problem again. We cycle back and forth until the problem is solved or stop in frustration, at least temporarily. Conscious processing stops but unconscious processing often does not, especially if the previous effort has been intense. Sometimes the result is the sudden flash to a fully formed solution. This sort of thing has often been documented in the stories of famous inventors or inventions. At other times, one finds that one returns to the problem with new thoughts, even though no conscious effort has been made in the interim period. What can one glean by examining this characteristic flow? For one thing, realizing a need for some balance between logical and associative thinking prompts one to reconsider them. Another important point is the need for intensity. This will be illustrated with an example. A group in the speculative developments area was given an assignment to devise some new margarine ideas for the foods division of a large company. This was not greeted with great enthusiasm at the time. As can be imagined, this was somewhat of a well plowed field. At the time, it was decided to experiment with the intensity variable and the following was carried out: previous documents, including old ideas, market research studies, technical and processing literature and business analyses/market structure studies were gathered.

Each day the group gathered in one room and read the documents which ran to several thousand pages. Each one worked alone reading, scanning and taking notes. When one finished the pile, s/he went back to the beginning and started again. Nothing else was done during this time. Occasionally, notes were compared, however, there was very little to compare during the first few days. Incidentally, none of the group had any previous experience with margarines except for previous ideation sessions. This is, of course, a very frustrating exercise. It lasted two weeks. Not all of the group could stick to it throughout, despite good intentions. It wasn't long before their only thoughts were about margarine. After about three days, a trickle of ideas began. Best productivity in terms of novelty/quality was at about one week, after which much attention was devoted to polishing ideas that each liked. In the end, the group was quite satisfied. The volume of finished ideas was not spectacular (35, of which perhaps half had elements of real newness). This technique is recommended for important problems, i.e., problems that one feels are worth a special effort. It is a unique, if not entirely pleasant, experience. Incidentally, the previously illustrated analogy exercises come in handy here. Staying entirely in the logical mode for such a sustained period on one problem could be quite impossible for some. Alternating between examination of the material and associative exercises allows one to keep at the problem considerably longer and yet contributes to building intensity in a relatively short time.

The following four points are worth remembering: 1—writing/reorganizing; 2—replacing judgments with questions; 3—alternating logical and associative thinking; 4—value of intensity.

Obviously, none of these systems is a magic answer. That these techniques can help takes some faith—at least until one has tried them long enough to feel comfortable with them. They do help. Not all of them will suit each person. A number of these have been the subject of government and university studies. Definite and lasting benefits have been demonstrated. Hopefully, some may be of use to the reader.

✂Gearing Surfactants for Use in Consumer Products

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ABSTRACT

Surfactants are created for consumer products because the wants and needs of consumers and their suppliers are thoroughly analyzed and judged to provide a business opportunity that is in line with the strategic direction of a surfactant supplier. Entering the surfactant market for a consumer product is based on six key steps which are (1) market definition and target selection, (2) definition of consumer and supplier wants and needs within the target market, (3) determining the feasibility of meeting these wants and needs and making a go/no go decision, (4) developing and fine tuning the product, (5) a market introduction program and (6) continued support once the product is successfully commercial. This paper discusses each of these steps.

DIRECTION

The starting point for a supplier in developing a surfactant for consumer products is the establishment of clear, concise and fully understood directions. The supplier must carefully sort out his strengths and weaknesses and clearly define objectives and strategies before even looking for product opportunities.

In this stage-setting process, the surfactant supplier must make some key decisions: does he intend to (a) market specialty or commodity products? (b) move raw material? (c) use and/or fill up an existing production facility? (d) capitalize on technical or sales strengths? (e) make effective use of his capabilities in distribution? or (f) provide synergism with other products in his company's portfolio?

In the commodity surfactant business, suppliers generally aim at the consumer product market in order to realize some fairly basic objectives, such as (a) moving large volumes of raw materials such as ethylene, benzene, paraffins or natural oils; (b) keeping a plant, or a production unit busy; or (c) capitalizing on one-up technology such as continuous sulfation/sulfonation or a hydrophobe/hydrophile process.

