

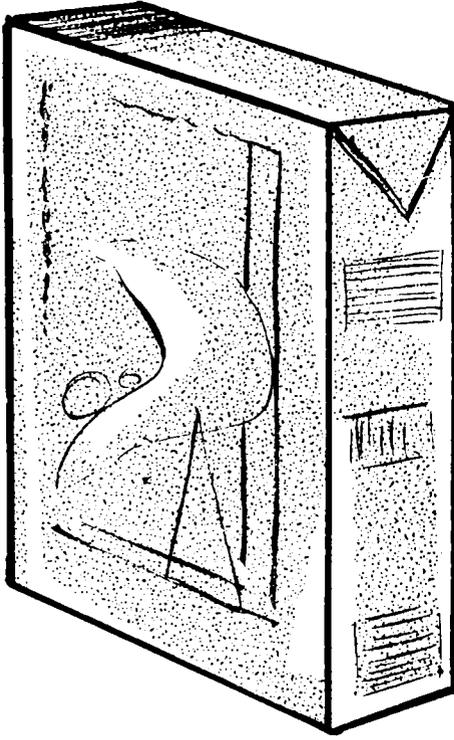
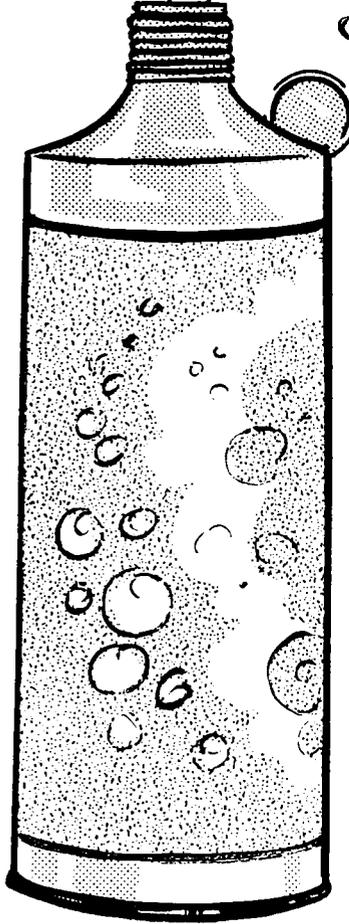
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TODAY'S

SOAPS and DETERGENTS



PNW BULLETIN 36

REVISED JUNE 1970

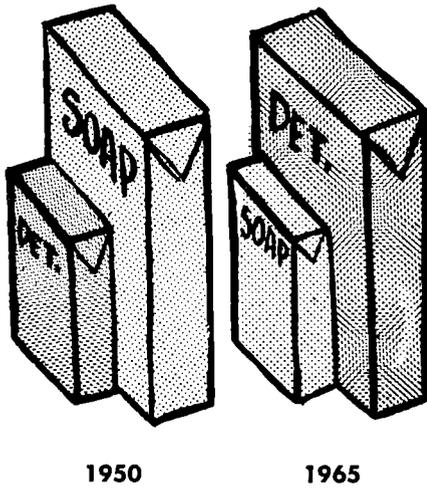
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For purpose of clarification, it is necessary to list trade names of some soaps and detergents in this publication. No endorsement of named products is intended nor is criticism implied of similar products which are not mentioned.

THIS BULLETIN was prepared by Bernice Strawn, Extension Home Management and Equipment Specialist, Oregon State University. It was reviewed by home management specialists at the University of Idaho and Washington State University, and is published cooperatively by the three states.

Today's Soaps and Detergents



Trends

TODAY AT LEAST 95% OF THE HOUSEHOLD WASHING PRODUCTS sold are detergents, the remainder are soaps. This is a reversal of the situation 20 years ago when detergents were new. The majority of soaps sold are the light-duty types used mainly for baby clothes, woollens, and hand laundry.

