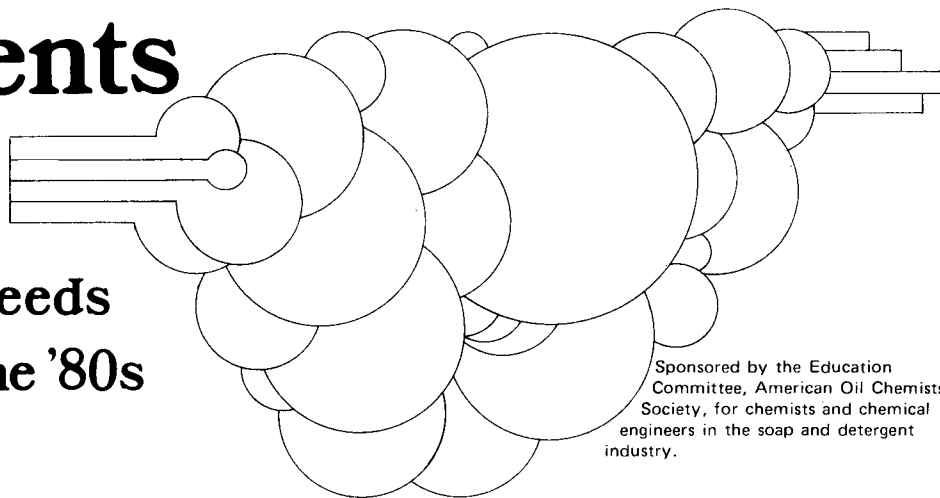


Detergents eight-0

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Session 1

✦ The Impact of Government on the Detergent Industry in the 1980s

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ABSTRACT

As the result of several major legislative actions during the 1970s, broad regulatory authority has been granted to a number of relatively new federal agencies. The degree to which this authority is exercised can have profound impact on both the manufacturers of finished detergent products and their raw material suppliers. In many instances, the direction and intensity of these regulatory initiatives have not yet come into focus. But it is apparent that the industry must develop an on-going dialog with such agencies as the EPA, the CPSC and the Departments of Energy and Transportation to assure that its views are properly understood. In addition, continuing liaison is required with older agencies, such as the FDA and the FTC. This paper will review recent regulations issued under the Toxic Substances Control Act and the Resource Conservation and Recovery Act as they apply to the detergent industry. Current and future activities of the CPSC, FDA and FTC also will be discussed. Often overlooked in an analysis of regulatory and legislative impact is the growing role of the states. Recent experiences in this regard will be described, which will be followed by a discussion of potential future developments at the state level.

Unlike many chemically related industries, the detergent industry has been interacting with federal, state and local legislative and regulatory bodies for more than three and one-half decades. It was on the leading edge of the environmental movement even before there was a formalized movement. In fact, the whole thing started in 1947, when the first detergent foam incident was reported at Mt. Penn, Pennsylvania. In this episode, a heavy blanket of foam was observed in the aeration tank of the local sewage treatment plant, several days after the distribution of free detergent

samples in the community.

From that single episode grew the great biodegradability issue of the 1950s and 60s, which culminated in the industry's voluntary conversion from the use of branched-chain ABS to straight-chain LAS.

But, in the process, some major dislocations occurred in the marketplace. Traditional suppliers to the industry left the field because they could not adapt to technological change and other companies took their place. Markets for whole classes of surfactants whose biodegradability was not challenged changed drastically, simply because other materials were biologically broken down more rapidly.

Although the conversion was widely hailed as a victory at the time, it was pyrrhic in nature, since the cost to industry was estimated to exceed \$150,000,000. But, for one exhilarating period of about nine months in 1965-66, the detergent industry enjoyed a brief but passionate affair with the then fledgling environmental movement.

Almost immediately, however, came a series of environmental challenges to virtually everything in detergents as well as to the package itself. The question of phosphates and eutrophication is still with us after more than a decade. But what may have been forgotten was that, in the same period, there was the great enzyme flap, the boron scare, the arsenic-in-phosphate farce, the NTA debacle (this issue very recently has been given prominence again), and other real, but equally esoteric, environmental alarms.