Two or three years are needed to develop a commodity surfactant and move it to a base position from which sizable growth will compound over a period of 20 to 40 years. Commodity surfactants usually reach sales peaks of 200 million lb/year and more as they are marketed into such large-volume consumer products as laundry powders and liquids, liquid dishwashing detergents, soaps and shampoos.

Linear alcohol ethoxylates and α-olefin sulfonates are two current examples of commodity-oriented surfactants. The ethoxylates, after an initial push in 1965, grew at an annual rate of 10% to a total of more than 400 million lb

in sales by 1979. Only recently have they shown signs of cooling off in growth at 7-8%/year. Linear alcohol ethoxylates provide an excellent vehicle for moving large quantities of olefins and paraffins. They led to development of a strong liquid laundry detergent market, opened up a route around problems caused by price/supply fluctuations of alcohols derived from natural oils, and established themselves as excellent surfactants for cleaning synthetic fibers—an industry which grew significantly in volume during the 1960s and '70s.

Linear α-olefin sulfonates have been in the cost-performance marketplace for years but have not fared well because of performance trade-offs. However, because of forecasted olefin over-supply resulting from by-product streams, excess production capacities, and the price of alkyl sulfates, a strong push is on for the use of α-olefin sulfonates in shampoos, liquid soaps and dishwashing liquids.

Suppliers of specialty surfactants generally aim at the consumer product markets by identifying market needs and gearing product developments to meet those needs. Specialty suppliers capitalize on technical skills, production flexibilities and distribution capabilities. These surfactants are usually developed and marketed within two years for very specific applications. Sales are normally under 50 million lb/year and often are less than 10 million lb. Small volume/high profit consumer products—laundry additives, specialty cleaners, cosmetics, toiletries, pharmaceuticals, waxes, polishes, deodorizers and disinfectants—consume most specialty surfactant output.

MARKET DEFINITION OF TARGET SELECTION

After establishment of a business direction, the supplier's next major—and critical—step in developing surfactants for consumer products is market selection. Market selection helps determine areas in which the supplier will compete and the products he will market, identifies customers and competition, establishes standards and parameters of technical service and distribution patterns, and pinpoints health, safety and environmental requirements that will have to be satisfied. Market selection is a two-fold process by which the supplier 1) describes generally the market in terms of size, segments, product needs, and growth rates, and 2) defines in much more precise terms the specific market segment that gives every indication of being the best target.

TABLE I

Consumer Product Surfactant Usages, 1979: Total Market[a]

	Million lb
Household products	2,220
Cosmetics & toiletries	205
Total	2,425

[a]Does not include pharmaceuticals, paints or waxes/polishes.

GENERAL MARKET DESCRIPTION

Market size and segments are determined by research and product analysis. Research data are supplied by such sources as surfactant consumers, noncompetitive suppliers, independent market research organizations such as SRI, consultant studies, trade journals, abstract services and government data. In product analysis, consumer product samples are first chemically scrutinized to determine composition, then juxtaposed with market share data from such sources as Nielsen, SAMI, Marketing Focus, or C.H. Kline studies. If the data base is solid and complete, the analysis technique provides the most precise information.

Historical growth rates of an industry are easy to come by, but credible projections are not. Future growth rates for a given surfactant are figured bullishly by a supplier in the market-penetration mode, bearishly by the supplier being displaced. Probably the most realistic number is somewhere in between and is most accurately determined by a third party who participates in the industry but is not in the market segment in question.

A general description of the surfactant market for consumer products with data on total market, market segments and growth rates, is illustrated in Tables I-III.

Product definition requires that the supplier determine the type of surfactant needed for the products used in each market segment, and the pricing category thereof (commodity or specialty). At this point, it is important to know only in general terms (a) surfactant types used in each market segment, i.e., for laundry liquids or hard-surface cleaners; (b) consumer market trends, such as laundry powders vs liquids, liquid vs bar soap, carpet fresheners, and (c) the kind of surfactant(s) that can be used to displace an existing surfactant, i.e., linear alkylbenzene sulfonate vs linear alcohol ethoxylates vs ethoxysulfates in heavy-duty laundry detergents and the factors that influence their interchangeability such as cost, performance, biodegradability and processing. Much of this information is obtained in the same manner as market size data.

