'Solution' to Detergent Pollution Creates More Problems as NTA Becomes Suspect

THE WALL STREET JOURNAL,
Tuesday, July 21, 1970

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Detergent makers who thought they had the answer for complaining ecologists are suddenly finding their solution is creating yet another mess.

The environmentalists had started the furor initially by charging that phosphates used in detergents were speeding up the aging process of the nation's lakes, where the detergents often end up as sewage runoff.

The country's major detergent producers—Procter & Gamble Co., Colgate-Palmolive Co. and Lever Brothers Co.—stoutly denied the villain role cast for phosphates. They asserted that many other materials, including carbon, can stimulate the growth of algae, which, in turn, consume the available oxygen in lake water. Without this oxygen, other life forms slowly die, and with them pass the viable character of the lake.

Even amid their denials, however, the producers aggressively pushed the search for a substitute for sodium tripolyphosphate, the detergent material that softens water and plucks out the dirt in the washing process.

The Advent of NTA

Down center stage came nitrilotriacetic acid, usually known by its initials NTA. P&G promoted it as a partial replacement for phosphate. Lever, a unit of the British-Dutch Unilever Group, said it also would substitute NTA for some phosphates. Colgate said it was "experimenting."

Now, however, NTA, too, has become suspect.

A two-year rat-feeding experiment by P&G shows that massive doses of NTA can cause nephrosis, a kidney disease, often within six months. John Bruck, a senior P&G researcher, minimizes the significance of the findings because of the "exaggerated levels" of NTA fed to the rats. He insists that P&G studies show that NTA isn't toxic for humans. He says there isn't any evidence of birth defects.

But there are still other doubts.

Dr. Samuel Epstein, a Harvard Medical School pathologist, asserts that widespread use of NTA would be "chemical roulette" because research so far has been "totally inadequate."

Dr. Epstein's main concern is what happens to NTA after it has been broken down by the bacteria present in sewage. He suggest that nitrites produced in the process may combine with other chemicals, known as secondary amines, to form nitrosamines, a class of compounds that includes some that are cancer causing.

Lack of Information

The Harvard pathologist speculates that this process could even occur in the human body. "Can nitrosamines be formed in water or in the gut through the ingestion of NTA?" he asks. "It's an obvious question but there's absolutely no information on this," he adds.

P&G's Mr. Bruck, for his part, says that Dr. Epstein's concern about nitrosamines is "legitimate." But he argues that "there isn't nearly as much nitrosamine material found in NTA as elsewhere."

John Singer, president of the Hampshire Chemical division of W. R. Grace & Co., a major producer of NTA, scoffs that Dr. Epstein's ideas "are as compounded by more as." He declared, "There isn't any evidence to show that NTA is anything but harmless."

Mr. Singer, though, adopted a somewhat more conservative stance last December in testimony before the Conservation and Natural Resources subcommittee of the House Government Operations Committee. He said then, "While there can never be enough data, more experience with NTA would certainly be desirable."

Some government specialists insist on more data. The Health, Education and Welfare Department's Environmental Health Service has yet to endorse the use of NTA, because "we want to be sure it won't be a problem," an official says. "There are one or two disconcerting things about it," he adds.

The Federal Water Quality Administration has launched an extensive study of the effects of NTA. "Intuitively, I feel that more should be known about NTA," states Joel Fisher, a researcher for the water agency.

Controversy Mounts

But while the controversy over NTA makes hotter, pressure against phosphates mounts in Washington and elsewhere. The House Government Operations Committee's panel on resources has recommended that phosphates be removed from detergents by 1972. A Senate subcommittee on air and water pollution has been holding hearings on the impact of phosphates on inland waters. Canada already has announced it will ban phosphates from detergents by the end of 1972.

Some companies are steering to avoid both battles.

Sears, Roebuck & Co., the nation's largest merchandiser, is planning to market a detergent that will have neither phosphates nor NTA. The product is being made by De Soto Inc. of Des Plaines, Ill., but little else about it has come to light. De Soto declines to discuss the formula other than to concede that it doesn't contain any new chemicals.

Ladco Chemical Products Co., Buffalo, N.Y., also is venturing forth into the fiercely competitive detergent market with a product devoid of both phosphates and NTA. "It's a totally new formula," declares William Brand, Ladco's president, who confidently confides, "I think we'll make a lot of money out of it."

Mr. Bruck of P&G asserts it is "awfully unlikely" that anyone has been able to develop a substitute for phosphate other than NTA. "We spent $3 million in 1969 on this, and we covered it very thoroughly," he says. Some of the new products coming on the market, he says, cause a scum in hard water, which remains on the clothing after the final rinse in the washing machine.

Heavy NTA Commitment

P&G is heavily committed to NTA. The detergent maker says it already has on order more than $167 million of NTA. By January 1972, it says, it expects to have replaced NTA for phosphates in nearly a third of its total detergent production. P&G boasts it already has replaced 35% of the phosphates in a third of its detergent volume.

Lever says it is planning to replace phosphates with NTA in as many as nine of its products.

Colgate, which says it is still experimenting, hasn't included NTA in any products in its detergent line.

NTA is still far from being a total replacement. Grace's Hampshire Chemical unit and Monsanto Co., the two major producers, are capable of manufacturing only about 180 million pounds a year, a slim fraction of the two billion pounds of phosphates consumed in detergents.

"It will be impossible to produce enough NTA in the near future to make it a total replacement," says Mr. Bruck. Mr. Singer of Hampshire Chemical concurs: "There's a shortage of NTA."

Not that NTA is all that appealing to the detergent makers, even after the supply and environmental problems are solved. NTA has the unfortunate quality of absorbing moisture. When the formula calls for 25% NTA, to 75% phosphate, as in some P&G products, water absorption isn't much of a problem. With a significantly higher concentration, though, the NTA could solidify on the shelf into a block.

Mr. Bruck says P&G could get around the problem by marketing the detergent in a moisture-proof carton, but that would prove expensive. The product could be sold as a liquid, but some liquid laundry detergents have had undistinguished marketing careers in the past.

To Harvard pathologist Dr. Epstein, all this simply raises the question: "What's wrong with returning to soap?"

But, unfortunately, that, too, isn't a ready answer. Mr. Singer of Hampshire Chemical says there isn't enough fatty acid available to produce sufficient soap for laundry cleaning.

"If we could find a way to synthesize fatty acids," he declares, "we'd solve this problem and the world food problem at the same time."

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