With this as preamble, what does the future hold for the detergent industry? The detergent industry is guardedly optimistic about its ongoing relationship with government.

There are several reasons for this which will be described later, but, on balance, the detergent industry believes that it has gained the wary respect—a form of detente, if you will—of the federal bureaucracy. For the detergent industry, real trench fighting of the 1980s will not be on Capitol Hill, but in the back halls of Waterside Mall and Fisher's Lane.

Except in a positive sense, and with some notable exceptions, it is expected that no federal legislation will impact significantly on the detergent industry in the foreseeable future. This does not mean there will not be an occasional Nelson phosphate amendment or an Eagleton proposal to delete the soap exemption. What it does mean is that legislators have already done about all they can do. Vast powers recently have been granted under a variety of statutes, to EPA, OSHA, FDA, CPSC and a host of other agencies. Only now are the regulators coming up to speed and beginning to spew out the regulations implementing these laws.

Our legislative predictions, and to a lesser extent, the outlook for regulatory action, would be much more accurate if this seminar took place in the third week of November rather than the third week in September, because a truer picture of the national political mood would then be available.

Previously it was noted that there is a positive aspect in future federal legislation as far as the detergent industry is concerned. This means there is real potential for regulatory reform and the reining-in of the regulators' reach. But, perhaps reference should first be made to the notable exceptions with which the original comments were qualified.

Every time a chemical spill is reported, or the location of a chemical dump, or the discovery of a Love Canal, pressures rise in the news media and in the Congress to "do something." No matter how careful industry is or how thoroughly it works to prevent unwanted events, the very laws of nature say they will occur. After all, we humans, dealing often with exotic materials, know that accidents do occur. One chemical spill outweighs 20 years of safe operation in the public mind, even if there is no injury to humans or the environment.

The result of these events is predictable: a knee-jerk response in which over-reaction results. An example is the "superfund" legislation for the clean-up of chemical spills, which is presently being debated in Congress. Although it is still unknown which of the several legislative proposals will be enacted, it is inevitable that something will be adopted. Some of these proposals carry enormous price tags, e.g., \$4.1 billion over a six-year period, and these costs will be borne, directly or indirectly, by consumer product industries and their customers.

While the chemical industry as a whole has done a remarkable job in improving its public image, one spill, one accident, can undo all of this work and result in unexpected and perhaps unwarranted legislation or regulation.

When it comes to regulatory reform, one's cynicism comes to the fore. Any legislator will hew to the generality that regulatory reform is needed, that the shackles must be removed from industry, and that more jobs are needed. He can recite all of the horror stories that have been heard about the excesses of regulators. But when it comes down to specifics, a much different picture emerges and the zeal to reform slackens. So far, legislation which will really reform the regulatory agencies has not made much progress, and the near-term outlook is not bright. However, there have been some changes which indicate an understanding in Washington that some things do need to be changed.

The most significant change has involved the Federal Trade Commission. In a period of a little more than a year, it has moved from an aggressive, action-oriented agency

seeking new fields to conquer, to a demoralized shadow of its former self. The Congress became increasingly disenchanted with the regulatory proposals put forth by the FTC, and made crystal clear its intention that the FTC should sharply limit the range of its activities and adopt a more conservative approach. There was even some talk about whether there is a continued need for an FTC.

What impact has this had on the detergent industry? Mostly, a positive one. The Commission has dropped both its investigation of the detergent industry and also its consideration of a proposed trade regulation rule on detergent performance disclosure standards. These had been long-standing projects within the FTC, and although interest in them apparently had been dwindling, it was gratifying when they were finally put to rest. It is believed that generic rules of this kind will not be proposed for the detergent industry for quite a while for a simple, but often overlooked reason: there is no demonstrated need for consumer information of this sort.

On the other hand, there is continued attention by the FTC on individual company activities in such areas as claims substantiation and value comparisons in advertising.

Things are not nearly so quiet on the other regulatory fronts. EPA has been active in issuing regulations under the Toxic Substances Control Act (TSCA) and the Resource Conservation and Recovery Act (RCRA). Since the RCRA subject will be described in detail later, these comments will be limited to TSCA.