Tables IV-VII summarize the product definition information for the consumer products surfactant market. It is difficult to illustrate product interchangeability because

TABLE II

Surfactant Usages for Household Products, 1979

End-use	Million lb	Future growth (%/year)
All-purpose cleaners	30	1.8
Bar soaps	760	2.0
Dish liquids	365	2.1
Dishwashing machine	15	5.2
Fabric softeners	90	6.1
Laundry liquids	240	5.5
Laundry powders	645	1.2
Rug and upholstery cleaners	15	3.8
Scouring pads/powder	30	3.5
All others	30	
Total	2,220	

TABLE III

Surfactant Usages for Cosmetics and Toiletries, 1979

End-use	Million lb	Future growth (%/year)
Bath products	15	5
Creams and lotions	15	12
Creme rinses	5	15
Shampoos	140	7
Shaving preparations	20	3
All others	10	
Total	205	

TABLE IV

Surfactant Usage for Cosmetics and Toiletries, 1979

Surfactant	Million lb	Pricing category
Alkylolamides	20	C/S[a]
Amphoterics	10	S
Alkoxylates	10	C/S
Ethoxylated sorbitan esters	10	S
Glycidyl sulfonates	15	–
Glycol & glycerol esters	18	S
Soaps	22	C
Sulfated linear alcohols	65	HPC
Sulfated linear ethoxylates	15	C
All others	20	–
Total	205	

[a]Pricing category: C = commodity; S = specialty; HPC = high price commodity.

TABLE V

Surfactant Usage for Household Products, 1979

Surfactant	Million lb	Pricing category
Alkylolamides	65	C/S[a]
Alkylamine oxides	30	C/S
Alkylbenzene sulfonates	595	Cs
Ethoxylated alkylphenols	40	Cs
Ethoxylated linear alcohols	200	C
Glycidyl sulfonate	20	–
Quaternaries	80	C/S
Sulfated linear alcohols	90	HPC
Sulfated ethoxylated linear alcohols	300	C
Soap	730	C
All others	70	–
Total	2,220	

[a]Pricing category: C = commodity; S = specialty; HPC = high-priced commodity; Cs = mostly commodity, some specialty pricing.

of the many factors involved and the many formulation possibilities. Generally, a new commodity surfactant or a large-volume specialty surfactant is targeted to displace more than 50% of an existing surfactant in a particular end use. Small-volume specialty surfactants are often targeted for 100% position.

To really know and understand a competitor, the supplier must constantly review and analyze the competitor's strengths and weaknesses, strategies and economics. Inasmuch as this information arrives second-hand, it is at best sketchy and, at worst, totally inaccurate, thus requiring that the supplier be particularly cautious in applying it to any decision-making process concerned with entering a market with a new or existing product.

Questions a supplier needs to answer in reference to competition are: (a) what market share can be gained and at what cost? (b) will return on the investment justify participation? (c) who will have the lowest cost position? (d) what technical, sales and distribution support levels will be needed to achieve and maintain market position? (e) who will exert pricing leadership? (f) who will have the broadest product line? (g) are trademarks important? (h) what will be the breadth and diversity of the customer base per competitor? (i) does anyone have a particular business advantage, such as size or toll conversion capabilities? (j) what are the locations, capacities and equipment age of the competition's plants? (k) how integrated is the competition? (l) how much risk do they take in their strategies? (m) what degree of capital backing do they have?

Beyond the obvious steps, defining customers requires that the supplier determine, as accurately as possible, how the customer uses surfactant(s), what type and how much he buys, and how likely the surfactant mix will change because of reformulation of an existing product or introduction of a new one. Some examples illustrating these techniques are shown in Tables VIII and IX.

