

TABLE V
Non-Additivity of SDBS and OPE9.5 Turbidities

Anionic Nonionic ratio	$c \times 10^3$ g/ml	$T - T_0, \text{ cm}^{-1} \times 10^5$		
		SDBS + OPE9.5	SDBS alone	OPE9.5 alone
0.333	12.0	31.40	20.30	175.0
1	8.00	26.19	23.40	72.87
2	9.00	29.78	29.55	53.40

interpolation in, and one by a small extrapolation of, the corresponding ($T - T_0$) vs. c functions of SDBS and OPE9.5, both of which are linear in the ranges covered. Considerable interaction is indicated, since otherwise the turbidities of the surfactants in each mixture would be additive.

Detergency and Detergency Correlation. Remembering that asphalt soil removal by aqueous cleaning solutions may be considered an index of detergent efficiency (1), the data of Table VI show that the detergency of Federal Specification P-C-436a type alkaline cleaners increases considerably with increasing SDBS content of the SDBS-OPE9.5 surfactant mixture, from poor detergency with 25% SDBS, to good 15–16 min detergency with 50% SDBS, to excellent 9 min detergency with 67% SDBS in the surfactant mixture. Comparing the detergency and micellar data of Tables VI and IV, respectively, it can be seen that detergency increases with increasing charge on, and number of SDBS monomers in, the mixed micelle. It is of interest that SDBS alone and the 1–3 anionic-nonionic mixture, both of which do not impart improved detergency to alkaline cleaners of the type studied, have micellar dissociation values of .07–.08, while the 1–1 and 2–1 surfactant mixtures, which give these cleaners asphalt-removing power, have a micellar dissociation of .04.

TABLE VI
Detergency Summary

Compound	% SDBS in surfactant mixture	Detergent Efficiency	
		mineral oil 3 min cleaning	asphalt min for removal
"1-3"	25	good *	243 mg; 284 mg **
"1-1"	50	good	15–16 min
"2-1"	67	good	9–9 min

* "good" denotes no water breaks nor residue-pattern stains.
** mg residual asphalt soil after 21 min cleaning; original asphalt soil = 330 mg.

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46th Annual Report of the Smalley Committee 1963-1964

THE SMALLEY COMMITTEE, through six subcommittees, distributed over 4200 samples and tabulated and graded over 18,000 test results during the past season. Each subcommittee has furnished its collaborators with a final report summarizing the work done and showing final relative performance. Table I lists the types of samples furnished and the extent of participation.

TABLE I

Series	Number of collabo- rators	Number of samples	Graded tests per sample
Cottonseed.....	37	10	5
Soybean.....	33	10	2
Peanut.....	13	7	4
Meal.....	129	15	3-4
Cottonseed oil.....	77	4	3
Soybean oil.....	84	4	3
Tallow and grease.....	76	5	6
Glycerine.....	24	5	6
Drying oil.....	19	6	4
Edible fat.....	58	5	7-10

As of March 31, 1964, the AOCS Smalley account showed the following:

Receipts	\$7512.45
Expenses paid	3581.98
Expenses to be paid	2423.24
Balance	\$1507.23

A detailed accounting will be given to the Governing Board.

A rotary countercurrent mixer has been purchased by Law & Co. for use in preparing next season's meal samples. It will also be used for the preparation of the Magruder Fertilizer Samples as well as the Check Feed Samples of the Association of American Feed Control Officials. The mixer will be depreciated over a period of five years and the cost to the Smalley Committee will be only slightly over \$100 per year for the next five years. Sample uniformity should be improved considerably.

Grading this year was handled as for the 1962–63 season. The Baumann method was used to grade all but the Drying Oil, Tallow and Grease and the two Vegetable Oil series. An explanation of the method may be found in last year's Smalley Report. Details of the procedure are given in the August 1963 issue of the Journal.

Certificates are awarded this year to 29 collaborators.

Drying Oils. With 19 chemists participating, first place was won by: Warren Chapin, The Sherwin-Williams Co., Cleveland, Ohio, with a grade of 97.75%; Vern Bloomquist, The Minnesota Linseed Oil Co., Minneapolis, Minnesota, was second with a grade of 97.25%.

Soybean Oil. With 84 chemists participating, the following were tied for first place with grades of 100.0%: P. R. Gibson, The Procter & Gamble Mfg. Co., Macon, Ga.; F. M. Tindall, Humko Products,

Memphis, Tenn.; W. J. Howard, Humko Products, Champaign, Ill.; F. D. Newcomb, Lever Brothers Co., Los Angeles, Calif.; P. D. Cretien, Texas Testing Laboratories, Dallas, Texas; T. C. Bond, Swift & Co., Los Angeles, Calif.; P. L. Phillips, Barrow-Agee Laboratories, Jackson, Miss.; L. D. McClung, Corn Products, San Francisco, Calif. and F. C. Woekel, Gooch Laboratories, Los Angeles, Calif.

Recalculation with no tolerance, gives the first place certificate to P. R. Gibson. F. M. Tindall and W. J. Howard win second place awards.

Cottonseed Oil. With 77 chemists participating, the following were tied for first place with grades of 99.4%: J. G. Lipps, Pan American Laboratories, Brownsville, Texas; J. M. Ridlehuber, Plains Coop Oil Mill, Lubbock, Texas; J. D. Miller, Best Foods, Bayonne, N. J. and F. G. Schmid, Texas Testing Laboratories, San Antonio, Texas.