To give the reader some idea of the current rate of activities, here is a listing of some actions initiated under this act just during the months of June and July 1980:

Section 4(a)—Proposals and Decision Document, Three Chemicals

Section 4(b)—Proposal, Environmental Test Standards

Section 4(c)—Proposal, Reimbursement of Testing Costs

Section 8(a)—Final Rule PBBs and Tris

Section 8(c)—Proposal, Significant Adverse Reactions Records

Section 12(b)—Final Rule, Export Notification Procedure

Section 13—Proposal and Ruling Statement Import Certification

Section 16—Policy Statement, Inventory Penalties

Section 20—Policy Statement, Citizen Petition Procedures

To many, the TSCA is viewed as directly impacting on the chemical, rather than the consumer product industry. And, in many cases, this is true. But, beyond the obvious interrelationship which occurs between suppliers and users of chemicals, there are aspects of the law that uniquely affect the detergent industry.

Perhaps the most important relates to new chemicals and the significant new use of existing chemicals. The EPA has stated repeatedly its interest in concentrating on chemicals that are widely used, even if they are of low toxicity—a perfect definition of a detergent raw material.

Clearly, rigid regulations affecting new chemicals or new applications for existing chemicals can severely impede innovation, which is the key in the highly competitive soap and detergent industry. A slow-down in innovation resulting from bureaucratic structures not only deprives the consumer of better products, but also impedes the initiative for suppliers and formulators alike to expend the resources needed to develop these materials.

The premanufacturing notification system is presently in force and gives the reader some inkling as to how the EPA will approach this matter of the "significant new use" of existing chemicals. To the detergent industry, the PMN program has been somewhat of a mixed bag. EPA has taken the

position that in most cases safety substantiation data by industry have been inadequate, particularly in the area of biological effects. Final "significant new use" regulations implementing this section of the TSCA probably will not be promulgated until some time in 1981. There is concern that the EPA will adopt an approach in which annual production of a material is used to establish its potential exposure. Obviously this is the simple way to go, but it ignores the actual degree of exposure or available information on the material's inherent toxicity. If this approach is taken, the detergent industry could be burdened with lengthy and costly test programs even when no threat to human safety or the environment exists.

Unfortunately, the TSCA itself is not particularly clear in defining what constitutes a significant new use. However, the language does suggest that the EPA should be specific when such rules are issued.

The soap and detergent industry must carefully watch developments in this area and be prepared to propose alternatives should the need arise.

Of more immediate interest are the rules proposed under Section 8(c) dealing with the maintenance of records and reporting of alleged adverse reactions. This matter is of particular significance to the consumer products industry, especially because of the broad reach of our products. The EPA has revised some of its earlier proposals in recognition of the fact that consumer products must be dealt with differently than commodity chemicals to which there is limited exposure. Further inputs must be made by industry to assure that the final rules are reasonable and equitable.

Fundamental to the whole regulatory structure is the need to assess risk—the balancing of equities. If there is a single area where the detergent industry can make important input to the agencies, it is here. Cautious optimism exists that some progress has been made. There is a gradual ebbing in the absolutist philosophy that prevailed in the past and a somewhat better understanding that there is some risk in everything that is done.

While the saccharin situation received wide public attention which ultimately required Congressional action to obtain relief from its ban under the Delaney Clause, the recent Supreme Court decision on benzene may have broader, long-term significance. In this instance, the majority of the Court found that OSHA, in promulgating its regulations on benzene, did not demonstrate that a substantial risk existed at the proposed level. The court further held that before OSHA can promulgate any permanent health or safety standards, it must make a threshold finding that the place of employment is unsafe and that significant risks can be reduced by the existence of the standards. This concept is, of course, the very essence of risk assessment. And, unless this view is adopted by the regulators, the 1980s will be a period of diminished innovation for the detergent industry.

In other areas, as well, signs of progress can be seen with respect to ongoing dealings with the EPA. For example, the suspension of payment under the Industrial Cost Recovery program is a good sign. It also is believed that modifications will be made in the Clean Air and Clean Water Acts so that some of the more costly (and least effective) aspects of these laws will be eliminated.