ENZYMES are now added to numerous brands of detergents and pre-soak products. These chemicals act upon many complex soils and stains, especially proteins such as blood, gravy, and body soils, breaking them down into simpler forms which are more easily removed by washing action. Dyes are not affected by enzymes. Chlorine bleach inhibits the enzyme action.

COLD WATER LAUNDRY DETERGENTS have made their appearance in both liquid and granular form. They may also be used equally well in warm or hot water. Some advantages of cold water washing are: shrinkage of some fabrics, such as knitted ones, is minimized; colors stay bright; stains have less chance to "set"; and hot water may be saved. However, because oils congeal in cool water, it is best to use hot water for these soils. Recent research shows that hot water destroys more bacteria than cold water, with any type detergent. The addition of chlorine bleach in amounts recommended on the bottle will destroy more bacteria, but not all fabrics can take it.

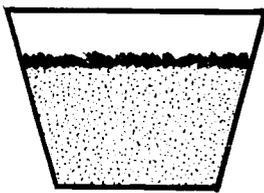
BIODEGRADABLE DETERGENTS are one of the newer developments. As of June 30, 1965, all leading manufacturers (about 90% of the industry) discontinued the "hard" base products and now use a "soft" biodegradable base. This means less foam on waste water and streams. Residues from these new products break down readily with proper sewage treatment. For the most part, these detergents are sold under the same familiar trade names and have the same cleaning power as before.

PRE-SOAK PRODUCTS which contain enzymes are used for pre-soaking especially stubborn soil and stains, after which clothes should be washed in a regular detergent. These products do not replace detergent.

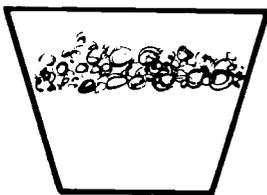
Why the Swing to Detergents

THE DIFFERENCE BETWEEN SOAP AND DETERGENT best explains this. Soaps combine with the minerals in hard water to form soap curd or scum; detergents do not form scum. This is the main difference between soaps and detergents.

With increased use of automatic washers, the scum problem became more acute. With conventional washers scum was less noticeable because clothes were lifted out of the water and put through the wringer, leaving the scum behind in the washer. In an automatic, clothes remain in the washer while water drains out; much of the scum flows out, but some remains and sticks to the clothes. Detergents have helped eliminate this problem.



Soap + Hard Water → Scum

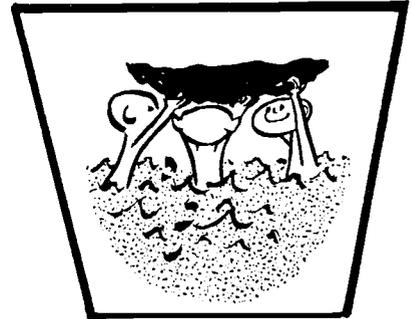


Detergent + Hard Water → No Scum

How Soaps and Detergents Clean

SOAP AND DETERGENT PARTICLES may be likened to little boys; they like to get their hands dirty and to wade in water. They grab dirt from fabric, surround it, then go into the water. There should be a few extra “boys” around to guard against dirt settling back on the fabric. When there aren’t enough “boys” (detergent particles) then some dirt is left in the clothes.

To get *maximum* soil removal you need a combination of hot water, agitation, and detergent.



SOAPS AND DETERGENTS actually MOVE the dirt.

A Cleaning Agent Should Do Three Things

1. Wet the Fabric

Wetting is faster when soap or detergent is added. These products form a “bridge” between water and the fibers and between water and dirt. Then both fabric and soil are thoroughly “wetted.”

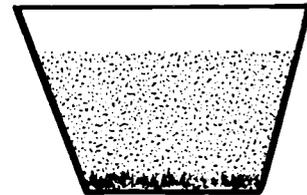
This can be demonstrated by adding a piece of yarn to a container of clear water and another to soapy water. Remove yarn after a few seconds, pull the strands apart, and you’ll see the yarn in soapy water is thoroughly wet while the interior of the other piece has dry streaks.

