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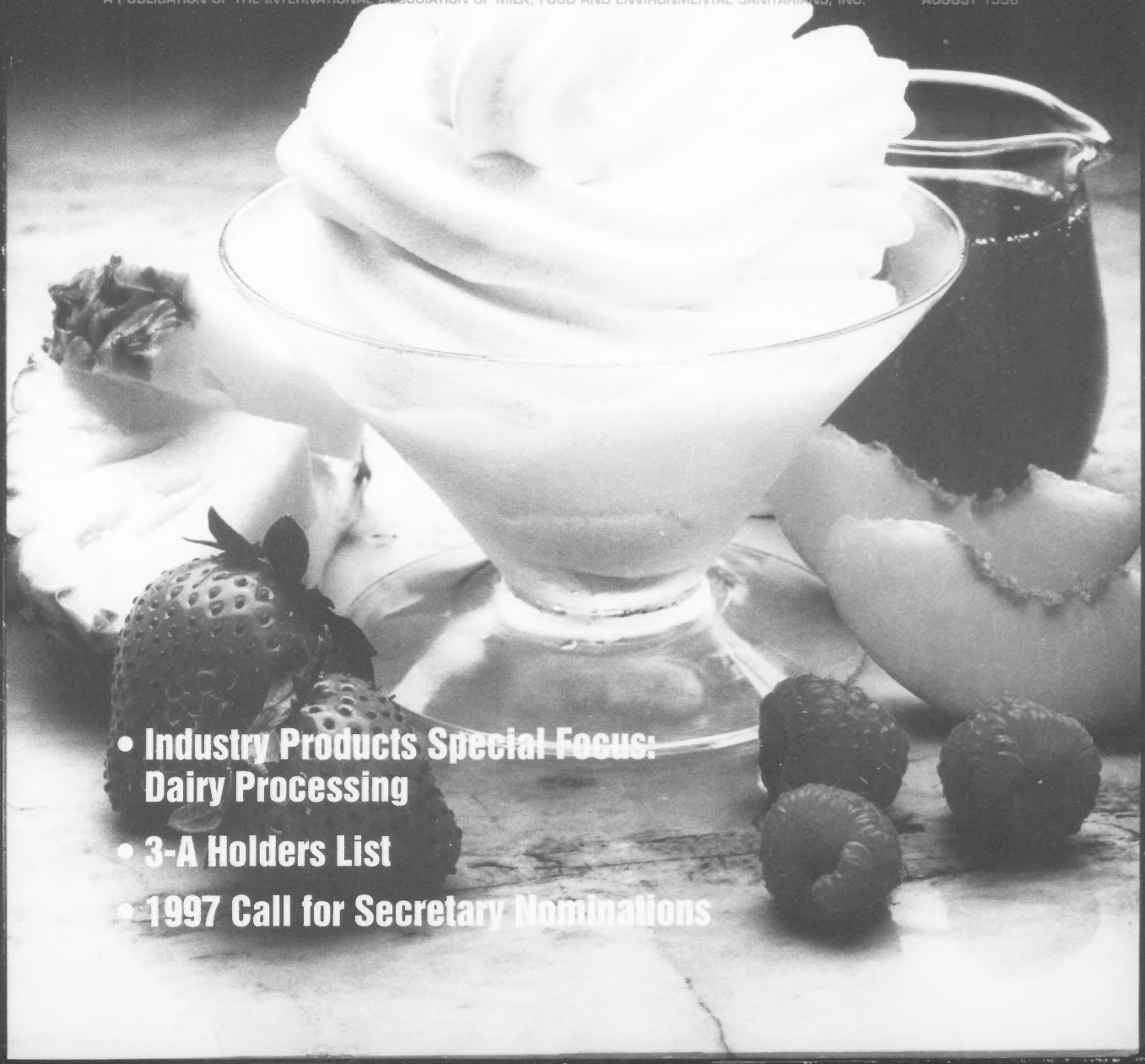
DAIRY, FOOD AND ENVIRONMENTAL

Sanitation

A PUBLICATION OF THE INTERNATIONAL ASSOCIATION OF MILK, FOOD AND ENVIRONMENTAL SANITARIANS, INC. AUGUST 1996



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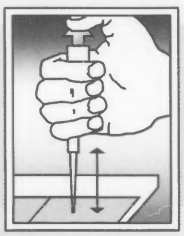

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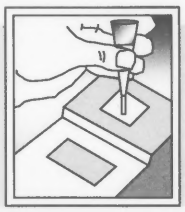

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DAIRY, FOOD AND ENVIRONMENTAL

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OFF THE TOP

FROM THE PRESIDENT

By MICHAEL H. BRODSKY,
IAMFES President

"There is no time like the present to make IAMFES truly International"

I am writing this column in Laval, France, where I am attending a meeting on Food Safety '96, under the auspices of the Aseptic Packaging Association (ASEPT) and co-sponsored by the Societé Francaise de Microbiologie (SFM), European Hygienic Equipment Design Group (EHEDG), the Commission Europienne DEXII and, of course, IAMFES. I had the privilege of not only representing IAMFES at this prestigious meeting, but also serving on the Scientific Program Committee, co-chairing one of the symposia and helping to judge the poster presentations.

The involvement of IAMFES as a co-sponsor of this international meeting was mutually beneficial. Certainly from ASEPT's perspective, our presence added to the international flavor of this meeting. This was reflected by the geographical distribution of the more than 250 attendees. As would be expected, about one-half of the registrants were from France, with another one third from other European countries, including the UK, Belgium, Germany, Poland, Italy, The Netherlands, Croatia, Sweden, Switzerland, Denmark, Finland and Norway; however there were also representatives from Canada, the United States, Malta and Australia. On the other hand, our association with this meeting enhanced the image of IAMFES as an international organization.

I not only brought greetings from IAMFES to the attendees, but I also used the opportunity to discuss IAMFES with many individuals. A number of those I spoke with were already aware of IAMFES and had attended our annual meetings. There were others, however, who were not quite as familiar with our association. After our discussion, they expressed an appreciation for the unique scope of IAMFES in bringing together Industry, Government, Academia and Research Scientists under one roof. Many of those I talked with indicated that their attraction to IAMFES was related to the high quality of the journals, *DFES* and *JFP*. (All of the copies of these two journals, which were put out for display disappeared on the first day of the conference.) Quite a few of those I talked with commented that one of the best aspects of the annual meetings was the limited number of registrants (900-1000). Such relative intimacy, at a major scientific conference gave attendees ample opportunity to meet informally with colleagues and visit with vendors. The Professional Development Groups were also mentioned frequently as a valuable opportunity to meet and exchange ideas on a slightly more formal basis. The meeting also highlighted the 3-A Standards and their relationship with IAMFES.

