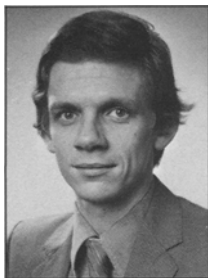


Session IX: Processing/Packaging

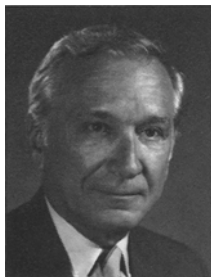
9.1 Tower Powder Making and Process Control



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The presentation will cover (a) powder raw materials, including system choice criteria, storage-handling, automation and storage management; (b) sulphonation, including illustration of the most outstanding process characteristics, utilization fields, raw materials and finished products, sulfonation of methyl esters, and yields, powder regeneration and antipollution; (c) slurry preparation including system choice criteria, raw material dosing, preparation and refining, slurry pumping and automation criteria; (d) spray drying, including power regeneration, antipollution and regeneration and material loss removal; (e) post-blending and distribution to packaging, including automation criteria; and (f) automation, including centralized control systems and process management through computer.

9.2 Detergent Packaging



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Basically, we will discuss three different types of detergent packaging in liquid and powder form: plastic bottles for powder or liquids and cartons and plastic bags for powders. A new development in the filling of liquid detergents has been a combination filler, which filled to a level for appearance fills when handling clear plastic bottles and volumetric (or measured fill) system when handling an opaque container. Speeds have been limited to about 400 per minute due to the increase in sizes, odd-shape containers and the foamy nature of detergents. Dripless pouring spouts and large measuring caps also have restricted speeds. Powders such as Colgate's Fresh Start are packaged in plastic bottles, and this certainly has its marketing advantages, although costs are higher than cartons. Detergents are used in a damp atmosphere and are very often stored in the same area. A plastic bottle will not absorb moisture, as will a carton, and it does have a good reclosure feature, thus avoiding caking. Powders also are packaged in plastic bags although speeds are rather slow—30 to 60 per minute per tube depending on the sizes to be packaged and the characteristics of the powder. It is,

however, probably the least expensive type of packaging and is ideal for the less-developed nations. Three types of filling systems are available: volumetric (the least accurate, but also the least expensive), auger and weighing. The most popular is the carton; speeds here would be 300/minute with volumetric filling and checkweighing (9.06" × 6.32" × 2.40"). A new development for liquids could be in-case filling and capping. This concept became a viable method with the introduction of in-mold or post-mold labeling. It made sense that once the labeled bottle was in the shipping case to leave it there for packaging. However, it does eliminate visual inspection and has its limitations in that clearance between containers is required primarily for capping chucks. As an example, the minimum size container today probably is 32 oz., or slightly less than one liter, with 12 to a case. The trend has been to heavier, more concentrated products. However, the light, foamy detergents did cause a problem, but this is overcome by nozzle entry and side filling so that product flows down the side of the bottle when filled. A two-stage filling station also can be incorporated, enabling force fill in the first station and slower filling in the second. Most machines will incorporate a checkweigher to insure that all bottles have been filled, as well as a cap detector. Cases will be ejected if they don't meet both requirements. Speed for in-case filling and capping would be 8–10 cases a minute. In general, we are primarily concerned with weights in both powders and liquids, maintaining or improving on speeds and the ability to handle more exotic pouring spouts and caps. Another significant, recent development is line controlling and monitoring with the use of Programmable Logic Controllers (PLC) and computers. The simplicity of the PLCs and the array of control and monitor functions that they can perform rapidly make them valuable production and managerial tools. Printed reports of fill accuracy, line stoppages including location of fault, downtime and production totals are easily and quickly provided.

Session X: Research and Consumer Interface

10.1 Environmental Aspects of Detergents and Cleansing Agents from a Political Point of View



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Washing and cleaning belong to the basic needs of man. Our life and culture are beyond imagination without washing and cleansing agents. Used detergents are transported almost entirely through wastewaters into our water bodies. An impairment of the latter is unavoidable. Perfectly environmentally compatible detergents do not exist, and if