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DETERGENTS AND RELATED SUBJECTS

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Engineering Societies, 29 W. 39th Street, New York City, maintain a duplicating service and are prepared to supply photostated copies of technical articles that are available in any of the large libraries in New York City.

Single copies of Letter Circulars (having LC numbers) can be secured from the National Bureau of Standards, Washington, D. C., without charge.

New publications of the Bureau are listed each month in the Technical News Bulletin of the National Bureau of Standards, obtainable from the Superintendent of Documents. The subscription price is 50 cents per year (United States, Canada, and Mexico); 70 cents (other countries).

Technologic Papers

<u>Number</u>	<u>Title</u>	<u>Price</u>
*T 273	Performance Tests of a Liquid Laundry Soap Used with Textile Materials (1924) F. R. McGowan, F. W. Smither, and Charles W. Schoffstall	
	This study was made to compare the properties of a liquid laundry soap with other washing and scouring agents with respect to shrinkage in weight and dimensions, fading of dye, and changes in the construction and feel of the fabrics. Tests were run on various textile materials, including knitted fabrics, wool fabrics, mohair yarns, and wool fleeces. The laundry practice was both mild and severe to cover the range of usual practices in laundry operations. It was found that the liquid laundry soap was superior in each of the tests.	
T 280	Reclamation of Gasoline Used in Dry Cleaning (1925) C. C. Hubbard . . . . .	5¢
	This paper outlines and discusses briefly the processes that have been used for the "purification" and recovery of gasoline used in dry cleaning. Results are reported of laboratory and plant experiments and of large scale plant tests. A "settling and decanting" process is recommended using activated carbon and an aqueous solution of trisodium phosphate.	
T 322	Effect of Dry Cleaning on Silks (1926) M. H. Goldman, C. C. Hubbard and Charles W. Schoffstall . . . . .	15¢
	Samples of unweighted and weighted silks were exposed to sunlight after various treatments including perspiration, dry-cleaning solvents, ironing, etc. Strength tests were made at intervals. Results show deterioration of the fabric resulting from sunlight and perspiration. Apparently no deterioration was caused by the dry-cleaning solvents.	

T 347 Effect of Laundering Upon the Thermal Insulating Value of Cotton Blankets (1927). Philip Rudnick . . . 56

A study was made of the effect of repeated laundering upon the value of cotton blankets. The sample materials used in the experiments were representative of most common blanket types, and the laundering process corresponded to a good commercial practice. Thermal resistances were measured by means of equipment developed earlier at the <sup>National</sup>Bureau of Standards, but the method of measurement was modified. Washing was found to cause small losses in thermal resistance, which were almost completely restored by the subsequent process which raised the nap on the laundered fabric. The net losses in thermal resistance after four applications of washing and renapping processes were negligibly small. The results indicate the importance of a process for restoring the nap after washing. Shrinkage resulted in thickening the blanket, with a corresponding gain in thermal resistance.

T 350 A Study of Problems Relating to the Maintenance of Interior Marble (1927) D. W. Kessler . . . . . 356

This paper describes the results of a research covering two years' work at the <sup>National</sup>Bureau of Standards in cooperation with the National Association of Marble Dealers. The work was concerned with the ultimate effects on marble due to an extended period of cleaning with various detergents. Several practical methods for removing the more common types of stains occurring on interior marble work were developed. In conjunction with this research, studies were made on the effects of exposing marble to such severe conditions as sometimes arise in soda fountain counters and when marble is attached to damp walls. Methods of treating marble before installation under severe or unusual conditions were considered.

\*T 360 Cleaning of Fur and Leather Garments (1927) M. H. Goldman and C. C. Hubbard

A study was made of the method of dry cleaning of fur and leather, and it was found that the addition of a small percentage of paraffin to the cleaning bath improved the appearance and pliability of the material. A trial in a number of cleaning plants resulted in recommended standards of practice.

Circulars

<u>Number</u>	<u>Title</u>	<u>Price</u>
C 70	Materials for the household . . . . .	50¢

Describes the more common materials used by the household, comprising paint materials, cement, clay products, lime, plasters and stucco, wood, metals, bituminous roofing, inks and dyes, adhesives, paper, textiles, rubber, leather, cleaners and preservatives, fuels, illuminants, lubricants, and a concluding chapter on quantity in the purchasing of materials. Each title is treated under the general heads of composition and definition, sources, properties, uses, tests, preservation, hints as to selection and use, and references. (Dec. 1917).

C 424	Washing, Cleaning, and Polishing Materials . . .	15¢
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Discusses briefly the chemistry of soap making, describes the various types of soap products in common use, and outlines some of the manufacturing processes. This circular also briefly discusses the use of water in laundering, cleansing action, alkaline cleansers, bleaches, laundry sours, bluing, starch, dry cleaning, polishes, etc.

Research Papers

(Reprinted from the Bureau of Standards Journal of Research)

* RP 80	Fastness of Dyed Fabrics to Dry-Cleaning. A. S. Eichlin . . . . .
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Data on the behavior of dyes in actual dry cleaning have not been available. It is the purpose of this paper to supply this information.