If IAMFES is truly interested in expanding its international membership, we must have a sensitivity to the needs of our international colleagues. For example, in Europe, August is the traditional month for vacations and the end of the academic year, and would be a more appropriate time for our Annual Meeting for our European members. We will need to identify and nurture key players in the European scene and encourage the development of local, rather than regional affiliates e.g., in France, the UK, Germany etc. as opposed to a "European" affiliate. In this regard, ASEPT in France seems a natural focal point for a French affiliate and I have initiated discussion with ASEPT on this possibility. I will continue to pursue this opportunity with ASEPT representatives during our Annual Meeting in Seattle. There is no time like the present to make the Association of Milk, Food and Environmental Sanitarians truly International.

Support Your IAMFES Foundation Fund

To support the IAMFES Foundation Fund, send donations (**marked Foundation**) to: IAMFES, 6200 Aurora Avenue, Suite 200W, Des Moines, IA 50322-2863

What is the IAMFES Foundation Fund?

The Foundation Fund is supported by membership of IAMFES sustaining members. Sustaining members are corporations, companies and individuals whose business interests reflect the goals and mission of IAMFES. Funds in the Foundation are kept totally separate from the operating funds of IAMFES and are used for worthy causes which enrich the Association.

What does the Foundation Fund support?

Revenue from the Foundation Fund currently supports the IAMFES:

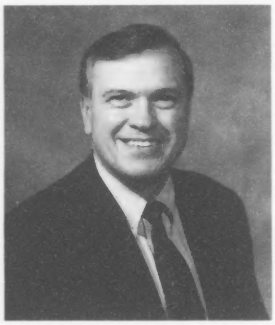
- Ivan Parkin Lecture
- Audio-Visual Lending Library
- Developing Scientist Oral and Poster Competition
- Shipment of volumes of surplus JFP and DFES journals to developing countries through FAO in Rome
- Recruitment of exceptional speakers for IAMFES Annual Meetings on late breaking topics

Why should I contribute to the IAMFES Foundation Fund?

Any contribution, no matter how large or how small will help build a secure Foundation for the future of IAMFES. The future of IAMFES depends on how well we can meet the needs of our membership in providing educational programs, journals, products, and services, and on how well IAMFES fulfills its mission. The Foundation Fund was created to provide a long-lasting legacy of information and service for protecting the milk, food, water, and environment throughout the world.

PERSPECTIVES...

From the Executive Director



By DAVID M. MERRIFIELD,
IAMFES Executive Director

"...of cabbages and kings"

"The time has come," the walrus said, "to speak of many things...of sailing ships and sealing wax, of cabbages and kings." Like this quote from a well-known children's poem, the time has come for me to speak of many things.

If you missed the 83rd IAMFES Annual Meeting in Seattle, you missed a major educational and social event in dairy, food, and environmental protection. Although our October issue of *DFES* will feature the meeting, I'd like to give you a sneak preview of several things that happened. All attendance records were broken with more than 960 registrants enjoying over 250 technical and educational presentations. Sunday was devoted to registrations, committee meetings, a special, late-breaking open discussion on *Cyclospora* which drew nearly 150 attendees, and the opening session. Speaking to a full house, Dr. Joseph Schwarcz, Vanier College and a TV columnist on the Discovery Channel gave a very entertaining and informative presentation, "Sense, Nonsense, and Science" at the Ivan Parkin Lectureship. It was followed by the presentation of the Black Pearl Award to Silliker Laboratories Group, Inc. and the "Oregon Dairy Institute Cheese Tray," a regional treat for the annual cheese and wine reception. The next three days of the conference were filled with technical sessions, poster presentations, symposia, tours, a baseball game, the gala, and our annual business meeting. Capping the conference was the Awards Banquet held on Wednesday evening where very deserving individuals were recognized for their contributions to their profession and IAMFES. If next year's Annual Meeting in Orlando comes anywhere near the resounding success of this year's meeting, it will be one you won't want to miss.

In my report at Tuesday's annual business meeting, I briefly covered several topics, a few of which I'd like to now cover in more detail. Beginning September 1, 1996, there will be small dues and subscription increases so the association can keep pace with the ever-rising costs of doing business. Annual membership dues with *DFES* only, will increase $5 and with both journals, $10. Annual subscription prices will increase $10 for a single journal and $20 for both journals. Small increases will also be applied to our booklets, the 3-A Sanitary Standards, and to the page charges for "general interest" articles printed in *JFP*. Although not always welcome, small, incremental cost increases are necessary to maintain the high quality of service expected of IAMFES. If you would like more information on this subject, give me a call.

For the past several months, both *DFES* and *JFP* should have been arriving in a plastic wrapper called a "polybag." This was done to decrease damage during mailing. Unfortunately, we are now facing postal reforms that have the potential of increasing our mailing costs significantly if we continue to use the polybag. Although it's not a given that "polybagging" will keep our costs high, we are considering the alternative of a heavy paper cover. This cover is less expensive than the polybag and can be processed automatically by machine by the postal service, something they are currently saying can't be done with the polybag, but it may provide less protection. Until we have more specific information, however, we will continue to polybag the journals. If we need to switch to the paper cover, we will first try it on *DFES*. It will be important to get your feedback on the condition of your journal when it arrives in order to know if the cover is working. International mailings of the journals will not be affected by the postal reform and will continue to be polybagged.

Recently, the office and several key staff were put on e-mail. The following addresses are available: IAMFES office, iamfes@dwx.com; Dave Merrifield, Executive Director, iamfesed@dwx.com; David Tharp, Director of Finance and Administration, iamfesdt@dwx.com; Carol Mouchka, Director of Communications/Managing Editor, iamfescm@dwx.com; Rick McAtee, Director of Marketing and Member Services, iamfesrm@dwx.com; Donna Bahun, Publications Specialist *(DFES)*, iamfespb@dwx.com; Julie Cattanach, Member Services Coordinator, iamfesms@dwx.com; and Michelle Sproul, Publication Assistant /Affiliate Contact, iamfesea@dwx.com.

My column is getting quite long now and I need to end it or, like the clams listening to the walrus, I'll get eaten. See you next issue!

Dairy, Food and Environmental Sanitation, Vol. 16, No. 8, Pages 482-485

U.S. Dairy Industry Regulations into the 21st Century

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SUMMARY

With the rapid changes and technological advances occurring in the dairy industry there is a mounting concern that regulatory programs and agencies may not be able to keep pace. Budget and personnel shortages are forcing regulatory agencies to become as efficient as possible in their operation, but current laws and regulations make this a very challenging if not an impossible task. By the year 2,000, current regulatory programs may not be able to offer the level of assurance of milk and dairy product safety demanded by consumers. It is important for the National Conference on Interstate Milk Shipments (NCIMS) to consider becoming the administrative organization for the implementation of all milk and dairy product safety programs. The NCIMS should be an organization which equally represents producers, processors, and state and federal regulatory agencies in the regulation of harvesting, storage, transporting, receiving, processing, and distribution of all milk and dairy products. Each of these groups would undertake specific responsibilities which would be coordinated through the programs and procedures of the Conference.