2. Remove Soil

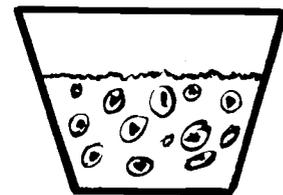
When wet fabric is agitated during washing, oily dirt is broken up into small particles and suspended in the wash water. The dirt is pulled from the fabric because it is chemically attracted by the soap or detergent.

3. Suspend Soil

The suspended dirt and grease could settle back on the clothes if it were not for the presence of detergent which surrounds each particle as it is lifted from the fabric. Grayness in clothes often comes from this settling of dirt when not enough soap or detergent is used.



DIRT will settle unless soap or detergent is present.



SOAP OR DETERGENT keeps dirt suspended.

Types of Soaps, Detergents, and Pre-Soak Products

Soaps

Light-Duty

Chiffon Flakes, Ivory Snow, Lux Flakes, Ivory Flakes

All-Purpose

Borene, C-20, Duz Soap, Instant Fels Naphtha, Nu Bora, White King Soap, White Magic Soap

Detergents

Light-Duty

Granular

Dreft, Swerl, Vel, Trend

Liquid

Brocade, Chiffon, Dove, Fels, Finer, Frolic, Glim, Ivory, Joy, Klanz, Lux, Scamper, Swan, Thrill, Trend, Vel, White King, White Magic

Pre-Soak Products with Enzymes

Axion, Biz



All-Purpose

Granular

- Normal suds: Ajax, Breeze, Cheer, Drive, Fab, Felso, IGA Detergent, Mayfair, Oxydol, Surf, Premium Duz, Rinso Blue, Silver Dust Blue, Super Suds Blue, Tide, SuPurb, White King D, White Magic Detergent

- Controlled suds: Ad, Condensed All, Fluffy All, Bold, Cold Power, Dash, Gain

Liquid

- Normal suds: Wisk
- Low suds: Cold Water All

Premeasured (tablets)

- Controlled suds: Salvo, Vim

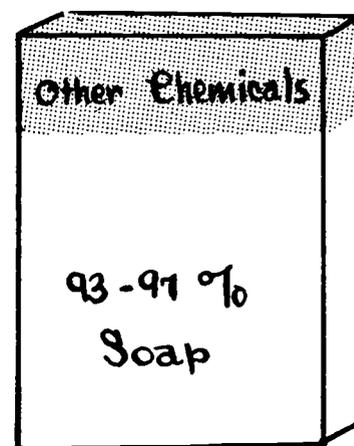
Today's Soaps . . . and Their Uses

SOAP IS MADE FROM FAT AND LYE, but these are not present in the finished product; when dissolved in water it becomes mildly alkaline. Any acid present in soiled garments neutralizes the alkali and reduces its cleaning ability. Therefore, soaps intended for all-purpose cleaning have extra alkaline salts and other chemicals "built" into them. On the market are both all-purpose and light-duty soaps designed for different cleaning jobs.

Light-Duty Soaps

LIGHT-DUTY OR MILD SOAPS are intended for hand laundering of fine fabrics and lightly soiled garments such as lingerie, stockings, and blouses.

They may be used for cotton, linen, and man-made fibers—especially baby clothes—and are relatively safe for most dyes. Because they are mild, they are also used for dishwashing. For more information on choosing soaps see pages 11-13.

