The ideal cotton detergent was described as containing both a surfactant and a highly efficient hard water ion sequestrant. The surfactant should have moderate surface-activity (wetting and emulsifying powers), have a hydrophobe length as large as possible commensurate with surface properties, and be anionic (Stayner, *Soap Chem. Specialties, 35* [5], 64–65, 264–265). Suspending action in detergent solutions may be affected by these factors: mechanical, chemical, and electrical forces, adsorption of surfactant, sedimentation, deflocculation, soil particle size, solvation, and others of lesser potential. A redeposition preventative such as NaCMC was interpreted as acting by adsorption on the cellulose substrate (Harris, *Textile Research J., 29*, 99–118).

Adsorption of carbon on wool, cotton, and Perlon in tetrachloro-ethylene depended on the moisture in the system, but desorption was little influenced by moisture changes. Surfactant choice may markedly affect soil adsorption or desorption (Wendell, *Kolloid Z., 163*, 11–15).

The prevention of soil redeposition during the cleansing process, reduction in the retentivity of soil once deposited, and increased ease of soil removal once deposited can be important factors in improved cleansing. A significant series of conclusions concerning surfactants and additives on knitted fabrics follows (Johnston *et al., Am. Dyestuff Reptr., 47*, 933–940): a) surfactants, particularly nonionics, tend to decrease dry-soiling resistance of most fibers; b) colloidal silica, of finishes tested, significantly improved the soil resistance of all fibers *except Dacron*; c) additives, in general, reduced Dacron's soil resistance; d) most additives had little effect on soil removal during washing. Soil redeposition on cotton during the wash cycle was studied (Stawitz and Hopfner, *Seifen-Ole-Fette-Wachse, 84*, 711–713) as a function of time, with and without NaCMC. Redeposition began simultaneously with removal and continued at the same rate through rinsing. Addition of NaCMC reduced the redeposition rate. Resoiling of swatches following each wash was resorted to, to demonstrate the effect of NaCMC on redeposition. NaCMC addition to sodium dodecylbenzene sulfonate alone or in combination with soap reduced redeposition probably through a protective coating to weaken the additive forces of soil to film (Szmidtgal, *Fette, Seifen, und Anstrichmittel, 60*, 1132–1139). The suspending and soil removing power of NaCMC was affected by water hardness. Combination with low soap concentrations was most effective (Nieuwenhuis and Tan, *Teintex, 23*, 629–648).

Considerable controversy has existed over the mechanism of NaCMC action. Carbon-14 radiotagged NaCMC was found (Hensley and Inks, *Textile Research J., 29*, 505–513) to be adsorbed on cotton; the adsorption increased with excess cation concentration and valency. In excess cation concentration and equilibrium adsorption, a zero temperature coefficient was found. Limited measurements with wool, Orlon, or acetate showed no adsorption; significant adsorption was found with nylon or rayon, but such adsorption was greatly reduced by addition of alkylaryl sulfonate. Significant soil redeposition preventive action was found for NaCMC adsorbed on cotton. A monomolecular layer of NaCMC on cotton may be of the order of 400–500 micrograms per gram of cotton. Comparison with sulfated pulp showed that NaCMC was superior in preserving color whiteness of cotton or staple fiber fabrics (Nevolin, K[illegible], Osikina, and Orekhova, *Masloboino-Zhirovaya Prom., 25* [7], 25–27) for longer periods of time.

Other materials were recommended to prevent soil redeposition. One was a 200 molecular weight polyvinyl oxazolidone (Vitalis, *U. S. 2,874,124*). In addition to preventing redeposition, polyvinyl pyrrolidone (PVP) is said to reduce skin irritation and the sensitizing effect of chlorinated phenols in germicidal soaps (Azorlosa, *Soap Chem. Specialties, 35* [8], 51–54, 173). Redeposition in drycleaning systems is a serious problem, and certain solvent-soluble long-chain fatty acid salts, surfactants, oil and petroleum additives, and diphenylamine reduced soil redeposition on wool (Wagg, *J. Textile Inst., 49*, T 561–T 565).

Report of Cellulose Yield Committee, 1959-60

DURING the past season, 1959-60, three sets of three samples of linters were sent out to nine laboratories equipped to run these analyses. The following table gives the average results for the three tests:

Lab. No.	No. of tests	A Linter	B Linter	C Linter	Over-all avg. for the year
1	3	77.5	75.0	69.5	74.0
2	3	78.1	75.3	69.8	74.4
3	3	77.7	75.1	69.4	74.1
4	3	78.3	75.7	69.8	74.6
5	3	78.1	75.4	69.7	74.4
6	3	78.0	75.4	69.8	74.4
7	3	77.7	75.1	69.3	74.0
8	3	78.0	74.7	69.0	73.9
9	3	78.0	75.4	69.9	74.4
		77.9	75.2	69.6	74.2

As seen from the above table, good checks were obtained during the year. On a few occasions maybe one of the laboratories was off the average but was quickly brought back into line by these regular samples which were sent out for yield analysis.

This ends 23 years of service for the committee without any serious complaint in regard to cellulose yield. No changes are recommended for the method at this time. It is recommended that samples be sent out at least three times during the next year to check laboratory equipment.

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