The NCIMS in the 21st century is envisioned as assuming the role of establishing the regulations and procedures for inspection, product quality, and interstate shipment. Industry would provide insight and guidance in the development and use of risk-based or HACCP-plan-based regulatory procedures. State regulatory agencies would conduct all the physical inspections, including Interstate Milk Shipper (IMS) surveys, and collect all product quality data for submission to a national database. Federal agencies would be responsible for evaluating state programs, training personnel, auditing regulatory programs, and analyzing and preparing reports based on data from a national database.

An effective and successful milk and dairy product safety program in the 21st century would be a cooperative program administered by an organization representing all phases of the dairy industry. Such an organization must be capable of efficiently and effectively regulating and documenting the safety and wholesomeness of all dairy products produced, processed, and distributed.

INTRODUCTION

The dairy industry, ranging from producers to the consumer, is changing rapidly with respect to technology base and perspective. With the year 2,000 approaching there is a concern that regulations and regulatory agencies may not be able to keep pace and provide the public health protection they have in the past. Both federal and state agencies are operating on less funds which usually equates to smaller staffs and less available time. The current trend is to downsize the federal government and pass more responsibility back to the states. State governments also find funds are short, and regulatory agencies are being required to do the same or more with less funding, time, personnel, and other resources.

Most governmental agencies and even the President of the United States list food safety among their top concerns. However, their expectations are not likely to be met in future years, a judgment based on the dairy foods safety regulatory programs as they currently exist. The dairy industry, while a leading industry in sanitation regulations, is finding its safety net, the governmental regulatory programs, all too quickly falling behind. Even the very effective NCIMS is not moving forward fast enough to alleviate this problem in the eyes of many dairy industry leaders.

In the U.S., current industry and regulatory programs do provide consumers with the safest dairy products ever produced anywhere in the world. The big question is how can they continue to meet these expectations in the future with less time, funding, and personnel? The safety of dairy products has always been an important factor in their popularity with consumers. To maintain this confidence in the future, dairy regulatory programs will need not only to undergo a change in regulations and responsibilities, but also must be able to recognize who is best suited to administer each phase of a reliable milk and dairy product safety assurance program.

THE NATIONAL CONFERENCE ON INTERSTATE MILK SHIPMENTS

The NCIMS is a successful program which has provided all parts of the dairy industry with input into the regulation of Grade A milk and dairy products, as provided by the *Grade A Pasteurized Milk Ordinance* (PMO) *(3)*. The PMO has been adopted by all states and some territories either by reference or through laws and regulations. This document is the backbone of all the dairy product safety programs currently in existence. The U.S. Department of Health and Human Services, Public Health Service, Food and Drug Administration, publishes, maintains and oversees the use of the PMO in conjunction with the NCIMS Procedures Manual *(4)*.

Manufacturing Grade milk and dairy products are, for the most part, regulated by the states under laws and regulations adopted from the United States Department of Agriculture (USDA) Agricultural Marketing Service document *Recommended Requirements for Milk for Manufacturing Purposes and its Production and Processing (2)*. While many of the Manufacturing Grade requirements mirror those in the PMO, it still remains a separate program under a different federal agency. There have been attempts to bring all or part of the Manufacturing Grade program under the NCIMS, but the conference delegates have always voted to keep the two programs separated.

The NCIMS has recognized the need to update its program and procedures as well as to look at major concept changes needed to make the Conference and the PMO more effective in the future. At the 1993 NCIMS the delegates passed *Resolution 5*, which established a study committee to develop a long-range plan. The delegates recognized the importance of keeping the NCIMS moving forward to meet the needs of a rapidly changing industry and the need for regulatory activities to keep pace. The Resolution 5 Committee is moving forward with many good ideas but the current operational structure of the NCIMS is going to make this a very slow and cumbersome process unless some conciliatory changes are made.

The NCIMS Executive Board needs to carefully evaluate whether the conference can afford to move at the same pace it has for the last 40 years or so. It should also determine how to move to a regulatory system based more on risk analysis than on details, debits, and point scores. This system of the future must establish a milk and dairy product safety program capable of documenting its effectiveness.

HACCP programs have impacted some recent actions of the NCIMS, but the main philosophy is still state regulatory inspection with federal surveys to determine compliance. Many of the dairy processing plants have established their own HACCP programs, thanks to the efforts of industry groups such as the International Dairy Foods Association. Industries using these principles know they are capable of more accurately assuring consumers that they are receiving the safest possible product. Most regulatory agencies also recognize the value of HACCP programs but are unable to take advantage of them, because HACCP formulations or any similar exposition of a risk-based philosophy does not exist in the PMO or in most state laws or regulations.

The NCIMS should provide the leadership to move this concept forward on an accelerated time schedule before state regulatory agencies are put in a situation where they do not have the time or funding to execute an effective dairy product safety program. A number of states are all too quickly coming face to face with this realization.

Industry has stepped forward and taken the leadership in HACCP plans. It is now time for regulators and the NCIMS to recognize this and take advantage of the opportunities such programs offer. FDA is working on the HACCP inspection concept with a number of food processors, one of which is a cheese processor. The preliminary results have been very positive but it would appear FDA is far from being prepared to incorporate HACCP inspections into any dairy regulatory work plan.

The Dairy Practices Council as well as some other organizations are also preparing HACCP guidelines for plants and for farms. These developments could provide some more guidance to the NCIMS in preparing new risk-based inspection programs. Since there is no NCIMS scheduled for 1996, the Executive Board and the Resolution 5 Committee need to review all of these programs and develop a plan to begin introducing risk-based concepts into the Conference at the 1997 meeting. This will not be an easy task, as the structure of the PMO has evolved over many years and is strongly rooted in detailed physical inspections which are rigid and rather inflexible. This process has served the industry fairly well in the past, but it remains very time-consuming and, while adequate, is not the most efficient way to provide the dairy product safety assurance needed in today's marketplace.

In developing a new plan, the NCIMS should keep in mind the role of each regulatory agency and the involvement of the industry. In the past, Conference changes were often made and implemented leaving it to the regulatory agencies and the industry to figure out just how they were going to make it all work. Any future program change should be based on the role of each participant in the NCIMS and should better define the responsibilities of producers, processors and state and federal regulators prior to final Conference action. The NCIMS needs to seriously

consider what it will take for the Conference to become the future coordinating or administrative organization which operates the entire milk and dairy product safety program in the United States.

THE FUTURE ROLE OF STATE REGULATORY AGENCIES

States are continually facing reductions in funding, which always translate to fewer sanitarians and inspectors to address regulatory enforcement. This situation results in a never-ending struggle to meet the requirements of the NCIMS and the PMO to avoid the infamous "Black Star" for noncompliance as set forth in NCIMS procedures.