Recalculation with no tolerance, gives the first place certificate to J. G. Lipps. J. M. Ridlehuber wins the second place award.

Tallow and Grease. With 76 chemists participating, the following were tied for first place with grades of 99.95%: L. I. Clack, The Procter & Gamble Mfg. Co., Hamilton, Ontario; W. B. Sizer, General Testing Labs, Vancouver, British Columbia.

According to the rules covering two-way ties, approved by the Governing Board in August, 1955, both are awarded certificates for first place. No second place award will be made.

Glycerine. With 24 chemists participating, first place was won by: J. H. Dietz, The Harshaw Chemical Co., Gloucester City, N. J., with a rating of 51.30. R. W. Klein, The Procter & Gamble Mfg. Co., Chicago, Illinois, was second with a rating of 44.64.

Edible Fat. With 58 chemists participating, first place was won by: F. A. Adams, The Procter & Gamble Mfg. Co., Long Beach, California, with a rating of 28.98. R. A. Marmor, The Pillsbury Co., Minneapolis, Minn., was second with a rating of 23.83.

Peanuts. With 13 chemists participating, first place was won by: W. C. Dean, Dothan Oil Mill, Dothan, Ala., with a rating of 58.47. G. C. Henry, Law & Co., Atlanta, Ga., was second with a rating of 43.59.

Soybean. With 33 chemists participating, first place was won by: R. H. Hein, General Mills, Inc., Belmond, Iowa, with a rating of 62.68. W. D. Simpson, Woodson-Tenent Laboratories, Wilson, Ark., was second with a rating of 56.00.

Cottonseed. With 37 chemists participating, first place and the Barrow-Agee Cup was won by P. D. Cretien, Texas Testing Laboratories, Dallas, Texas, with a rating of 60.02. This gives Mr. Cretien permanent possession of the Cup, having won the first two legs in 1961 and in 1962. E. R. Hahn, Hahn Laboratories, Columbia, S. C., was second with a rating of 49.47.

Meal. With 129 chemists participating, first place for the determination of moisture was won by: M. A. Clark, Hartsville Oil Mill, Hartsville, S. C., with a rating of 73.16. B. O. Pattison, Pattison's Laboratories, Harlingen, Texas, was second with a rating of 67.98.

For the determination of oil, first place was won by: M. P. Etheredge, Mississippi State Chemical Laboratory, State College, Miss., with a rating of 76.87. W. D. Simpson, Woodson-Tenent Laboratories, Wilson, Ark., was second with a rating of 75.00.

For the determination of nitrogen, first place was won by: H. L. Hutton, Woodson-Tenent Laboratories,

Clarksdale, Miss., with a rating of 72.30. R. J. McPherson, Kershaw Oil Mills, Kershaw, S. C., was second with a rating of 71.92.

For the determination of crude fiber, first place was won by: B. D. Nelson, Barrow-Agee Laboratories, Greenwood, Miss., with a rating of 69.09. W. J. Johnson, Buckeye Cellulose Corp., Memphis, Tenn., was second with a rating of 65.78.

The Smalley Cup, awarded annually for combined proficiency in the determination of moisture, oil and nitrogen in meal, was won by W. N. Kesler, Woodson-Tenent Laboratories, Little Rock, Ark., with a rating of 68.70. W. D. Simpson, Woodson-Tenent Laboratories, Wilson, Ark., was second with a rating of 68.24.

The following chemists, while not winning certificates, did outstanding work.

Cottonseed

F. G. Schmid, Texas Testing Laboratories, San Antonio, Texas.

Peanuts

R. C. Pope, Pope Testing Laboratories, Dallas, Texas.

Soybeans

J. G. Bowling, Woodson-Tenent Laboratories, Des Moines, Iowa.

Meal

H. L. Hutton, Woodson-Tenent Laboratories, Clarksdale, Miss. and R. J. McPherson, Kershaw Oil Mills, Kershaw, S. C.

Glycerine

F. A. Adams, The Procter & Gamble Mfg. Co., Long Beach, Calif.

Cottonseed Oil

J. D. Miller, Best Foods, Bayonne, N. J. and F. G. Schmid, Texas Testing Laboratories, San Antonio, Texas.

Soybean Oil

F. D. Newcomb, Lever Brothers Co., Los Angeles, Calif.; P. D. Cretien, Texas Testing Laboratories, Dallas, Texas; T. C. Bond, Swift & Co., Los Angeles, Calif.; P. L. Phillips, Barrow-Agee Laboratories, Jackson, Miss.; L. D. McClung, Corn Products Co., San Francisco, Calif. and F. C. Woekel, Gooch Laboratories, Los Angeles, Calif.

Drying Oil

R. H. Hein, General Mills, Inc., Belmond, Iowa and K. Leadbeater, Maple Leaf Mills, Toronto, Canada.

Edible Fat

A. W. Cameron, Armour & Co., Bradley, Ill.; F. D. Newcomb, Lever Brothers Co., Los Angeles, Calif. and W. F. Schroeder, Humko Products, Memphis, Tenn.

Tallow and Grease

R. W. Klein, The Procter & Gamble Mfg. Co., Chicago, Ill. and D. Schmelz, The Procter & Gamble Mfg. Co., Baltimore, Md.

M. J. ANDERA	R. T. DOUGHTIE, JR.
L. V. ANDERSON	K. H. FINK
T. J. BALDWIN	W. H. KOESTER
W. J. MILLER, Chairman	