Projecting required levels of technical and distribution capabilities demands an almost inherent sense of customer needs for service in each market segment. The type of technical service offered by a supplier to a manufacturer of nationally sold, heavy-volume consumer products differs greatly from that offered to the private-label, regional marketer. High-volume national marketers want new products and technology so that they might better understand how a surfactant works in a particular formulation for a particular application or for new analytical techniques. Private-label, regional marketers often look for help in developing formulations and optimizing costs and performance, solving problems they have with their customers, and guidance on issues relating to health, safety and environment.

TABLE VI

Surfactants in Cosmetics and Toiletries, 1979 (in million lb)

	Bath products	Creams lotions	Creme rinses	Shampoos	Shaving preparations	All others	Total
Alkylolamides	2	–	–	15	3	–	20
Amphoterics	–	–	–	10	–	–	10
Alkoxylates	2	–	2	2	–	4	10
Ethoxylated sorbitan esters	Small	–	–	8	2	Small	10
Glycidyl sulfonates	–	–	–	11	–	4	15
Glycol & glycerol esters	2	8	3	5	–	Small	18
Soap	–	2	–	5	15	–	22
Sulfated linear alcohol	4	–	–	59	–	2	65
Sulfated linear ethoxylates	5	–	–	10	–	–	15
All others	–	5	Small	15	–	–	20
Total	15	15	5	140	20	10	205

In order to effectively and efficiently serve a national market, the surfactant supplier's distribution capability should include a bulk-handling network supported by terminals in major sales areas or other points in some cases far from the production site. Bulk-drum and partial or mixed-load capabilities are required by suppliers serving private label or regional marketers.

Defining standards of health, safety and environment that surfactants must meet in the arenas of production and customer use requires extensive dialog with customers, consultants and governmental agencies. In complying with governmental regulations, suppliers and formulators have changed the composition of surfactants many times in the past 20 years. As an example, the push for biodegradable surfactants led to the change to linear alkylbenzene sulfonates from branched alkylbenzene sulfonates, the displacement of nonylphenol ethyoxylates in household detergents, and the growth in use of linear and secondary alcohol ethoxylates. Market growth of α-olefin sulfonates has been slowed in part because of sultone skin irritation concerns. Further, bans on phosphates have had a major impact on detergent formulations over the past 10 years.

PRECISE TARGET MARKET DESCRIPTION

Once the market has been defined, the supplier's next step is to zero in on particular market segments for penetration. The first step in this procedure is to line up, for a close look, those segments which use or could use the supplier's surfactant products and which fit the marketing strategy. If, for example, the strategy is to move ethylene via ethoxylated linear alcohol, then the toilet soap and shampoo markets can be dropped from the list of target market segments because those products cannot use linear alcohol ethoxylates. On the other hand, if the strategy is to move ethylene via α-olefin sulfonates, or ethoxysulfates, then the toilet soap and shampoo markets offer enormous potential.

Once the zeroing-in process has been completed, the next step for the supplier is to define the product characteristics much more precisely than he did in the total market. This requires detailing: surfactant consumption (already specified); surfactants currently used and likely alternatives (already specified); surfactant performance requirements, i.e., what is expected of the surfactant in a given end-use; surfactant properties required—performance and physical; typical formulations and use rates to guide development work and provide cost guidelines; market trends; channels of distribution; customer's market share; competitors; technical service requirements; and price.

Selecting the automatic dishwasher detergent market segment as a case in point, an outline of the study data follows.

DEFINING WANTS AND NEEDS: AUTOMATIC DISHWASHING DETERGENT SURFACTANTS, PRODUCT DEFINITION

Surfactant Performance Requirements

Some of the characteristics required for surfactant performance are: defoaming action for hydrolyzed proteins formed during dishwashing; low foaming; stable to active chlorine compounds during storage and in solution; stable in strong alkali; good saponification and emulsification of fats; effective in temperature ranges of 120-150 F; sheeting action to minimize spotting; noncorrosive to silverware, glazed dishware, metalware and machine parts; nontoxic; not affected by hard water ions.