The mission of all state regulatory agencies is to protect the public health through the assurance of the safety and wholesomeness of dairy products. With risk-based and performance-based inspection procedures these assurances can be met using less time and fewer human resources. However, this would require some of the following changes in most state programs:

1. New and more readily available training for inspection personnel to facilitate changing to a risk-based system.
2. A uniform or compatible computer system for all states to record and report inspection and product-quality data.
3. A national database reporting system which will provide ease and convenience for collecting and reporting state inspection and product quality data.
4. A means to use industry HACCP data in the evaluation of a plant's or farm's ability to produce a safe product in compliance with the requirements of the NCIMS.
5. Uniform regulatory programs between all states and involving all dairy products under procedures set forth by the NCIMS.
6. A uniform program to initiate corrective action which can serve to document follow-up to the FDA or other appropriate agency.

The major role of state regulatory agencies would be to provide the data which would indicate each farm and plant is producing or processing safe milk and dairy products. This would be accomplished using the most efficient risk-based regulatory programs possible as established and administered by the NCIMS. The inspection and quality results obtained under this program would be submitted to a national database. State agencies currently record similar data but there has never been a means to collect this information or use it to better document the safety of milk and dairy products across the U.S. In a recent survey of state regulatory agency programs *(1)* of the 40 states responding almost all indicated a willingness to share on a national basis a summary of their yearly activities. The NCIMS should determine how such a national data system should be developed and implemented and who would be the best to complete this task.

THE FUTURE ROLE OF FEDERAL REGULATORY AGENCIES

There should be one federal agency whose main task is to oversee the safety and wholesomeness of all milk and dairy products. The FDA has a memorandum of understanding with the NCIMS *(4)* which provides for their participation in the procedures and provisions relative to the Conference, the PMO, and related documents. USDA does participate in the NCIMS through representation on the Executive Board, but Manufacturing Grade milk and dairy products are not part of the Conference Procedures or the PMO. It is probably time to reassess and bring this grade of milk and these dairy products into the NCIMS. These processes and products need to be involved in any new risk or HACCP- based inspection program and included in any data collection and reporting system established by the Conference.

With continuing reductions in funding, the FDA will not be able to maintain their current oversight program for Grade A milk, let alone maintain their limited inspection and sampling program for non-IMS dairy plants. The USDA continues to struggle with its "voluntary" inspection program for manufacturing plants due to budget problems, increased fees, and fewer government purchases. Federal budgeting will eventually render these current programs ineffective and force governmental agencies to adopt some new and less costly system capable of providing the needed documentation of the safety of all milk and dairy products. It is important for the NCIMS to be in a position to provide the administrative leadership for such a program.

The FDA's future role in milk and dairy product safety oversight should change and become one of evaluation, training, and assistance along the following guidelines:

1. To administratively provide for the states to conduct all physical inspections of dairy farms and plants including those within the IMS program under risk-based procedures established by the NCIMS;
2. To develop an audit system to evaluate state regulatory programs using risk-based or HACCP-program-based principles and procedures;
3. To conduct in-depth annual evaluations of state regulatory programs to assure uniformity and compliance with the NCIMS programs and procedures to include a detailed report back to each state;
4. To conduct or provide for special training as needed to maintain or improve the ability of state regulatory agencies to conduct inspections, evaluate products, and determine compliance within the requirements of the NCIMS;
5. To assist in the development and maintenance of a computer system/program which will provide states with the necessary software to collect and report all inspection and survey data to a national database;
6. To analyze this database information and prepare reports on the status of dairy farms, dairy plants, and dairy products as necessary to document the safety and wholesomeness of milk and other dairy foods;
7. To train and certify new state and federal IMS personnel and to conduct recertifications through training workshops and evaluation audits of past performance and submitted reports;
8. To continue to provide back-up expertise and assistance to state agencies as needed to help them con-

duct investigations and obtain corrective action; and

9. To audit corrective actions taken by the states and be prepared to take appropriate action on violations not addressed by state regulatory agencies.

It is important for the FDA's role to become one of evaluation, training, and assistance to promote uniformity and provide documentation on the safety and wholesomeness of milk and dairy products. This would continue the same task and mission which has always existed for this agency, except that it would now include more administrative direction from the NCIMS.

THE FUTURE ROLE OF THE DAIRY INDUSTRY

For the most part, the industry has always been the receiver with little or no input when it comes to regulatory programs. Producers and processors are represented in the NCIMS on councils and committees but have no final voting rights. They are left with only the ability to lobby the voting delegates on proposals related to their interests. Therefore, their input is generally limited to the front end of the current process and is usually rather limited. In recent years dairy processors have taken on much of the responsibility to document the safety of their products but they have received only limited acknowledgment of their efforts from regulatory enforcement programs. For this and other reasons industry has been reluctant to share the results of their quality and safety programs with regulators.

HACCP programs have been implemented by many plants in recent years and when used properly can provide great insight into a processor's ability to produce a safe and wholesome product. Regulatory agencies could learn much about a processor's ability to produce safe products by developing an inspection system which incorporates this same philosophy. By sharing programs with regulatory agencies, industry would be provided with an inspection system in which they would have direct input. This could be accomplished by the NCIMS providing the industry with a more appropriate share of the responsibility for the administration of future programs, specifically inspection procedures.

Regulatory agencies will need to develop a greater trust in the industries' ability to regulate themselves through HACCP programs. Industry, on the other hand, will have to prove to regulatory agencies they can cooperatively work with the NCIMS and take responsible action without waiting to be forced by some regulatory enforcement policy. There will need to be a set of records available from industry which contains adequate data and product test results to provide the documentation necessary for a regulatory agency, using a risk-based inspection, to certify the safety of all products being manufactured.

Farms present more of a problem, as producers are currently less prepared to take on the responsibility of documenting milk quality and safety and to recognize and correct problems without direct regulatory involvement. The Performance Based Farm Inspection Program is a start, and with additional changes in the NCIMS and PMO, producers can become part of a risk-based or HACCP inspection program. It is very important for the NCIMS not to lose sight of this fact and to plan to establish programs which will provide producers, as well as processors, with an active part in the administration of any new milk safety program.

CONCLUSION

There is nothing radical or magical about these proposed changes in dairy regulatory programs. Like many other future trends, it is just another new and hopefully more efficient way of documenting the protection of public health that industry and regulatory bodies have always provided. It will call for a new level of cooperation and uniformity in which all parties must participate as one unit to efficiently carry dairy regulatory programs forward into the next century.

For milk and dairy product safety beyond the year 2,000, industry becomes the provider, state regulatory agencies the overseer, and federal government the auditor, with all parties unified under the NCIMS. The following are important key points toward making such a model work:

1. The NCIMS should be the administrative organization for all milk and dairy product safety programs and should actively involve industry as well as state and federal agencies in all phases of its operation.

2. Future regulatory programs will be risk-based or HACCP programs.

3. States will operate as the lead regulatory agency for inspection, survey, and enforcement action for all dairy facilities and products.

4. Federal agencies will evaluate programs, train personnel, collect and disseminate data, and provide assistance in investigations and corrective actions.

5. All milk and dairy product safety programs will be established and conducted in a uniform manner by all participants under the procedures set forth by the NCIMS.