A number of representative dyestuffs on wool, silk, cotton, rayon and union fabrics were subjected to two tests. In the first a moisture-free solvent was used, and in the second the solvent contained 0.1 percent free moisture and 0.01 percent alkali. The apparatus used in making the tests was designed as a convenient substitute for a commercial dry-cleaning machine. The results are given in tabular form. (July 1929).

\*RP 294 Laundry "Winter Damage" - John B. Wilkie

When laundered cotton fabrics are dried out of doors in the winter time in New England, they frequently undergo excessive deterioration of a type called "winter damage". This paper is concerned with an investigation of the causes of "winter damage" and with its prevention.

Analyses of damaged fabrics and experimental work in the laundries and in the laboratory showed that the damage is caused by sulphuric acid which is formed in the damp fabric by the oxidation of atmospheric sulphur dioxide. The oxidation is accelerated and the damage is increased by small amounts of certain substances which may occur in laundered fabrics. Traces of iron, of spent bleach liquor, and of acetic acid were found to have this effect.

A small amount of calcium bicarbonate in the final rinse water of the wash materially reduced the damage, and is recommended as a satisfactory remedy. Precautions should be taken to eliminate iron and spent bleach liquor from the laundered fabrics, and the drying time should be made as short as possible. Antioxidants showed promise of giving protection. (April, 1931).

#### Miscellaneous Publications

Number

Title

\*M 15

Some technical methods of testing miscellaneous supplies, including paints and paint materials, inks, lubricating oils, soaps, etc. .

In this publication are assembled methods, chiefly chemical, which have been found useful in a large number of cases in testing miscellaneous materials purchased either under definite specifications or examined for prospective purchases in competition with other samples of a similar nature. As a general rule, the methods described are not original but have been compiled from a variety of sources and modifications introduced when necessary. (November 15, 1916) 68 pp.

Commercial Standards

<u>Number</u>	<u>Title</u>	<u>Price</u>
CS3-38	Stoddard Solvent (Dry Cleaning) . . . . .	5¢

The material covered by this standard is a petroleum distillate with considerably higher flash point than gasoline. Its use should markedly reduce the fire and explosion hazard in the dry cleaning industry. The specification was prepared in cooperation with the National Association of Dyers and Cleaners and with petroleum producers and refiners. A brief history of the project, report of the general conference, and membership of the Standing Committee are included. Effective from June 20, 1940. 22 pp.

*CS43-32	Grading of Sulphonated (Sulphated) Oils - Saponifiable Types . . . . .	
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Covers the method of grading sulphonated (sulphated) oils, saponifiable types, which split off their organically combined SO<sub>3</sub> upon boiling with mineral acids, and includes definition, nomenclature, and methods of analysis. Effective September 1, 1932.

Simplified Practice Recommendations

R139-32	Commercial Laundry Extractors . . . . .	5¢
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This recommendation limits the types of Extractors to Open-Top or Under-Driven and the number of diameters to 8. (Effective date October 1, 1932).

R140-32	Commercial Laundry Ironers . . . . .	5¢
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This recommendation covers method of heating, drive, lengths and diameter for the single roll, chest type ironer; and the number of padded rolls, diameter, length and drive for the following types: Multi-roll chest type - without apron; multi-roll chest type - single - return apron; multi-roll chest type - double - return apron; single cylinder type - single - return apron; and double cylinder type. (Effective date October 1, 1932.)

<u>Number</u>	<u>Title</u>	<u>Price</u>
R141-32	Commercial Laundry Tumblers . . . . .	5¢

This recommendation provides for a simplification in sizes and constructions of the Once-Through Type of Reversing and Non-Reversing Tumblers and of the Reversing Tumblers with respect to diameter, length, type of heat, number of cylinder doors, number of vertical partitions and number of compartments. (Effective date October 1, 1932).

R142-32	Commercial Laundry Washers . . . . .	5¢
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This recommendation presents a simplified schedule of constructions for metal washers, including silk washers, blanket washers and semi-special washers; and for wood washers including blanket washers. The details of construction given are size, number of compartments, number of vertical partitions, number of horizontal partitions, number of cylinder doors and type of drive. (Effective date October 1, 1932).

Letter Circulars

- LC 124 Recommended Specification for Powdered Ammonia.
- LC 414 Anti-Dimming Preparations for Glass Surfaces.
- LC 275 Polishes.
- LC 338 Detergents and Certain Detergent Aids.
- LC 339 Floor Oils.
- LC 340 Sweeping Compounds (also known as "Floor Sweep" and "Dust Down").
- LC 341 Drainpipe Cleaners or Solvents.
- LC 388 The Care of Floors.
- LC 392 Publications Relating to Dyes.
- LC 396 Publications Relating to Textiles.