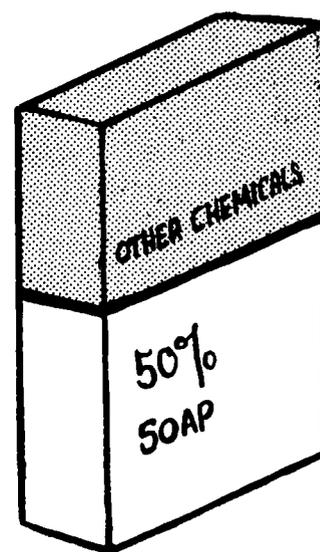


All-Purpose Soaps

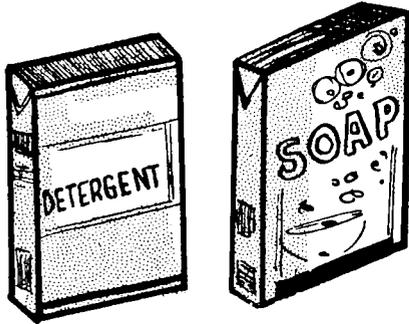
ALL-PURPOSE SOAPS have various ingredients added to them or "built-in" to increase sudsing, improve the cleaning action, and help soften hard water so that less soap scum forms. They contain a fluorescent-dye brightener.

All-purpose soaps are for the family wash and for heavily soiled clothes. These soaps contain more chemicals than light-duty soaps and are less mild on the hands. Alkaline salts if present in quantity may be hard on wool and silk. These soaps are efficient in soil removal, especially if used in soft or softened water.

This group of soaps grows smaller and smaller as time goes on, because all-purpose detergents have largely taken over in automatic washers.



Today's Detergents . . .



Advantages of Detergents

DETERGENTS are made up of a number of chemicals each with a definite purpose. Their advantages over soap are:

1. Do not form scum in hard water.
2. Ingredients can be varied to make them high sudsing or low sudsing, liquid, granular, or tablet form.
3. Dissolve in hot, cold, or hard water.
4. Pronounced ability to remove oil and grease.

Granular detergents are the most familiar, but liquid detergents are gaining in popularity. Most of these are the light-duty type.

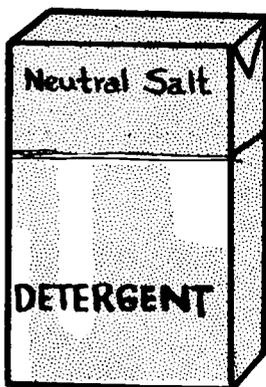


Advantages of Liquids

LIQUIDS offer these added advantages:

1. Dissolve instantly in cold or warm water.
2. Easy to use in pretreating heavily soiled areas before laundering.
3. Concentrated, take up less shelf space.
4. Light-duty liquids tend to eliminate slipperiness in dishwashing.
5. Easy to measure—cap on package is a measure.

The light-duty liquids are economical if measured by the capful which is enough for two to three gallons of water. At present, only a few all-purpose liquids are available, and they are more expensive for the family wash than granular detergents.



Light-Duty Detergents

LIGHT-DUTY DETERGENTS, both granular and liquid, are intended for lightly soiled clothes, fine fabrics, and dishwashing. Anything which can be washed in a "mild soap" can be washed in light-duty detergent; in hard water a detergent will give better results.

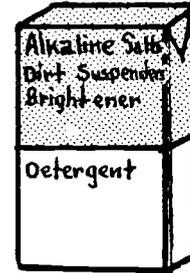
Some light-duty granular detergents contain a fluorescent dye brightener. All of them are high or normal sudsing.

. . . . and Their Uses

All-Purpose Detergents

ALL-PURPOSE DETERGENTS, like all-purpose soaps, contain alkaline salts that increase their cleaning power. They also include a fluorescent dye brightener and a chemical which helps suspend dirt.

There are many brands of granular detergents designed as all-purpose products. A few brands of all-purpose detergents in liquid form are also available. Some have controlled sudsing; others give normal suds. Some brands of liquid and granular detergents are formulated for use in cold water.



Normal Sudsing Detergents

NORMAL SUDSING, all-purpose detergents often have a chemical added to increase suds in order that suds can continue to be the guide to the amount of product to use in a top opening washer.

The normal sudsing granular detergents are the most popular as indicated by the number of brands listed in the chart on page 6.