TABLE VII

Surfactants in Household Products, 1979 (in Million lb)

	All-purpose cleaners	Bar soaps	Dish liquids	Dish machine	Fabric softeners	Laundry liquids	Laundry powders	Rug/upholstery cleaners	Scouring pads & powder	All others	Total
Alkylolamides	—	—	35	—	—	10	20	Small	—	Small	65
Alkylamine oxides	—	—	30	—	—	—	—	—	—	—	30
Alkylbenzene sulfonates	10	—	100	—	—	110	340	—	10	5	575
Ethoxylated alkylphenols	10	—	—	—	—	10	10	—	—	10	40
Ethoxylated linear alcohols	10	—	—	15	5	90	80	—	—	Small	200
Glycidyl sulfonates	—	10	10	—	—	—	—	—	—	—	20
Quaternaries	—	—	—	—	80	—	—	—	—	—	80
Sulfated linear alcohols	—	20	—	—	—	—	65	5	—	—	90
Sulfated linear ethoxylates	—	—	190	—	—	—	100	10	—	—	300
Soap	—	670	—	—	—	—	30	—	20	10	730
All others	Small	60	—	—	5	—	—	Small	—	5	70
Total	30	760	365	15	90	220	645	15	30	30	2,220

TABLE VIII

Laundry Powders—Market Share, ELA/AES/LAS Requirements, 1979

Product	Producer	Total vol. (million lb)	Market share percentage		Surfactants requirements (million lb)		
			Total	Powders	ELA	AES	LAS
Fab	Colgate	140	3	4	11	–	22
Punch	Colgate	68	2	2	–	–	9
Cold Power	Colgate	69	2	2	–	1	13
Ajax	Colgate	48	1	2	5	–	15
Fresh Start	Colgate	42	1	1	16	–	–
All	Lever	145	4	4	29	–	
All Cold Water	Lever	29	1	1	–	–	10
Rinso	Lever	32	1	1	–	–	4
Tide	P&G	1020	26	31	–	55	77
Cheer	P&G	427	11	13	3	–	70
Oxydol	P&G	191	5	6	–	16	14
Dash	P&G	156	4	5	–	10	7
Bold	P&G	143	3	4	4	10	8
Gain	P&G	42	1	1	–	7	11
Bold 3	P&G	39	1	1	–	1	7
Purex	Purex	129	3	4	–	–	16
Other Brands	–	230	6	7	–	–	19
Total		2965	75	90	68	100	302
Generic	–	35	1	1	2	–	2
Private label	–	300	8	9	10	–	36
Total		335	9	10	12	–	38
Grand total		3330	84	100	80	100	340

Current Surfactants Used

Some of the surfactants already in use are modified alkoxylates; plurafac RA-43, which contains 3% monostearyl acid phosphate to reduce protein soil foaming. This combination is patented and contains only 30-40% EO; Triton F Series/capped ethoxylated linear alcohols; both surfactants biodegrade more slowly vs alcohol ethoxylates in unactivated sludge.

Typical Properties

HLB	7- 10
Pour point (%)	20- 50
Viscosity (cps/25 C)	60-120
Cloud point (1%/C)	25- 50
Foam properties—Ross Miles	No foam initially or after 5 min
Surface tension (dynes/cm/0.1%)	30- 33
Interfacial tension (dynes/cm/0.1%)	2- 14
Solubility	If formulated as a rinse aid, compatibility with most solvents is desirable.
Flash point	400 F heat; when formulated as detergent or rinse aid total system should be 130 F for home dishwasher and 180 F for industrial machines.

Market Trends

The use of machine dishwashing detergents is forecast to grow at 5.2% annually as roughly 45% of the nation's households now have automatic dishwashers vs 30% in 1974. Based on existing technology, surfactant concentration has stabilized at 2-3%. Phosphate ban variances for use in automatic dishwashing detergents are expected to continue. However, if phosphates are eliminated, use of surfactants may double to compensate for the lost sequestering properties of phosphates. The elimination of phosphates could initiate a trend toward liquid products. Rinse aids, adjuncts to ADW, use roughly 2 million lb of nonionics and are expected to grow at 4.8% annually.