The future of milk and dairy product safety becomes a truly cooperative effort administered by the NCIMS with all parts of the dairy industry sharing in the process of assuring consumers they are receiving the safest and most wholesome products possible well into the 21st century.

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The 3-A Sanitary Standards Program Now and in the Future

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SUMMARY

The 3-A Sanitary Standards Program is a 50-year-old voluntary approach to safeguarding public health and product safety through a unique industry-regulatory program of sanitary standards for equipment used in processing dairy and other foods. An overview of pertinent historical events, goals, and committee structure are covered. The structure and general criteria of the program and the differences between 3-A Sanitary Standards and 3-A Accepted Practices are discussed.

The advantages of the 3-A Sanitary Standards Program to processors, equipment manufacturers, and regulatory officials are listed. The functions of the 3-A Symbol Council and 3-A Symbol authorization procedures are explained. 3-A's interactions with international standards organizations and predictions for the future are presented.

INTRODUCTION

The 3-A Sanitary Standards Program is a voluntary approach to safeguarding public health and consumable products safety. It involves a unique tripartite, industry-regulatory cooperative effort to develop and promulgate sanitary standards and accepted practices for equipment and systems used in handling, processing, and packaging dairy products and other microbiologically sensitive foods.

The 3-A program, which is now over 50 years old, was originated by the dairy industry. The egg-processing industry is now using many 3-A Sanitary Standards and has developed a few additional standards for equipment unique to its industry.

Other food-producing and pharmaceutical industries are using 3-A Sanitary Standards for specifying sanitary criteria. International and domestic dairy- and food-equipment manufacturers are requesting more and more information about the 3-A program. The 3-A Sanitary Standards are in use throughout the United States and many Canadian provinces have adopted 3-A Sanitary Standards as a part of their dairy regulations or are using 3-A criteria as the basis for sanitary inspections.

Dairy-equipment manufacturers throughout the world, and especially in Europe, have been using 3-A Sanitary Standards as a guide for hygienic equipment for many years. The 3-A Sanitary Standards Committees are exchanging information with several European organizations that are developing hygienic standards. One of these groups is the International Dairy Federation's Commission B/Expert Group B36 on Hygienic Design of Equipment Used in Dairy Plants. B36 is evaluating several sources of existing hygienic standards, including 3-A. The 3-A committees are also cooperating with the European Hygienic Equipment Design Group (EHEDG) and the International Standards Organization's Technical Committee 199 Working Group 2 (ISO/TC-199 WG2) in developing sanitary standards for hygienic machinery.

The 3-A Symbol is frequently displayed on dairy equipment, and most U.S. dairy personnel are familiar with it. On the other hand, many may not understand its significance, or how standards are developed and applied.

THE ORIGINS OF THE 3-A PROGRAM

In the early years of the 20th century, differences concerning processing techniques were common in

3-A Standards and 3-A Practices Sections

1. After the title and serial number, one finds the **scope** of the standards or practices. A finite scope is important because it covers where the standards begin and end for the equipment or a system.
2. In the definition of terms it is customary to define the products, equipment and/or product-contact surfaces, the nonproduct contact surfaces, mechanical-CIP cleaning equipment, and any terms specific to the equipment under consideration. In practices, component equipment is listed.
3. The description of permitted materials follows. The material of choice is the 300 Series stainless steel, or cast counterparts to 300 Series, or metal which is equivalent in corrosion resistance to 300 Series stainless steel. Exceptions to these preferred metals are sometimes permitted for essential functional reasons. When rubber and rubber-like materials and plastic materials are permitted for specific applications, they must meet the criteria found in the 3-A Sanitary Standards for these materials. A variety of surface-modification treatments and coatings may be used for specific functional reasons.
4. The section on details of fabrication of equipment considers sanitary design as affected by the manufacturing or fabrication process. Criteria for finish, limitation of radii, self-draining characteristics, accessibility for cleaning and inspection, the design for mechanical cleaning (CIP), floor and wall clearance, the integrity of product- and nonproduct-contact surfaces and references to other 3-A documents are found in most standards. This section is literally the "nuts and bolts" for the construction of the equipment so that it meets sanitary criteria.
5. The appendix is an advisory (informational) section of the standards or practices that always includes references to stainless-steel materials and product-contact surface finish, plus other information unique to the construction, cleaning, and installation of the equipment covered by the standards or practices. Diagrams, if used, are an appendix item.
6. The effective date for new or revised standards and practices is 6 months after final approval.
7. 3-A Accepted Practices may contain at least one additional section on proper installation requirements intended to satisfy public health concerns.

the dairy industry. The states had conflicting sanitary codes, and sanitarians from different regions often applied different criteria during inspections. Equipment literally had to be custom-fabricated to meet state or local regulations. Furthermore, foodborne disease outbreaks were frequently attributed to milk. The dairy industry recognized the need to rectify both a near crisis in dairy sanitation and the multiplicity of designs required to meet varying sanitary criteria. The lack of uniform national standards impeded the shipment of milk and milk products from one legislative jurisdiction to another. This made milk shipment difficult—at times impossible—and responsibility for inspection always fell to regulators in the receiving jurisdiction.

In the 1920s and 1930s the roots of the National Conference on Interstate Milk Shipments (NCIMS) were being set; actual formation occured in 1949. This body represents the cooperative effort of all interested groups engaged in the sanitary control of milk and milk products, including the United States Department of Agriculture (USDA), United States Public Health Service (USPHS), state and local governments, laboratory personnel, and representatives from the dairy industry.

Also in the 1920s, representatives from the International Association of Milk Dealers (now Milk Industry Foundation) and the Dairy and Ice Cream Machinery and Suppliers Association (now Dairy and Food Industries Supply Association, or DFISA) worked with regulatory agents from the International Association of Dairy and Milk Inspectors (now International Association of Milk, Food and Environmental Sanitarians, or IAMFES) to define the problem and to formulate standards. These standards became known as "3-A" for the three associations involved.

The first standards, published in 1929, were concerned with the interchangeability of fittings. The idea of standards specifying criteria for cleanability of the processing equipment gained momentum in the 1930s. Sanitation issues became paramount in 1944, with the formation of the Dairy Industry Committee (DIC) and a commitment of the United States Public Health Service by Surgeon General L. R. Thompson to the 3-A Sanitary Standards Program.

THE 3-A PROGRAM TODAY

Today, "3-A" more correctly stands for three participating interest groups: the Committee on Sanitary Procedures of IAMFES, the USPHS, and the Sanitary Standards Subcommittee (SSS) of the Dairy Industry Committee (DIC).

The DIC consists of five dairy-processor organizations representing users, as well as one representing dairy-equipment manufacturers. The five include the American Butter Institute, the American Dairy Products Institute, the International Ice Cream Association, the Milk Industry Foundation, and the National Cheese Institute. The SSS-DIC has 45 members representing 26 companies. As users, the National Milk Producers Federation and the USDA - Dairy Division participate in the 3-A Sanitary Standards Program.