Over the years, the detergent industry has enjoyed reasonably good relations with the FDA and CPSC—two critical bodies for the consumer product industry. The ability of the SDA to anticipate questions and to provide valid, scientifically sound information has built credibility with these agencies which must be maintained and developed. It is essential that industry scientists identify potential problems before they become problems, and make sure that the information is conveyed to their counterparts in govern-

ment.

When the detergent industry converted to the use of LAS, a vast array of laboratory, pilot plant, controlled field and actual waste treatment plant data were assembled. This work clearly demonstrated the biodegradability of LAS under a variety of conditions using the best analytical techniques then available. This principally consisted of the measurement of MBAS disappearance, although occasionally, infrared spectrophotometric differentiation procedures also were used.

But, in the ensuing years, analytical methods have been improved in almost quantum fashion, perhaps making those earlier data largely obsolete. Thus it may soon be possible to measure biodegradability with a degree of specificity that was unimaginable even 15 years ago.

As a result, the information that was so carefully gathered in the past may well have to be re-examined to insure that it is still relevant, and perhaps new research undertaken, where necessary.

In these cases, the detergent industry has and should continue to be a leader in developing answers to questions before they are asked.

One of the real problems of living in a regulatory climate is the matter of overlapping or contradictory jurisdiction exercised by different federal agencies. This problem is recognized by the government, and some steps have been taken to minimize the effects of duplication and confusion. At least three groups have been formed, including the Regulatory Council (made up of the heads of several agencies), the Interagency Regulatory Liaison Group (made up of representatives of CPSC, EPA, OSHA, FDA and the Food Safety and Quality Service of the Department of Agriculture) and the National Toxicology Program.

While, in theory, these interagency groups should work in harmony, to date, their progress has been halting. There has been some harmonization in areas such as proposed labeling requirements and airborne carcinogen regulations, but a truly integrated program has not yet been developed. In fairness, this is not entirely the agencies' fault. As CPSC Chairman King pointed out in a recent speech, legal and administrative problems have yet to be resolved. These include actual rulemaking procedures to be followed, the handling of confidential data, Sunshine Act requirements (CPSC is the only IRLG member covered by the Act), and others. However, if the burdens on industry brought on by regulations are to be kept within reasonable bounds, a real effort must be made in coordinating the actions of these federal agencies.

Over the years, the bulk of our industry's legislative activities have been at the state, rather than the federal, level. Initiatives by state legislatures began with the biodegradability questions in the early 1960s and reached a crescendo in the 1970s when phosphates and eutrophication came into environmental vogue. As a result, the detergent industry, perhaps more than any other, has acquired a strong background in dealing with state legislative and regulatory bodies.

It is believed that this strength will pay increasing dividends in the coming decade. There are several reasons for this assessment: (a) the principal federal statutes that have impact on the detergent industry have weak preemptive clauses. As an example, there is nothing to prevent a state from enacting a more rigorous Hazardous Substance Act or more stringent water quality standards; (b) in the current biennium, some 150,000 pieces of legislation were introduced, of which some 10% could have some meaning for the detergent industry; (c) more and more state legislatures are becoming full-time deliberative bodies, thus increasing the likelihood of more and tougher statutes. It has been

estimated that by 1990, the number of bills introduced in that biennium will have increased to 250,000, of which some 25,000 could affect the detergent industry; (d) state regulatory programs are growing rapidly, perhaps even faster than their federal counterparts, and they are taking on a more activist complexion.

The real concern for the detergent industry is not the narrow single-issue legislation, such as a proposed detergent phosphate ban, but rather the seemingly innocuous "good-guy" laws.

As an example, several Northeastern states recently have considered bills regulating the input of halogenated hydrocarbons into ground water. Specifically, the concern was related to certain septic tank cleaners and degreasers which contained potential carcinogens. Certainly, the intent of the legislation was sound, but the draftsmanship was so broad, that if enacted as written, it could have resulted in the banning of whole classes of household cleaning products.

Other legislation has been proposed requiring ingredient labeling and disclosure, packaging and a host of toxic chemical control bills.