1 CUP normal sudsing detergent weighs 3 ounces

Controlled Sudsing Detergents

CONTROLLED SUDSING all-purpose detergents (also called low or reduced sudsing) were first developed for tumble-type automatic washers. This type of mechanical action produces more suds than usual. Excess suds can actually interfere with washing action. Controlled sudsing detergents, however, may be successfully used in any type washer.

In this type detergent, a chemical is added to suppress suds rather than to eliminate them entirely. Obviously, suds will not be an indication of the amount of detergent to use, and the package directions are the only reliable guide.

Controlled sudsing all-purpose liquid detergents are available. Controlled sudsing dry detergents come in condensed, fluffy, and tablet forms. Most brands are the condensed type.

A cup of the light, fluffy product may weigh only about half as much as a cup of heavier, more condensed detergent; therefore, about twice as much by volume will be needed to give equal cleaning power. For best results use the amount recommended on the package. The cost of the two types is the same.



1/2 CUP condensed detergent weighs 3 ounces



1 CUP fluffy detergent weighs 3 ounces

How to Identify Soaps and Detergents



Soap



Detergent



Soap



Detergent



All-Purpose



Light-Duty



Heavy Duty Cleaners



TO TELL A SOAP FROM A DETERGENT observe package labels including fine print. They are usually labeled “soap” or “detergent”; also consult chart on page 6. Liquid products are detergents; there are no liquid laundry soaps.

A SOAP AND A DETERGENT BEARING THE SAME NAME are sometimes made by the same company. However, they can be identified in various ways. The package designs are usually different. Some manufacturers simply label one package “soap” and the other “detergent” or “D.”

All-purpose detergents have for the most part taken over the job of doing the family wash. Because detergents have been so widely accepted, many manufacturers of the formerly well-known soap brands have now changed the contents of their packages to detergent rather than soap.

FAMILIAR SOAP FLAKES AND GRANULES now have namesakes in the liquid light-duty detergents. These liquids are safe for any fabric for which the soap is used. In fact, with hard water, they may be preferred.

The reason for this duplication of names is because the brand name has wide acceptance and the soap market is dwindling—through the homemaker’s choice.

TO TELL A LIGHT-DUTY FROM AN ALL-PURPOSE PRODUCT, check the instructions for use and pictures on the package. If the main uses are for dishes and fine fabrics, you’ll know it is a light-duty product. But if the directions are for machine washing and general use you can be quite sure it is an all-purpose soap or detergent.

IN ADDITION TO LAUNDRY DETERGENTS there are also both granular and liquid products designed for cleaning walls, woodwork, floors, and the like. While some are recommended for use in the laundry, they should be considered as an additive, not as a replacement for regular detergent.

How to Choose Soaps and Detergents

NO ONE PRODUCT is best on all counts. Your choice will depend largely on the water available, the fabric to be washed, and the type of equipment used.

1. Consider Your Water Supply

Water hardness

IN SOFT OR SOFTENED WATER, soaps do an excellent cleaning job and are economical. In hard water, a greater amount of soap is needed. Scum is formed which sticks to washer parts and settles on clothes, causing grayness which is difficult to remove. Hard water scum or soap curd is also the familiar ring around the bath tub. Detergents do not form scum, but a slightly larger amount of the product is needed in hard water than in soft.

Softening hard water

HARD WATER may be softened in one of two ways :

- A water-softening system may be installed in the water supply line. This, of course, would soften water for bath and kitchen uses in addition to laundry.
- A packaged water softener or conditioner may be used. It is important when using soap to add the softener to both the wash and rinse waters for best results. Otherwise, soap curd or scum will form from soap left in the clothes. A water softener may be used with a detergent, especially in the rinse, if the water hardness exceeds 21 grains.

