

containing 22% F. F. A. Heating was done in an air oven at 105–110°C., using standard moisture dish.

	No			
	Cover Glass		Cover Glass	
	No. 1	No. 2	No. 3	No. 4
Loss during 1st hr.	.86%	.83%	.44%	.44%
Loss during 2nd hr.	.24%	.20%	.00%	.00%
Loss during 3rd hr.	.23%	.15%	.01%	.01%
Loss during 4th hr.	.13%	.09%	.00%	.01%
Loss during 5th hr.	.09%	.31%	.03%	.02%
Loss during 6th hr.	.11%	.22%	.00%	.00%

After sixth hour water was added to above samples and samples again heated in oven.

	No			
	Cover Glass		Cover Glass	
	No. 1	No. 2	No. 3	No. 4
% water added —	2.00	3.09	2.35	2.55
Loss during 1 hr. heating	2.34%	2.40%	2.04%	1.70%
Loss during 2 hrs. heating	.18%	1.04%	.33%	.86%
Loss during 3 hrs. heating	.18%	.44%	.01%	.02%

After third hour petroleum ether (below 75°) was added and samples again heated.

	No			
	Cover Glass		Cover Glass	
	No. 1	No. 2	No. 3	No. 4
% petroleum ether added	2.20%	2.20	2.10	2.16
Loss during 1 hr. heating	2.41%	2.26%	1.90%	2.01%
Loss during 2 hrs. heating	.21%	.15%	.22%	.15%
Loss during 3 hrs. heating	.12%	.23%	.03%	.03%

Higher boiling solvents have not been tried out in this manner, and it is, of course, evident that the higher the boiling point the more difficult will be the removal of the solvent, especially when the cover glass method is used. This matter of the volatilization of the solvent is of importance in the examination of extracted oils. Here it is possible for a solvent to be encountered that is too heavy to be removed in the moisture and volatile determination, and not heavy enough to be even approximately determined along with the unsaponifiable matter, unless in this latter determination the petroleum ether extract be evaporated down with a known weight (same as is used in moisture and volatile determination) of an involatile and unoxidizable fat or oil, and when bulk of petroleum ether has been evaporated on steam bath the residue be dried in an oven, using the standard moisture dish with cover glass, and heated in oven under conditions as prevailed in the moisture and volatile determination. Possibly by this means the sum of the moisture, volatile, and unsaponifiable matter will give a result which will approximate fairly closely the total of these impurities.

For the determination of moisture and volatile matter in Coconut Oil, the writer has also used a method dependent upon passing dried air (thru tube containing CaCl_2) thru the oil at room temperature. A five-gram sample was weighed in a 25 cc. cylinder and the dry air passed thru the oil by means of a slender glass tube passing down into the flask to the bottom of the oil. Usually 1 to 2 hours suffices, depending upon moisture and volatile matter present and on the rate of flow of the air thru the oil. Little work has so far been done with this method, but results obtained by its use compared with those obtained by cover the glass method on the same samples agreed very closely. For fats melting above room temperature it would only be necessary to keep them at or a little above their melting point temperatures while passing thru the air. In the case of oxidizable fats an inert gas instead of air could be used.

When only water is to be determined, Oertel's method,

depending upon the rise in temperature produced by the hydration of an hydrous magnesium sulfate seems fairly satisfactory, at least on oils liquid at room temperature.

In the case of more unsaturated fats, such as tallows, greases, fish oils, etc., the cover glass method gives results which are undoubtedly too low owing to oxidation which takes place, as a gain in weight is almost invariably noted at end of the second or third hour heating. When no cover glass is used the errors due to volatilization and oxidation are more or less compensating, and it, of course, depends upon the extent to which these errors compensate each other which method is the more accurate.

FLUORESCENCE IN CHINESE COTTON OIL

By L. E. Fisher, The Lih Teh Oil Mill Co., Ltd., Shanghai

With reference to the articles by P. W. Tompkins¹ and R. H. Fash² on the fluorescence exhibited by Chinese cottonseed oil, the conclusions of P. W. Tompkins are borne out by the practical experience of the writer with seed from many districts in China.

At the moment the actual cause of the fluorescence has not been determined. It should be pointed out, however, that the seed from the same district will one year give an oil with a very evident fluorescence, whereas another year the oil will be practically free from fluorescence. The same type of fertilizer is used in all cases and it would therefore seem that the climatic conditions during growth or harvesting have an important bearing on the question when considered along with the type of seed and fertilizer used here.

Seed which has been badly overheated during storage certainly gives this fluorescence in a more marked degree than fresh seed from the same district; on the other hand fresh seed from one district may be similar in this respect to overheated seed from another district.

That the fluorescence is not due to minor oil contamination produced by over-cooking or by accidental introduction during rolling is proved by the fact that the seed crushed under controlled conditions in the laboratory gives an oil with the same degree of fluorescence as the oil yielded by the works.

Oil obtained in England from Indian seed shows a similar fluorescence to the oil from Chinese seed, whereas the Egyptian seed rarely gives an oil having any fluorescence.

This characteristic of Chinese Cottonseed Oil is just as natural as the unsaponifiable matter found in all oils, and it can not, therefore, be classed as an adulteration.

¹Vol. V., No. 2, Pg 123.

²Vol. V., No. 9, Pg 31.

UNIFORM METHODS COMMITTEE REPORT

F. B. Porter, Chairman

To date, the Uniform Methods Committee has considered and acted on only one matter, namely the recommendation of the adoption of last year's Soapstock Committee's recommendation on the change in the total fatty acids method. The Uniform Methods Committee voted in favor of this change with one dissenting vote. The note covering the use of denatured alcohol No. 30 was favorably passed on by the Committee and made applicable to Section 3 of Rule 277, as well as Section 2. The method recommended is published in the September 1921 issue of the Cotton Oil Press, Page 44. This entire matter has been referred to the Chemists' Committee of the Interstate for action.