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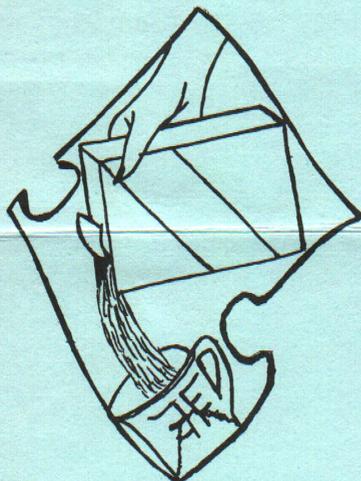
The Detergent Puzzle
Michigan State University
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The Detergent

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 Puzzle
 WHAT CAN YOU BELIEVE?



What can you believe about phosphates and the pollution of our lakes and streams? And what can you believe is the best course for a homemaker (and responsible citizen) to follow? For the good of her family and the good of her community, what should she do?

No one knows the absolute "right answer" at this time, but --

LET'S LOOK AT "THE FACTS" AS WE NOW SEE THEM.

1. On the plus side, phosphates serve several purposes in modern laundry detergents. They boost the cleaning power of detergents, because they:
 - a. soften water and prevent (or at least lessen) the forming of soap "curd";
 - b. emulsify grease and oil;
 - c. neutralize acid soil;
 - d. hold dirt in suspension so that it doesn't redeposit on clothes during the wash cycle.

They do all of this safely. They are not harmful to people.

2. On the minus side, phosphates are among the several essential nutrients that promote growth of vegetation and algae in lakes and streams. This is a natural process called eutrophication. But with excessive amounts of nutrients, eutrophication gets out of hand. The rate of plant growth is speeded up. Vegetation clogs fresh water, uses up oxygen as it decays, and causes stagnation. The result-- fish die and, if eutrophication is severe enough, eventually a lake may be lost. The majority of current research indicates that phosphorus is the

* This bulletin was adapted with permission from "The Detergent Dilemma", a publication prepared by a committee of Home Economists, headed by Mrs. Edith Avise, for the West Michigan Environmental Action Council, 822 Cherry S.E. Grand Rapids, Michigan 49506.

nutrient element most responsible for the over-rapid eutrophication of waters in the Great Lakes Basin, and that it should be removed from sewage if eutrophication is to be checked or reversed.

Estimates vary as to the amount of phosphorus that detergents contribute to sewage, but all sources agree that it is a large amount. Reducing the per cent. of phosphorus in detergents would lessen the amount entering our waste water, and would lower to some extent the cost of phosphorus removal in sewage treatment. Also, because the world's supply of phosphates is limited, and because phosphate fertilizers are very necessary to food production, it is probably desirable to reduce the use of phosphates in detergents.

3. "Biodegradability" is not a part of the phosphate issue. As popularly used, the term "biodegradability" refers to the foaming action of "surfactants" (surface active agents) in detergents. Since 1965, by industry agreement, all detergents have contained surfactants that are biodegradable (will break down in nature). The term as used currently refers only to the foaming action of surfactants--not to phosphates.

SUBSTITUTES FOR PHOSPHATES SHOULD:

1. Do a good job in laundering and cleaning;
2. Be safe for human beings, washing machines, fabrics, finishes, and surfaces;
3. Be non-toxic to aquatic life; and,
4. PROVIDE LESS NUTRIENTS THAN PHOSPHATES.

POSSIBLE SUBSTITUTES:

1. N.T.A. (sodium nitrilotriacetate)
 - a. The Federal government has asked industry to discontinue use of NTA for the time being, because of possible danger to human health.
 - b. If approved, NTA may not completely replace phosphates because it tends to absorb moisture and cake in the box.
2. Soap
 - a. Soap is a good cleaning agent as long as it is used in soft water.
 - b. Softening water with a packaged phosphate product (such as Calgon or Raindrops) defeats the purpose of reducing phosphates. However--a household water softening system does not add phosphate to the water.
 - c. Softening water with washing soda causes a precipitate or curd which will not rinse out in automatic washers.
 - d. Grandmother's wringer flushed the soap curd off the cloth. Today's washing machines spin the soap curd, by centrifugal force, into the cloth.
 - e. There is an inadequate world supply of fats and oils to furnish enough needed materials for soap for everyone.