The sixth group, composed of 60 equipment task committees (experts), is organized under the DFISA Technical Committee and represents the manufacturers of dairy handling and processing equipment. There are about 1,000 task committee members representing 300 to 400 companies, approximately 70 of which are located outside the United States.

The CSP-PHS has 30 members from 10 states, two federal agencies, and IAMFES. This group meets in closed session but frequently calls on

Responsibilities of the 3-A Symbol Council

1. Authorizes a fabricator to display the 3-A Symbol on equipment. To receive authorization, a fabricator must declare that equipment complies with applicable criteria of the appropriate 3-A standards.
2. Publishes the names of 3-A Symbol authorization holders in *Dairy, Food and Environmental Sanitation* twice each year.
3. Monitors the 3-A Symbol for improper or incorrect use.
4. Renews 3-A Symbol authorizations annually.

experts from other committees to advise them on specific proposed changes to standards. Collectively these groups represent the regulatory sanitarian interests.

The foundation of 3-A's success in the United States is threefold. First, each member of the tripartite effort is equally involved in preparing 3-A Standards. Second is the consensual process of the deliberations. Third is the zero-defect goal that leads to high standards for equipment cleanability and product protection. This means that the most advanced state-of-the-art equipment and the most scientific hygienic criteria make the 3-A Program an ultimate foundation for success.

3-A Sanitary Standards and 3-A Accepted Practices are intended to protect dairy and food products from contamination and to ensure that all product-contact surfaces are cleanable and inspectable. Simply stated, the public health protection of surfaces and products is the key issue. Accordingly, hygienic (sanitary) standards should protect public health, protect product quality, be performance-oriented, strive for zero defects, and be based on state-of-the-art technology.

Standards should never provide an economic or competitive advantage, inhibit ingenuity, or be used to restrain trade.

It is fundamental in discussing 3-A Sanitary Standards and 3-A Accepted Practices to bear in mind that they are formulated through voluntary collaboration, using consensus and open procedures with adequate public notice, by the manufacturers of dairy processing and handling equipment, the users of the equipment, and sanitarians. Furthermore, no company is compelled to design its equipment to 3-A Standards. The standards are voluntarily applied; none is imposed by federal law or federally mandated regulation. Concern for public interest, professional pride, and legitimate self-interest are the primary motivating forces which have resulted in near unanimous acceptance of 3-A criteria by equipment makers, equipment users, sanitarians, and regulatory officials.

The difference between standards and practices is that 3-A Sanitary Standards cover a single piece of equipment (for example, plate heat exchangers) while 3-A Accepted Practices relate to a processing system (for example, high-temperature short-time (HTST) systems). Equipment used in a processing system covered by 3-A Accepted Practices must conform to the appropriate 3-A Sanitary Standards.

DEVELOPMENT OF 3-A DOCUMENTS

All standards or practices are developed through a uniform and detailed review of written proposals submitted to the 3-A Sanitary Standards Committees.

Anyone with a legitimate interest in sanitation may make these proposals. Requests for approval are submitted to the 3-A Secretary, who first presents them to the 3-A Steering Committee to determine the priority and scheduling of each proposal, and then assigns them to one of the 3-A Equipment Task Committees.

The 3-A Task Committee meets to prepare a draft or review a predraft document of new or revised standards. Upon acceptance by the Task Committee, the proposed standards are released to the committee representing the processor and/or user interest group (SSS-DIC) for open discussion during the annual meeting of the 3-A Sanitary Standards Committees. Upon acceptance by the Task Committee and the processor and/or user group, the committee representing the regulatory interest group, CSP, reviews the tentative standards in executive session, in concert with USPHS, and issues unified comments to the other two interest groups during a plenary session at the annual meeting. At all three of these steps, tentative standards may be returned to the Task Committee for revision.

Eventually, all three segments are in agreement, and a unanimous decision is sought. The activities of the 3-A Sanitary Standards Committees are reported in the 3-A Progress Report and in *Dairy, Food and Environmental Sanitation*.

In theory, this process may seem simple, but in actual practice the consensual development of the standards or practices requires considerable amounts of painstaking work. Many volunteer hours are required to develop 3-A Sanitary Standards and 3-A Accepted Practices, but the results—sanitary criteria that are acceptable to all segments of this industry—are well worth the effort.

THE SYMBOL COUNCIL

In 1955 the 3-A Sanitary Standards Symbol Administrative Council was formed as a distinct and separate entity from the 3-A Sanitary Standards Committees. One hundred companies hold over 500 authorizations to display the 3-A Symbol on various pieces of equipment. The 3-A Symbol Council consists of eight people, four from IAMFES and four from the DIC. These eight volunteers, known as symbol trustees, are the caretakers of the 3-A Symbol and review possible abuses of its use. Day-to day duties are executed by an administrative officer and a secretary.

The 3-A Symbol Council has no punitive power for noncompliance other than revocation of authorization to use the protected 3-A Symbol. Authorization is a valuable privilege because having the 3-A Symbol prominently affixed to equipment attests to

Advantages of 3-A Standards and Practices

The processor/user benefits because:

1. With equipment components and systems meeting 3-A Sanitary Standards and 3-A Accepted Practices, the system is in compliance with the PMO, USDA Dairy Divisian requirements, and mast ather federal and state sanitary cades.
2. Sanitary design of pracessing equipment and installation assures that the most modern cleaning ond sanitizing methods, materials, and systems are being applied ta in-plant aperatians. The processar knaws the equipment can be cleaned satisfoctarily and can hove confidence in its ability to produce high quolity milk and milk products.
3. Increased ease af efficiency in equipment and system cleanobility means lower cleaning casts, especiolly savings in labor.
4. Inspections will present few problems when equipment ond systems camply with 3-A Sanitary Standords and 3-A Accepted Proctices.

The equipment manufacturers benefit because:

1. The equipment, if designed ond fobricated in canfarmance with 3-A Sonitory Standards, will receive acceptance from pracessors and sanitarions.
2. The development of standordized equipment eliminotes the need for custom-made equipment, with resulting savings in taaling, dies, patterns, on-site retrafitting, and extended delivery times–all of which are extraneaus casts.
3. Advanced study af design and materials has led ta the use af stote-af-the-art technalogy. Far example, 3-A has pianeered criteria far cleanability af multiple-use plastic materials ond for equipment suitable for mechanical cleaning and CIP systems.

The inspector/sanitarian benefits because:

1. Applicatian af unifarm design and construction principles to processing equipment has resulted in mare unifarm and saphisticated requirements by public health afficials.
2. Inspectian pracedures can be refined, thereby increosing efficiency.
3. Sanitory principles pioneered by 3-A can be applied ta other faad handling equipment.
4. Sonitory codes ond guidelines in ather fields are aften based on 3-A cancepts.
5. The standards and the resulting equipment design, which sanitarians helped guide to development, inspire confidence omang inspectars.

its compliance with the specific industry-wide material, design, and fabrication criteria established by the 3-A Sanitary Standards Committees.

