Report of the Committee on the Determination of Stability of Edible Fats and Oils

THE Committee's report to the Society last spring may be found in OIL AND SOAP 12, 187 (1935). A detailed account of the peroxide or active oxygen method for determining the relative keeping quality of edible fats and oils, the test this committee has had under consideration, is given in OIL AND SOAP 10, 105 (1933). Since the report of last May we have data on nine more samples which were sent to co-operating laboratories. These data are from eight of the nine laboratories which reported on other co-operative samples and two laboratories to which samples had not been sent before. With the exception of the discrepancies in the data from laboratories which the reported erratic results before, the data are in good agreement. From our general experience with the test and a study of the stability data reported on a total of twenty-two samples (co-operative) we believe that the picture will not be very greatly changed no matter how many more samples we may send to co-operating laboratories.

Our study of, and experience with accelerated methods for determining the relative stability of fats and oils have convinced us that the peroxide method when used as described in the article already referred to in this report is the best method we have at the present time. There is no doubt in our minds that this test is very valuable for factory control work. It is also a useful method to use in studying the oxidation of fats and oils. Along with its usefulness it has limitations which should be taken into consideration when stability data obtained by this method are being interpreted. We feel that stability data should be cautiously interpreted and also used with discretion so that this very useful tool will not become misunderstood and misused as is the Kreis test.

Although the test is not perfect and has limitations we feel that since the method has so many uses and is the best accelerated procedure we know for judging the relative stability of fats and oils it should be written up as a method and made available for all skilled workers in the fat field. We believe that this can be done best by making it a tentative method of the Society.

A summary of the data on all the co-operative samples the committee has examined is appended to this report.

This report represents, as nearly as possible, the judgment of the majority of the members on the committee. It is not a unanimous opinion.

Respectfully submitted,

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Date	Sample No.	Kind of fat	Armour & Co.	Canada Packer, Ltd.	Mead Johnson & Co.	I.A.M.P. Research Lab.	I.A.M.P. Service Lab.	Lever Bros. Co.	Procter & Gamble Co.	Purdue University	Schluderberg-Kurdle Co.	Swift & Co.	Wilson & Co.
			hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.
1934	A	Lard	7	..	..	7	..	4	4	5	..	6	6
1934	B	Lard	12	..	..	12	..	6	5	8	..	12	12
1934	C	Lard	20	..	..	17	..	15	> 9	14	..	18	22
1934	D	Hyd. cso.	19	..	..	19	..	*	16	18	..	21	22
1934	E	Hyd. cso.	35	..	..	35	..	40	> 24	..	..	34	42
1934	F	Compound	4	..	..	4	..	4	3	5	..	4	5
1934	G	Compound	10	..	..	9	..	9	> > 7	8	..	9	11
1934	H	Cso. salad	10	..	..	11	..	7	> 9	..	..	10	10
1934	I	Corn salad	8	..	..	8	..	5	7	..	..	8	10
1935	1	Lard	16	15	..	19	..	16	18	15	12	18	18
1935	2	Compound	9	9	..	9	..	9	9	8	11	11	10
1935	3	Hyd. cso.	33	30**	..	57	..	31	49	*	36	58	44**
1935	4	Cso. salad	12	11	..	10	..	9	10	*	12	10	11
1935 and 1936	1	Lard	9	..	8	10	10	12	10	..	7	10	..
	2	Lard	9	..	9	10	8	12	8	..	7	9	..
	3	Lard	17	..	11	18	16	24	16	..	13	18	..
	4	Lard	10	9	9	10	11	11	9	..	8	9	8
	5	Lard	9	8	10	9	10	11	10?8?	..	7	9	9
	6	Compound	15	13	12	15	16	15	14	..	12	13	14
	7	Hyd. cso.	45	180	..	47	49	..	51	..	31	49	42
	8	Hyd. cso.	45	150	..	47	49	..	51	..	32	49	42
	9	Hyd. cso.	47	125	..	47	49	..	51	..	39	49	42
	Bath temp. reported on 1935-36 samples.												
	Samples 1, 2, 3			..	..	208.4 208.8	208.4	208.7 209.5	207.7 208.2 av. 208.0	..	208.6 209.7	208.0	..
	Samples 4, 5, 6			207.5 208.5	..	208.8	208.4	208.6 208.9	207.7 208.0 av. 207.7	..	209.5 210.0	208.0	..
	Samples 7, 8, 9			206.6 208.4 av. 207.5		208.8	208.4		207.5 208.2 av. 208.0	..	..	208.0	208.4* 208.8

*Sample broken on arrival.

*Couldn't get consistent results.
**Test was discontinued and never repeated.

*Corrected for thermometer stem.