils - Preparation of test sample (GB/T 15687-2008, ISO 661:2003, IDT)

### 3 General method using boron trifluoride

**WARNING — The method described involves the use of potentially hazardous reagents. Normal precautions shall be taken for eye protection and for protection from the dangers of corrosive chemical burns.**

Boron trifluoride is poisonous. For this reason, it is not recommended that the analyst

## Bibliography

- [1] BANNON, CRASKE et al. *J. Am. Oil Chem. Soc.*, 62, 1985, p. 150.  
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[3] SCHULTE and WEBER. *Fat Sci. Technol.*, 91, 1989, p. 181.

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