CODEX ALIMENTARIUS COMMISSION

Food and Agriculture Organization of the United Nations

World Health Organization

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Agenda Item 4.2 **MAS-CRD/09**

ORIGINAL LANGUAGE ONLY

JOINT FAO/WHO FOOD STANDARDS PROGRAMME

CODEX COMMITTEE ON METHODS OF ANALYSIS SAMPLING

REVIEW OF METHODS OF ANALYSIS IN CXS 234

Comments of Thailand and AOCS

THAILAND

Appendix I

Part A: Methods of Analysis by Commodity Categories and Names

- Fats and Oils (all)

Commodity	Provision	Method	Principle	Type
Fats and Oils (all)	Arsenic	AOAC 986.15	Atomic absorption spectrophotometry	***III***

To be clear, the provision for AOAC 986.15 should be amended to "Atomic absorption spectrophotometry ***(hydride generator)***"**.**

- Named Vegetable Oils

Commodity	Provision	Method	Principle	Type
Named Vegetable Oils	~~Insoluble impurities~~	~~ISO 663~~	~~Gravimetry~~	~~I~~
	Insoluble impurities	ISO 663	Calculation from total insoluble content in n-hexane or light petroleum. Gravimetry, drying at 103°C	**I**

1. We would like to inform that in addition to ISO 663, AOCS Ca 3a-46 is used for analysis of insoluble impurities in palm oil and rice bran oil by oil industries in Thailand.
2. We would like to request EWG to consider whether AOCS Ca 3a-46 and ISO 663 are equivalent.

- **Olive Oils and Olive Pomace oils**

Commodity	Provision	Method	Principle	Type
Olive Oils and Olive Pomace Oils	~~Stigmastadienes~~	~~ISO 15788-2~~	~~HPLC~~	~~III~~
	Stigmastadienes	ISO 15788-2	Preparative column chromatography and gas chromatography	**III**

For the method of analysis for Stigmastadienes, we would like to inform EWG that the principle of ISO15788-part 1 is capillary column gas chromatography (GC), while the principle of ISO 15788-2 is high pressure liquid chromatography (HPLC).

AOCS

General

1) Fats and Oils- Synthetic antioxidants

Commodity	Provision	Method	Principle	Type
Fats and oils	~~Butylhydroxyanisole, butylhydroxytoluene, tert-butylhydroquinone, and propyl gallate~~ Synthetic antioxidants **USP: AOAC Type III; AOCS Type II, check method updates* **Canada: ISO/TC 34/SC 11 is coordinating a collaborative study on AOCS Ce 6-86. Check for results and retype if desired by trade.*	AOCS Ce 6-86	Liquid chromatography	III

The method draft (AOCS Ce 6a-2021) has been approved by the AOCS expert subcommittee and samples for the collaborative study were sent in March 2021. When the method issues as an AOCS method the collaborative study data will be published in the method.

Recommendation to CCMAS41

To consider assigning Type II to AOCS Ce 6a-2021 after final adoption and publication by AOCS

2) Fish oils- Fatty acid composition

	mously to conclusion: Type III			
Fish oils	Fatty acid composition *Type II from Type III selection comes unany-mously to conclusion: Type II*	AOCS Ce 2-66 and AOCS Ce 1i-07	Gas Chromatography of methyl esters	II

AOCS Official Method Ce 1i-07 has been republished and now includes the entire JAOCS paper reporting the results and data from the collaborative trial (JAOCS (2008) 85:901-909 “Statistical Analysis of the Collaborative Study in Support of the Official Method AOCS Ce 1i-07: Determination of Saturated, cis-Monounsaturated and cis-Polyunsaturated Fatty Acids in Marine and Other Oils Containing Long Chain Polyunsaturated Fatty Acids by Capillary GLC”).

3) Unsaponifiable matter

Named Vegetable Oils	Unsaponifiable matter **Canada: solvents differ between methods*	ISO 3596 / ISO 18609 / AOCS Ca 6b-53	Gravimetry, drying at 103 °C and ti-trimetry (colorimetry)	I

AOCS Ca 6b-53 and ISO 3596 use diethyl ether, ISO 18609 uses hexane. It is quite likely that differing results could be obtained between these solvents for newer Named Vegetable Oils having unsaponifiable matter that differs from the matrices tested in the original collaboratives (in the AOCS method: Refined, bleached, deodorized soybean oil, Dried, crude water-degummed soybean oil. Fish oil, Refined Soybean Oil, Refined Tallow, Crude rapeseed oil). The CCFO list of Named Vegetable Oils is expanding, and exotic oils may be added such as tree nuts and fruits like avocado.

The Hansen solubility parameters values for Dispersion (dD), Polarity (dP) and Hydrogen bonding (dH) for hexane are 14.9, 0, and 0, respectively; the corresponding values for diethyl ether are 15.49, 2.9, and 4.6 respectively. Thus, the higher polarity and hydrogen bonding characters of diethyl ether could reasonable be projected to extract more polar components, especially from crude oils.

References

Charles M. Hansen, *Hansen Solubility Parameters: A User's Handbook*, 2nd Edition, 2007

Allan F.M. Barton, *CRC Handbook of Solubility Parameters and Other Cohesion Parameters*, 2nd ed., 1991