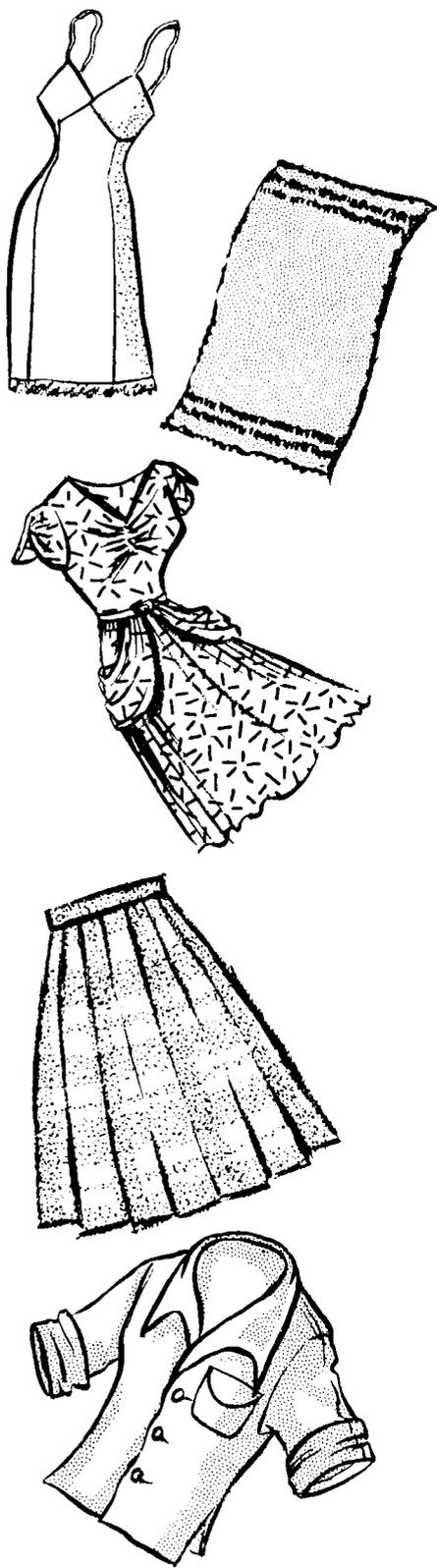
Precipitating and nonprecipitating conditioners

THESE PACKAGED CONDITIONERS sold under various names are of two types. Some precipitate or combine with hardness minerals to form a curd. The other type "locks up" the minerals to prevent them from reacting with soap to form a scum or film.

EXAMPLES of the *precipitating* type are Climalene, Raindrops, Sal Soda. Some of the brands of *nonprecipitating* softeners are Calgon and White King.



How to choose soaps and detergents



2. Consider the Fabric to be Washed

Cotton, linen, and man-made fibers

These fibers themselves are not readily affected by chemicals used in all-purpose soaps and detergents, but the final choice will also depend on color, dyes used, and the amount of soil.

For hand care of delicate fabrics which are lightly soiled and for diapers and baby clothes, light-duty products are recommended. If these garments are machine washable, all-purpose soaps and detergents may be used safely. These products are more effective in removing soil than the light-duty products. For the regular wash and heavily soiled fabrics in the washing machine, the all-purpose products are recommended.

Vat dyes are relatively fast to washing. Other types of dyes may be affected by alkaline detergents; the colors may run or fade. If uncertain about the dye, use light-duty detergent or soap.

Soaps and detergents will remove about one-third more soil in hot (140°) water than in warm (100°) water. However, not all launderable garments will withstand the higher temperature, so check labels for washing instructions. Liquid and other cold water detergents are convenient for warm and cool water washing because they dissolve easily.

Wool and silk

In the care of woolens a soap may be preferred because of a somewhat softer "hand" which will be imparted to the fabric.

Because some chemicals damage wool and silk, a light-duty soap or detergent is recommended for fabrics made wholly or in part of these fibers. Light-duty detergents will do a good cleaning job if the fabric is not too soiled. However, all-purpose products are safe for laundering these fabrics and should be used if soil is excessive, but avoid rubbing.