Other less tangible benefits are realized because of the cross flow of information between the three interest groups during standards development. The active members of 3-A learn of the constraints facing equipment manufacturers and of the concerns for sanitation among regulatory agencies and processors. But perhaps most important are the personal contacts among key people in the industry. This cooperation enables the industry to keep pace with technology in the unending demand for cleanability and product protection.

But the real beneficiary is the consumer. 3-A criteria, when used with state and federal regulations and a total quality management program, assures that products taste good and are safe. Also, using equipment and systems meeting 3-A criteria results in lower processing costs and savings to consumers. The 3-A Sanitary Standards Program is a win-win program for all.

THE FUTURE

New technology will mandate that new standards or revisions of existing ones be developed. Acceptable finishes and materials may well need redefining. New 3-A Accepted Practices will be established for new processing systems.

Outbreaks of foodborne disease continue at an unacceptable rate (9 million cases, with 9,000 deaths of microbial origins in 1994), suggesting that the 3-A Sanitary Standards Program be expanded to include all foods and consumable products for which there are now no national standards. We are currently developing standards for Italian cheese equipment, a departure by 3-A from machinery used for Grade A products.

By tapping 3-A's established human resources and expertise in voluntary compliance, 3-A offers the logical mechanism for applying similar criteria to other types of food-processing equipment. The meat, poultry, fish, beverage, and other processed-foods industries would benefit from uniform guidelines for cleanability of product contact surfaces. The 3-A committees are considering formally expanding their scope into other food commodities and are currently cooperating with several international standards-writing bodies.

The need for stringent cleanability and product protection criteria is crucial for all food-processing equipment, whether it is found in the United States or in any other country. 3-A was a good idea 50 years ago; it is an even better idea today!

The 3-A Sanitary Standards Program will continue to serve the dairy and other food industries in the future with its zero-defect philosophy. It must be remembered that 98% clean is 2% dirty. The elimination of this 2% is a goal that will greatly advance food safety and public health. But in doing so, we must never overlook the primary goal of getting product from producer to consumer in the safest and most wholesome manner possible.

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PROCESS SLASHES FAT, PRESERVES FLAVOR IN CHEDDAR CHEESE

Most reduced-fat cheese will find some buyers in today's "light" foods market, but one that tastes as good as its full-fat counterpart should fly off the shelves. Food scientists at the University of Wisconsin-Madison Center for Dairy Research have developed a make procedure for 50-percent reduced-fat Cheddar that holds its own in side-by-side comparisons with full-fat Cheddar.

The process skips the wash procedure and modifies the manufacturing schedule, but requires no special equipment. Any cheesemaker making full-fat Cheddar cheese should be able to use it, according to the CDR's Carol Chen and Mark Johnson.

Right now, a good 25-percent reduced-fat Cheddar tastes about the same as mild Cheddar. When you reduce the fat by more than 25 percent, you start to get problems, say Johnson and Chen. The more fat you take out, the worse the problems. Skim-milk cheese is an extreme example – it has poor body and poor flavor, and barely resembles cheese, Johnson says.

"We tested why currently available reduced-fat Cheddar had poor body and flavor. The rinse/wash procedure during curd processing can be one source of problems. Starter cultures and acidity at various manufacturing steps also affected body and flavor," Chen says.

The CDR researchers targeted the rinse treatment and the manufacturing schedule. They skipped the rinse, adjusted acidity and tweaked the timing of the schedule. Their process includes a longer set time; draining, milling and salting at higher than normal pH; and more moisture and higher buffering capacity in the cheese. They used no fat mimetics to replace butterfat. The result: a 50-percent reduced-fat Cheddar made using the same equipment used for full-fat Cheddar.

Our industry advisory committee says the main problem with reduced-fat Cheddar is flavor–both absence of Cheddar flavor and presence of off-flavors," Chen says. Consumer response to reduced-fat Cheddar right now is lukewarm. People are buying it, but that's because they're not tasting it side-by-side with full-fat Cheddar, she says. "We think our reduced-fat Cheddar can stand up to mild to medium full-fat Cheddar in side-by-side comparisons."

Their reduced-fat cheese passed muster with a tough bunch of cheese tasters in the Food Science Department's Sensory Analysis Lab. When they tested the cheese on visitors at the 1995 World Dairy Expo, common comments were "Where can I buy this?" and "This is aged Cheddar."

To introduce people to really good reduced-fat cheese, Chen and Johnson plan to sell their 50-percent reduced-fat Cheddar at the Babcock dairy store on the UW-Madison campus.

It's possible to make reduced-fat Cheddar using a wash schedule, but washed Cheddars tend to develop off-flavors and a weak, mushy body during storage, often before they're sold to consumers, Johnson notes. The CDR reduced-fat Cheddar should have a 9-month lifespan, or better. As it ages, it will develop a balanced Cheddar flavor, not off-flavors.

Chen and Johnson began making unwashed Cheddar cheese about two years ago. They have made about 200 vats of cheese in the CDR's pilot plant. The next step: making a sharp-flavored 50-percent reduced-fat cheese.

The process is patent pending through the Wisconsin Alumni Research Foundation. For more information on the process, contact Carol Chen (608) 262-3268, or Mark Johnson (608) 262-0275. For licensing information, contact James Tretheway at WARF (608) 265-5928.

IAMFES SECRETARY NOMINATIONS DUE FOR 1997 ELECTION

Nominations are now being taken for IAMFES Secretary. This year an industry representative will be elected.

Once all nominations are received by the nominating committee, two persons will be chosen to run for the office. This is a five-year term, moving up yearly until he or she is President of IAMFES, then serving one year after as Past President. The term of office begins the last day of the 1997 Annual Meeting. IAMFES Executive Board Members meet at least three times a year.

The two people selected are placed on a ballot. A winner is determined by a majority vote of the membership through a mail vote in the spring of 1997.

Please send a biographical sketch and photograph **NO LATER THAN NOVEMBER 1, 1996** to the Nominations Chairperson:

Robert Tiffin
Schneider Corporation
321 Courtland Ave. E., Box 139
Kitchener, Ontario, Canada N2G3X8
(519) 885-8284

For more information regarding the duties and requirements of the position, please contact David Merrifield, IAMFES Executive Director, at (515) 276-3344 or (800) 369-6337.

