

Committee Spotlights



Instrumental Techniques Committee

The Instrumental Techniques Committee routinely meets during each Annual Meeting of the Society. The Committee is divided into several major subject areas. A short report on each subcommittee follows.

Atomic Absorption Spectroscopy Subcommittee

This subcommittee met twice during 1975, at both the Spring and Fall AOCS meetings. This subcommittee is made up of 11 member companies and has had more than a 50% representation at all subcommittee meetings.

The subcommittee completed a first-round study of the graphite furnace technique for trace metals in vegetable oils, and results were reviewed at the Spring meeting. In this study, copper, iron, chromium, and nickel were determined at levels of 1 ppm for iron and 0.1 ppm and less for the other trace metals. Five member companies participated in this study.

Results of the graphite furnace study were again reviewed at the Fall meeting, and, as more members than had the necessary equipment, suggestions were made for a second-round study and new samples were sent out in November, 1975, to seven committee members.

Chromatography Subcommittee

This subcommittee has been redefined to reflect growing interest in both gas and high performance liquid chromatography. Recently, as a result of considerable effort, a series of four task forces has been established which will develop an update of method Ce 1-62 and study the GLC of short chain fatty acids, as well as determine the use of GLC in the analysis of *cis* and *trans* isomers of fatty acids using packed columns. The possibility of using GLC for sterol analysis will also be studied. Work is proceeding in these groups toward the selection of appropriate methods for further study.

Instrumental Melting Point Subcommittee

An initial collaborative study of the dropping points of four samples was carried out singly on two different days by each participating laboratory. Statistical analyses are now being carried out on the results obtained. Additional collaborative work is now in the planning stage.

NMR Spectroscopy Subcommittee

The NMR subcommittee has been working toward the development of a method for determination of SFI by NMR since September, 1974. The collaborative task force initially set up by A.J. Haighton of Unilever Research, Vlaardingen, and carried on by L.F. Vermass has done a meritorious job in establishing the precision of the wide-line NMR procedure. However, the method suffers from the drawback that each result varies according to the treatment (tempering preparation) utilized prior to instrumental measurement. In order to alleviate this problem, an additional collaborative effort was organized to test the method when a specified tempering procedure is followed. The report of this study indicated that there is little difference in SFI obtained using either of the tempering procedures. However, no clear cut preference for either tempering treatment has emerged. Of the seven laboratories surveyed, three

preferred one tempering procedure, three preferred the other, and one laboratory had no preference. In an effort to settle this question of pretreatment, another task force composed of seven laboratories in the U.S. was established. This group will not only evaluate the tempering procedures but will also demonstrate the interchangeability of wide-line and pulsed NMR instrumentation since the latter is used by four on our committee. This last study should settle the question of the tempering procedure so that the method may be recommended to the Uniform Methods Committee for adoption as a standard method of the Society.

In the area of high resolution NMR spectroscopy, J.N. Shoolery and P.E. Pfeffer are working together on a new, nondestructive, direct C^{13} spectroscopic method for determining *cis/trans* ratios of unsaturation in both mixtures of processed (partially hydrogenated) and naturally occurring fats. Once this method has been worked out, it will be circulated to the other members of the committee along with standard mixed triglyceride samples for evaluation.

Mass Spectrometry Subcommittee

Although it is unlikely that mass spectrometry will provide a standard method, the technique is of great value to lipid research. Accordingly, a meeting of interested persons resulted in the formation of the Mass Spectrometry Subcommittee. It was agreed that the nucleus of a users group did exist in the Society, and the AOCS mass spectral library was initiated. This is intended to be a collection of spectra of interest to lipid chemists. It is planned that this library will originate from individual AOCS members' contributed spectra. Those individuals wishing to contribute spectra to the committee are invited to contact the chairman for further details. Furthermore, a symposium on the use of mass spectrometry in lipid research is planned for the New York City meeting.

Spectroscopy Subcommittee

The Spectroscopy Subcommittee is inactive due to current lack of interest in the development of such methodology. Standards containing known amounts of *trans* double bond can now be obtained from the Supelco Company, Bellefonte, PA.

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