Light-duty liquid detergents are good for laundering wools because they dissolve in cool water. A wash and rinse in cool water with minimum agitation minimizes shrinkage.

Also satisfactory for wools are a number of specialty products. These are more expensive than other soaps and detergents. Examples of the trade names are Woolite, Wool Foam, Wool-n-Wash, Wool-o-Lene, Woolyn.

3. Consider the Type of Washer Used

FOR CONVENTIONAL WASHERS you can use any washing product suitable for the water and fabric.

In using soap, add enough to maintain good suds. Consult directions on the package for the amount of detergent to use. If the wash water is used over again for a second load, add more soap or detergent (the same kind used before). Otherwise there will not be enough washing product to remove all the dirt and keep it in suspension.

FOR TOP OPENING OR AGITATOR AUTOMATICS a detergent is preferred—either normal or low sudsing. Follow the package directions for the amount needed and always use a standard measuring cup to measure detergent.

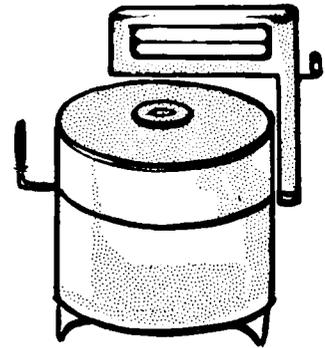
If you use soap, add a nonprecipitating water conditioner to *both* the wash and rinse waters.

If the washer provides for reuse of the wash water, add more washing product of the same kind used before.

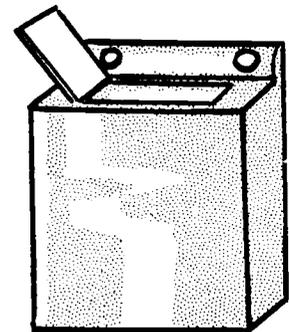
FOR FRONT OPENING OR TUMBLE ACTION AUTOMATICS the recommended washing products are the low sudsing detergents designed especially for this type of washer. The tumbling action makes detergents form more suds than they normally would. A normal sudsing detergent can build up suds until they smother the washing action and cut the cleaning efficiency as much as 40% in this type of washer.

If a normal sudsing detergent is chosen, less of the product must be used. This may not be enough to remove all the soil and keep it in suspension; then cleaning effectiveness is reduced which leads to grayed or yellow clothes. But with low sudsing detergents, enough can be added for any type of washer or degree of soil to insure good cleaning.

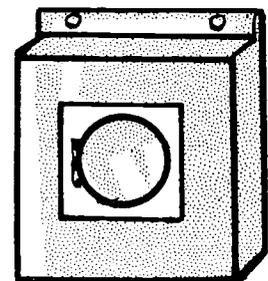
FOR COMBINATION WASHER-DRYERS use a low sudsing detergent, the same as for other front opening or tumble washers.



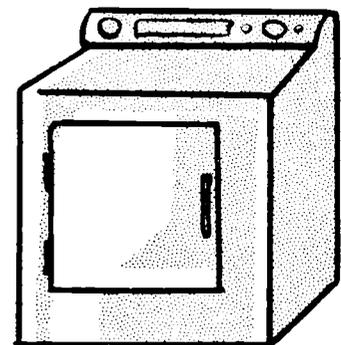
Conventional Washer



Agitator Washer



Tumbler Washer



Washer-Dryer

Any Questions?

- **Can detergents help control body odor left in garments?**

There are some detergents which provide finished laundry with bacteriostatic properties. This property may have practical value in controlling body odors and fabric deterioration by preventing growth of bacteria in perspiration and other body soils.

- **What is meant by an "organic" detergent or cleaner?**

This term is sometimes used in reference to cleaners made with fats from natural sources in contrast to those which are synthesized. Today over 95% of the homemakers choose the so-called "synthetic" detergents because of the properties described on pages 4 and 8.