3. New Products (Many are now appearing on the market)

- a. Most of the new products contain high proportions of carbonates and silicates, and rely on high alkalinity for their cleaning ability. (Some of the phosphate detergents are highly alkaline, also.)
- b. High alkalinity is dangerous in that the detergent may cause skin irritation, damage to mucous membranes or serious injury if swallowed. Many products are toxic enough to require warning labels.
- c. Their cleaning ability has not been fully tested in homes.
- d. Their alkalinity may cause damage to fabrics, pitting of porcelain tubs and damage to metal parts of the washer.
- e. Some products (old and new) contain useless substances for cleaning, such as high percentages of table salt or water.

RECOMMENDATIONS:

1. Support community efforts for more complete sewage treatment. Practical and reasonably economical processes are currently available for removing at least 80% of the phosphorus from municipal sewage and these processes remove phosphates from ALL sources ---human wastes and industrial wastes as well as detergents. More adequate waste treatment would also decrease other nutrients entering our waterways. Fully treated sewage would decrease the total nutrient supply for algae growth. Removal of phosphates from detergents would not of itself correct the eutrophication problem. Reduction of nutrients from every source must be considered.
2. Reduce the amount of phosphate detergents used in the home. Such reduction would help to lower the amount of phosphorus entering our lakes and streams.
3. Work for the reduction of the percentage of phosphate in detergent formulations by the manufacturer.
4. Oppose complete elimination of phosphate in detergents ---until or unless an EFFECTIVE substitute is found that has been proved to be completely safe for the environment and for people.
5. Work for better labeling of products. Consumers need to know the percentage of phosphorus and the grams per recommended use level for all laundry and cleaning products. It is important also to know the chemical content of detergent products so their safety for people and the environment can be evaluated. If detergent companies do not include this information on labels, write to the president of the company. (Find the address on the box.)

WHAT YOU CAN DO

1. Use a product with as low a phosphorus content as you can, compatible with your laundry needs.
2. Forget outdated lists giving phosphate content. Package labeling, by industry agreement, should now show the percent of phosphorus content and the grams of phosphorus per recommended use level. Look for these figures on the label.

(Phosphate lists have been confusing because several different kinds of phosphate, each containing a different percent of phosphorus, have been used in detergent formulations. Labeling in terms of the element phosphorus makes comparison of products simpler.)

3. Cut down on the amount of detergent used. Start with one-half as much, then add only as much as needed. Experiment until you determine the amount best suited to your purposes.
4. Limit use of packaged water softeners. (Effective softeners contain phosphates.)
5. Launder with a soap if your water is soft (less than three grains hardness)--- or if you have installed a household water softening system.
6. Try new products cautiously and objectively. READ AND HEED LABELS REGARDING SAFETY. Highly alkaline detergents, if swallowed, can cause serious-- even fatal--damage to a child's esophagus and stomach.
7. Relax standards a bit. Must clothes be "whiter than white?"
8. Exert consumer pressure by buying low phosphate detergents--- to induce detergent companies to accelerate their search for acceptable phosphate substitutes.
9. Remember that sewage treatment to remove excess phosphates from all sources-- and to remove other nutrients as well--is the only effective means we now know for control of water quality. Changes in detergent formulas are at best only a partial answer.
10. Recognize that maintaining water quality is a complex problem. Even experts disagree. But you can help by trying to keep informed, and as a start, by heeding the recommendations given herein.

RECOGNIZE THE FACT THAT PEOPLE POLLUTE AND THAT PEOPLE MUST DO SOMETHING ABOUT IT. MORE FUNDING IS NECESSARY FOR RESEARCH, AND FOR BETTER SEWAGE TREATMENT. ASSUME RESPONSIBILITY FOR YOUR SHARE OF THOSE COSTS THROUGH YOUR VOTES.

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