Automatic Dishwashing Typical Formulations

Ingredient	% in formulation			
	Higher phosphate		Lower phosphate	
	A	B	A	B
Nonionic surfactant	3	3	4	3
Sodium tripolyphosphate	45	45	25	34
Sodium silicate (dry basis)	12	12	12	13
Chlorinated TSP	25	–	25	–
Sodium sulfate	–	–	22	13
Sodium carbonate	–	25	–	22
Chlorinated isocyanurate	–	1.5	–	1.5
Hydrate water	13	12	10	12

[a]From FMC Corp.

Channels of Distribution

Surfactants are sold directly to formulators.

Customers

Major customers	Market share	Surfactants use (million lb)
P&G	46	7
Economics Laboratory	32	7
Lever Brothers	7	1
Beecham	5	.75
Colgate Palmolive	3	.45

Suppliers/Competitors

BASF-Wyandotte and Rohm & Haas are the major suppliers. BASF dominates and has extensive technical expertise and support for this market. Economics Laboratory produces some of its own surfactants.

TABLE IX

Laundry Liquids—Market Share, ELA/LAS Requirements, 1979

Product	Producer	Total vol. (million lb)	Market share percentage		Surfactants requirements (million lb)	
			Total	Powders	LAS	ELA
Dynamo	Colgate	92	2	13	7	30
Wisk	Lever	280	7	39	57	9
All	Lever	35	1	5	4	5
Era	P&G	150	4	22	50	21
Purex	Purex	22	.5	3	3	6
Yes	Texize	20	.5	3	–	6
Other brands	–	17	.5	1	1	5
Generics		20	.5	3	1	5
Private label		94	2	12	7	3
Total		730	17	100	130	90

Technical Service Requirements

No special technical support is required. Customers are very technically sophisticated in this field.

Price

The surfactant price level will probably be ca. x0 to y0¢/lb.

Marketing Decision

The next step in the process is to determine the feasibility of market penetration. The capability to produce a surfactant to meet the market need within given time limits must be established before such determination can be made. A forecast of profitability of the candidate surfactant, be it an existing or new product, is necessary. During the entire decision process, extensive dialog is exchanged among the technology, marketing, manufacturing, purchasing, engineering, distribution, financial and legal functions. If all agree that a candidate surfactant can be offered at an acceptable profit, a decision is made to proceed with the market penetration program. On the other hand, if any problem surfaces in the dialogs, it must be resolved, or the decision is made to cancel, or at least delay, the market penetration program.

Developing the Product

Developing and fine-tuning the candidate surfactant is the next step, once the decision to penetrate a given market has been made. During this period, research and development produces the technology necessary to develop and produce the surfactant, and resolves, if possible, all issues involving the health, safety and environmental aspects of the product. The law department must participate when patents, licenses, or trademarks are involved. Once the product is ready for test-marketing, initial production runs are carried out to verify process efficiency and product quality. The candidate surfactant is then test-marketed, and R&D, sales, and marketing work jointly with selected customers to develop the product in their formulations, uncover any unforeseen advantages or disadvantages, and determine if the product has been priced properly. This work usually takes 6-12 months. If necessary, the candidate surfactant is fine-tuned and after review of all data, a decision is made whether to market it. If the decision is made to market the surfactant, then marketing, manufacturing and distribution prepare for the candidate surfactant's market introduction.

Automatic Dishwashing Detergent Surfactant Ingredient Function

Ingredient	Average concentration (%)	Total market (million lb)	Function
Nonionic surfactant	2- 3	15	Defoamer for soaps generated during washing. Lower surface tension to improve wetting and sheeting action.
Sodium tripolyphosphate	25-45	170	Tie up water hardness minerals/ions. Maintain alkalinity to help emulsify fats.
Sodium silicate	12-15	70	Protect machine parts, china patterns and silverware.
Chlorinated trisodium phosphate or	20-25	100	Release protein amide bond to hard surfaces,
chlorinated isocyanurate	1- 2	10	sanitizing.
Sodium sulfate	15-25	15	Primarily a filler.
Sodium carbonate	20-25	100	Provide alkalinity.
Hydrate water	10-15		

Market Introduction Program

Developing a market introduction program is the last key link in getting the candidate surfactant to customers and, eventually, into consumer products. If this step is not executed properly, the candidate surfactant may never be properly exposed to consumer product formulators. The key elements are: (a) getting the product into the surfactant suppliers production, distribution, and accounting systems and, (b) educating the sales force in effective selling, including: background information on the product with test market results; customer lists and target accounts; examples of product literature and advertising; pricing information; persons responsible for product technology; distribution information, including small sample ordering.