Technically speaking, all of these cleaning products—both soaps and detergents—are organic products. The term "organic" gives the consumer no assurance of cleaning ability, quality, or superior behavior. Today all leading brands of detergents are biodegradable.

- **What are biodegradable detergents?**

These products, sometimes called "soft detergents," decompose during sewage treatment as a result of bacteriological action. All leading brands of detergent made since June 30, 1965, have been of this type. The packages carry the same familiar trade names as before and retain the cleaning power of their predecessors.

- **What size package of detergent is most economical to buy?**

You may save a small amount by buying the larger packages. However, if you pour from the big package to the washer without measuring, you can easily waste detergent and wipe out the savings. Figure the cost per ounce and compare.

- **How do I know how much detergent or soap to use?**

For heavily soiled clothes, more detergent will be needed. A larger quantity is required in hard water than in soft. The amount of detergent or soap used will also depend on the type of washer. A general rule is to use 1 to 1½ cups of a sudsing detergent in a top-loading machine, and ½ to ¾ cup condensed low-sudsing detergent

in a front-loading machine. If you have one of the new larger washers (12 to 15 pounds), increase these amounts by 50%. Your best guide is the instruction book which comes with your washer.

- **When a hang tag on a garment says "wash in a mild soap," what do I use?**

Any garment (including foundation garments) which can be washed in a mild or light-duty soap can be washed equally well with a light-duty detergent. Tags calling for "mild soap only" are out-of-date.

- **Can I use a synthetic detergent if drainage is to a septic tank?**

Bacteriologists say detergents can be used in such instances for the majority of homes.

- **Should a water softener be used with a detergent?**

Addition of a packaged water softener or conditioner usually isn't necessary unless the water hardness exceeds 21 grains.

- **Does pre-soaking cause soil to be redeposited?**

The enzyme pre-soak product contain an ingredient which prevents re-deposit of soil.

- **What are the advantages of soaps?**

In soft water, soaps are excellent dirt removers. Woolens properly washed with soap have a soft "hand."

- **Do detergents "germ proof" fabrics during laundering?**

Detergents for laundering labeled as "germ proof" must be registered with the U.S. Department of Agriculture under the Federal Insecticide, Fungicide and Rodenticide Act. In July 1969, the USDA ruled that there was no detergent which satisfied their definition of the term "germ proof."

Summary - - What to Use

You'll need to weigh one consideration against another. Your choice will depend on amount of soil, type of washer, hardness of water, and kind of fabric.

For general laundering and for heavily soiled fabrics—

- with tumble action, front-opening washer
 - all-purpose low-sudsing detergents, granular, liquid, or tablet
- with agitator type, top-opening washer (conventional or automatic)
 - all-purpose normal or low-sudsing detergents, granular, liquid, or tablet
 - all-purpose soaps if water is soft

In soft water

- either soaps or detergents, light-duty or all-purpose, granular, liquid, or tablet

In hard water

- all-purpose detergents (granular or liquid) are the most efficient
- soaps if water conditioner is used in *both wash water and rinse water*

For hand-washed, lightly soiled fine fabrics—

- light-duty detergents (granular or liquid) in soft or hard water
- light-duty soaps in soft water

For wool and silk and for blends of these with other fibers—

- light-duty detergents (granular or liquid)
- light-duty soaps in soft water
- special soaps and detergents

For colorfast fabrics of cotton, linen, and man-made fibers—

- all-purpose detergents (granular or liquid) for heavily soiled materials in soft or hard water
- all-purpose soaps for heavily soiled materials in soft water

For fabrics with questionable dyes—

- light-duty detergents (liquid or granular) in soft or hard water
- light-duty soaps in soft water
- cold water detergents in cool water

Other Circulars on Laundering

Be A Better Buyer of Laundry Aids, PNW 55

Be A Better Buyer of Starches, PNW 56

Be A Better Buyer of Bleaches, PNW 57

Call your county Extension office for other consumer information on buying laundry appliances and laundry planning.

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