For a national group such as the detergent industry, the danger of "Balkanization" should be readily apparent. As manufacturers of ubiquitous, relatively low-cost products, the imposition of regional, state or local laws could have a profound and costly effect with little benefit to the consuming public.

A discussion of state level activity would be incomplete without some mention of detergent phosphates. The situation has been essentially stable in recent years and only a few states have been seriously considering legislation. This is in contrast to conditions in the early 1970s when, in one year alone, 273 antiphosphate bills were introduced.

Pressure may continue for action in those areas around the Great Lakes that presently do not have bans and in other

regions that have major fresh surface water resources. But, the trend is away from this kind of restriction, and there is even the possibility of repealing some bans as waste treatment facilities come on-stream.

The near future interaction between government at all levels and the soap and detergent industry is envisioned as follows: (a) with the exception of "superfund" or similar broad legislation aimed primarily at toxic chemicals, there is not likely to be new federal legislation which will directly impact the soap and detergent industry; (b) interaction with some federal regulatory agencies will increase significantly whereas involvement with others will decline. Regulations issued by the EPA under TSCA, RCRA, and Clean Water and Clean Air Acts will be of increasing importance to the industry. In the near term, TSCA regulations regarding the significant new use of existing chemicals will require careful analysis and comment; (c) while there will be a continuing dialog with the CPSC and FDA, no new activities generated by these agencies are predicted that will affect the soap and detergent industry; (d) it is improbable that the FTC will propose new trade regulation rules specifically for the soap and detergent industry; (e) state government—both legislatively and by the regulatory route—will take on added importance for the industry in the coming decade. States may become more active in the field of hazardous substance control, air and water quality standards, and packaging and labeling. It is unlikely that detergent phosphates will receive broad attention.

On balance, the soap and detergent industry appears well positioned to deal effectively with government in these areas. It is respected for technical competence, credibility and candor. The detergent industry has been forthright in addressing the issues which affect the industry and the American consumer, and this should lead to an improved climate of government and industry relations.

♣ Biodegradation of Nonionic Ethoxylates

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ABSTRACT

The biodegradation of alcohol ethoxylates (AE) and alkylphenol ethoxylates (APE) is reviewed. Biodegradation test methods, ranging from laboratory tests to full-scale waste treatment plant studies are described for these surfactants. A comparison is made between primary and ultimate biodegradability criteria and the limitations of the various analytical methods used in these determinations are discussed. The most recently published data suggest sewage bacteria degrade AE by a mechanism which is different from that by which APE degrades. The use of radiolabeled surfactants to elicit more detailed information about the biodegradation mechanisms of AE is described. The role of biodegradation on the impact of surfactants released to the environment is assessed, and future environmental concerns for nonionics are considered.

INTRODUCTION

Over the past 15 years, a number of factors caused significant changes in the detergent industry. The first of these took place in 1965, when the industry voluntarily switched its anionic workhorse surfactant, branched alkylbenzenesulfonate (ABS), to linear alkylbenzenesulfonate (LAS) upon the discovery that the less biodegradable ABS was largely

responsible for excessive foaming in receiving waters. During the 1960s, phosphorus, present as phosphate builders in household laundry and some institutional detergents, was found to be a limiting nutrient in the eutrophication of lakes and streams. This finding has resulted in a number of states and municipalities enacting legislation limiting the use of phosphates in detergent products. Phosphates, in the form of sodium tripolyphosphate or potassium pyrophosphate, were the only low-cost builders capable of reducing water hardness concentrations to levels where hardness-sensitive LAS would perform a good cleaning job. An effective chelating builder, the sodium salt of nitrilotriacetic acid (NTA), was voluntarily abandoned in 1970 by U.S. detergent manufacturers and suppliers upon preliminary findings that NTA might act to increase the teratogenic activity of highly toxic heavy metals. The environmental Protection Agency (EPA) recently has reviewed all health data available on NTA and has decided that, pending any new data indicating adverse effects of NTA, they would not "take regulatory action against the resumed production and use of this substance for laundry detergents" (1). How soon production of NTA actually will resume for this end use is