Commercial Support

The final step in the process is to provide the sales, marketing, technology, manufacturing and distribution support necessary to ensure the surfactant's longevity and supply reliability to the consumer product formulator. This step is taken when the surfactant has been incorporated in successful consumer products that have led to acceptable sales levels for the surfactant.

A Consumer Product: How to Move from Lab to Shelf to Home

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ABSTRACT

A general discussion and case illustration are provided to illustrate considerations required to answer questions about a new product, such as how to name it, package it, test it in the real world, present it to the trade, advertise it, promote it and how to counter competitor's actions.

INTRODUCTION

From a technical person's point of view, whether this person is an engineer or a formulator/inventor, the products s/he has developed are considered to be the best, and many times, they are. However, it is well known that a high percentage of development work—perhaps as high as 80-90%—is never even given the chance to go beyond the laboratory stage. Of those that do go beyond the laboratory, only a few can make it to the shelf as "new products." Even when a "new product" makes it to the shelf, only about one of every 10 is termed a success and returns profit for the corporation. If it is not a success, the engineer or formulator/inventor might complain that the whole world doesn't understand him, and might say, "I am giving you the best product since sliced bread and you people don't even appreciate it," as s/he becomes totally frustrated.

However, it is desirable to take a look from a different point of view. The inventor may indeed have invented the "best product," but what is the definition of "best?" It is a relative term. One person's best may be another person's worst. The question is, can one pursue sufficient customers to purchase this "best product" so that the corporation can make a profit. It must not be forgotten that the primary goal of any corporation is to generate profits.

Presented here in a broad sketch are steps and considerations which one has to make to bring a laboratory invention to a finished product and, further, to pursue the vast number of potential customers who will pick up this product, pay for it and bring it home to use.

First, the term "new product" should be defined. New products may take many forms—from the latest microprocessor to this fall's fashion in jeans. To some people, a new product can be a change in color, fragrance, shape or package. This paper will be limited to a new product which has a real point-of-difference, e.g., Colgate's Fresh Start Laundry Detergent, P&G's Bounce and Pampers, and Richardson & Merrill's Lip Quencher.

A new product can be generated many ways. It can start with somebody's wild dream, a customer's complaint, an accident in the lab! The sequence may vary from case to case. However, the up-front research work required is about the same. For simplistic and demonstrative purposes, this presentation will be limited to the situation of assuming a product has been created in its laboratory stage. From this stage on, the work that marketing personnel have to perform—with the help of all other disciplines, e.g., research-development, manufacturing, market research, packaging and sales personnel—must minimize the chance of failure.

Concept/Product Test

One of the first things that has to be done with a new creation is to find out whether it works or to put it differently, "Does it perform?" However, it can be asked, "What are the criteria used as judgement?" For example, if the detergent industry had insisted on using the same performance criteria of a P-powder detergent as the same criteria to judge the performance of a liquid detergent, there would never have been a liquid laundry detergent subcategory which accounts for 22-25% of a multibillion dollar category. Another example is J&J's Baby Shampoo. Before the idea had been presented of utilizing "nonirritation" to the eye as a criteria to judge a shampoo's performance, not too many people had heard of J&J's Baby Shampoo. Since then, it has become one of the best-selling shampoos in a highly competitive field. What should be emphasized is that existing criteria for judging product performance may be used as a starting point. However, don't stop there! It is well known that it is necessary to carry out laboratory performance evaluation as the first step. However, the real test is when one gives the prototype product to potential customers to be used under the real-world conditions and the control or the pleasure to tell each one of them, "Do this" and "Don't do that" is lacking. One can only hope that these potential customers will follow instructions. How the product performs under these conditions will be more informative than the artificial laboratory tests.