Outside Publications

- Hubbard, C.C., Soaps as dry-cleaning aids. American Dyestuff Reporter (90 William St., New York, N.Y.) vol. 16, p. 113; February 21, 1927.
- Goldman, M.H., and Hubbard, C.C., Removing Stains from cellulose-acetate rayons, American Dyestuff Reporter, vol. 16, p. 237; April 18, 1927.
- Appel, W. D., Smith, W. C., and Christison, H., A Machine for Laboratory Washing Tests. American Dyestuff Reporter, vol. 17, p. 679; October 29, 1928.
- Hubbard, H. D., Laundry processes improved by studies of effects of cleaning agents and methods, United States Daily (now United States News, Washington, D. C.); September 7, 1929.
- Hughes, E. E., and Appel, W. D., The effect of dry-cleaning solvents upon fabrics. The Drycleaner (The National Association of Dyers and Cleaners, Silver Spring, Md.), vol. 9, pp. 6 and 24; May-June, 1932.
- Hughes, E. E., Determination of soap and fatty acids in dry-cleaning soaps. National Cleaner & Dyer (305 East 45th Street, New York, N. Y.), vol. 24, no. 2, p. 39; February 1933.

Federal Specifications

Although Federal Specifications are not published by the Nat. Bureau of Standards, a list of such specifications covering detergents and related materials is given below. These specifications can be purchased at the prices indicated from the Superintendent of Documents, Government Printing Office, Washington, D. C. "Federal Standard Stock Catalogue, Section IV, Federal Specifications, Part I, Index", which lists all Federal Specifications, with prices, can be purchased for 10 cents from the Superintendent of Documents. Most Federal Specifications contain directions for sampling and testing.



<u>Spec. Symbol</u>	<u>Title</u>	<u>Price</u>
00-L-131b	Laundry-Appliances . . . . .	10¢
00-M-31a	Machines, Dishwashing; and Dishbaskets .	5¢
O-A-76	Acid; Acetic, Technical . . . . .	5¢
O-A-91	Acid; Oxalic, Technical . . . . .	5¢
O-A-451	Ammonia, Aqua (Ammonium-Hydroxide), Technical . . . . .	5¢
O-B-441a	Bleaching Material (Chlorinating Agents) .	5¢
O-B-491	Bluing; Laundry . . . . .	5¢
O-S-571a	Soda-Ash . . . . .	5¢
O-S-581a	Sodium Carbonate; Granular (Monohydrate Crystals) . . . . .	5¢
O-T-671a	Trisodium Phosphate; Technical (Phosphate Cleaner) . . . . .	5¢
O-G-491	Glycerin (Glycerol) ; . . . . .	5¢
C-C-91	Candles . . . . .	5¢
JJ-N-176	Nets, Laundry; Bag-Type . . . . .	5¢
JJJ-S-701	Starch; Laundry . . . . .	5¢
SS-B-611	Borax (Sodium-Borate) . . . . .	5¢
W-M-46	Machines, Floor-Polishing and Scrubbing; Electric . . . . .	5¢
P-C-591	Compound; Sweeping . . . . .	5¢
P-D-221	Detergent, Hand; Paste and Powder (for) Mechanics' Use . . . . .	5¢
P-G-361	Oil, Floor; Mineral . . . . .	5¢
P-P-556a	Polish; Metal, Paste . . . . .	5¢
P-P-571b	Polish; Silver . . . . .	5¢

<u>Spec. Symbol</u>	<u>Title</u>	<u>Price</u>
P-P-591	Powder; Scouring (for) Floors . . . . .	5¢
P-P-596	Powder; Scouring (for) Highly Polished Glass . . . . .	5¢
P-S-536	Soap and Soap-Products; General Specifici- cations (Methods for Sampling and Testing) . . . . .	5¢
P-S-566	Soap; Chip . . . . .	5¢
P-S-571	Soap; Grit, Cake . . . . .	5¢
P-S-576	Soap; Grit, Hand . . . . .	5¢
P-S-586	Soap; Laundry, Liquid . . . . .	5¢
P-S-591	Soap; Laundry, Ordinary . . . . .	5¢
P-S-596	Soap; Laundry, Powdered . . . . .	5¢
P-S-606	Soap Powder . . . . .	5¢
P-S-611	Soap; Salt-Water . . . . .	5¢
P-S-612	Soap, Soft; For Cleaning Automobiles and for General Cleaning . . . . .	5¢
P-S-613	Soap; Soft, Potash, Linseed-Oil . . . . .	5¢
P-S-616	Soap; Toilet, Floating, White . . . . .	5¢
P-S-618	Soap; Toilet, Liquid . . . . .	5¢
P-S-621	Soap; Toilet, Milled . . . . .	5¢
P-S-626	Soap; Toilet, Powdered, (for) Dispensers . . . . .	5¢
P-S-631a	Soda; Caustic (Lye); (for) Cleaning Purposes . . . . .	5¢
P-S-641a	Soda; Laundry (Washing Soda) . . . . .	5¢
P-S-661a	Solvent; Dry-Cleaning . . . . .	5¢
FFF-C-641	Soap; Shaving, and Cream . . . . .	5¢
P-W-141	Wax, Floor; Liquid and Paste . . . . .	5¢
P-W-151	Wax, Floor, Water-Emulsion . . . . .	5¢
FF-D-396	Dispensers; Soap . . . . .	5¢
O-S-604	Sodium-Metasilicate, Pentahydrate . . . . .	5¢