New Members

BRAZIL

Gillian Alonso Arruda
G.A.A. Consultoria Gm Alimentacao
Sao Paulo, S. Paulo

CANADA

Victor Gannon
Health Canada, Lethbridge, Alberta

Carla Ward
Wards Quality Audit
Calgary, Alberta

Rod Worobo
University of Alberta
Saskatoon, Saskatchewan

CZECHOSLOVAKIA

Milos Stepan
Delta Progress, S.R.O.
Kladska, Czech Republik

IRELAND

Derry Delaney
Cork Regional Technical College
Bishopstown, Cork

JAPAN

Toshio Furuya
Japan Food Industry Center
Kamimeguro, Meguro, Tokyo

UNITED KINGDOM

Martin Easter
Celsis Ltd., Cambridge

UNITED STATES

ARIZONA

Virginia Begay
Gric Env. Health Svcs., Sacaton

Gavin MacGregor
Puritan/Churchill Chemical Co.
Tempe

ARKANSAS

Melanie Higgins
Wal-Mart Stores, Inc., Bentonville

Denise Simone
Wal-Mart Stores, Inc.
Bentonville

CALIFORNIA

Phil Crain
Moorpark

Dave Getke
3M, Roseville

Raymond R. Horwath
Puritan Chemical Co.
Granite Bay

Thomas M. Jones
Dried Fruit Association of California
Fresno

Don Zink
Nestle USA, Inc., Glendale

COLORADO

Rhonda Estigoy
Darden Restaurants, Broomfield

DISTRICT OF COLUMBIA

Minnis T. Hendricks, Jr.
FDA–Division HACCP Programs
Washington

FLORIDA

Lucia Beltran
B-Z Consultants, Miami

Keith R. Schneider
ABC Research Group, Gainesville

GEORGIA

Michael C. Mullenix
Lee Laboratories, Grayson

William P. Norman, Jr.
Puritan Chemical Co.
Atlanta

HAWAII

Peter Nishijima
Dept. of Health–Hawaii
Honolulu

IDAHO

Andy D. Pollard
Great Western Chemical Co.
Nampa

ILLINOIS

Vidhya Ganger
Silliker Labs Research
South Holland

Charles Kennett
Kraft Foods, Inc., Glenview

Armand Paradis
PRAX AIR, Chicago

Scott Rambo
Dean Foods Co., Rockford

Marisa S. Riis
Nestle Chocolate & Company
Franklin Park

Cheryl Santucci
Mama Tish's International Foods
Chicago

Deborah Tucker
Chicago Dept. of Public Health
Chicago

IOWA

Karen Harmon
USDA-ARS, Ames

MARYLAND

Anita Okrend
USDA-AMS-STD, Silver Springs

MICHIGAN

Hoyle D. Hill
Difco Laboratories Inc., Ann Arbor

Nadine Sullivan
Difco Laboratories Inc., Ann Arbor

MINNESOTA

Steve Bonfig
3M Microbiology Products, St. Paul

MISSOURI

Judy K. O'Brien
Ralston Purina Company, St. Louis

Glen Taylor
Fantasy-Blanke Baer, Fenton

NEW JERSEY

Jan Brzezinski
Mane, USA, Wayne

Diane Dandorf
Reckitt & Colman Inc., Montvale

Jeffrey C. Holtaway
Turnersville

Sidney Johnson
Monmouth City Regional Health Comm. #1, Eatontown

Joseph R. Rubino
Reckitt & Colman, Inc., Montvale

NEW YORK

Shashi Deshpande
Piepsi CP, Valhalla

Laura Kornstein
NYC Dept. of Health, New York

David Schwartz
Cutter's Edge, Hamburg

Hugh Trenk
Kraft Foods, Tarrytown

OHIO

Cindy Miller
Silliker Laboratories, Columbus

OKLAHOMA

Rob Blackwood
CCHDOC, Oklahoma City

OREGON

Liliya Pirumova
Graziano Produce, Portland

PENNSYLVANIA

Bassam Annous
USDA-ARS, Wyndmoor

Maria Crawford
Keystone Foods Corp., Bala Cynwyd

TENNESSEE

Samuel Beattie
University of Tennessee, Knoxville

TEXAS

Chirag Bhatt
City of Houston, Houston

Gary Deitiker
Texas Tech University, Lubbock

Irma Escobedo
U.S. Army, San Antonio

Gary K. Freedman
Landlock Seafood Company, Inc.
Dallas

Eddie Kirby
The Earthgrains Co., Paris

VERMONT

Karen Schneider
University of Vermont, Rutland

VIRGINIA

Robert W. Custard
Virginia Dept. of Health, Strasburg

Ann Marie McNamara
USDA, Falls Church

WASHINGTON

Barbara Andrews
Yakima Health District, Yakima

Thomas Besser
Washington State University
Pullman

Paul Chudek
Whatcom County Health Dept.
Bellingham

Janice Flesher
Snohomish Health District, Everett

Jeff Weier
Sprague Pest Control, Tacoma

WISCONSIN

Sally Foong
River Falls

David M. Jelle
Foremost Farms USA, Prairie du Sac

Jacqueline Papple
Alto Dairy, Waupun

New IAMFES Sustaining Member

Andy D. Pollard
Great Western Chemical Co.
Nampa, ID 83687

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Gillian Alonso Arruda
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Sao Paulo, S. Paulo

CANADA

Victor Gannon
Health Canada, Lethbridge, Alberta

Carla Ward
Wards Quality Audit
Calgary, Alberta

Rod Worobo
University of Alberta
Saskatoon, Saskatchewan

CZECHOSLOVAKIA

Milos Stepan
Delta Progress, S.R.O.
Kladska, Czech Republik

IRELAND

Derry Delaney
Cork Regional Technical College
Bishopstown, Cork

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UpDates

Sherrill and Bock to Lead DFISA

John Sherrill, President of M.G. Newell Corp., recently elected Chairman-elect of Dairy & Food Industries Supply Association (DFISA), was promoted Chairman when James Dahlke, resigned to accept a position outside the food industry.

William (Bill) Bock, Vice President of Interbake Dairy Ingredients was selected by DFISA's Past Chairmen, and approved through a unanimous vote of the DFISA Board of Directors, to serve as Chairman-elect under Sherrill.

DFISA is an international trade association of more than 850 equipment, ingredient, service and supply companies serving the food, beverage and related sanitary processing industries.

Southeastern Poultry & Egg Association Names New Director of Food Safety

Don Dalton, president of the Southeastern Poultry & Egg Association, announced that Tari P. Kindred, DVM, MS, MPH, became the association's first director of food safety on June 10. She will work closely with Dr. Charles Beard, vice president for research and technology.

As director of food safety, Dr. Kindred will provide expertise for the Hazard Analysis and Critical Control Points and biosecurity programs that Southeastern will pursue and will develop an industry training program in cooperation with the HACCP Oversight Committee and Southeastern's training department. She also will plan and implement industry testing and monitoring programs to promote food safety.

For the past 11 years, Dr. Kindred has been employed in a variety of positions in the U.S. Department of Agriculture's Food Safety and Inspection Service. She currently serves as chief of the Residue Program Staff in the Science and Technology Program, where she plans and evaluates a multimillion dollar national program designed to identify potentially harmful drug, pesticide, and environmental contaminant residues in meat and poultry products. In addition, she has been responsible for initiating the development of a risk assessment program. She also has served as chief of the Epidemiology Branch and director of the Meatborne Hazard Control Center in Inspection Operations. Prior to going to Washington, D.C., she served as the inspector in charge at numerous poultry processing plants.

Dr. Kindred earned a bachelor of science degree in biology from Virginia Polytechnic Institute, a doctor of veterinary medicine degree magna cum laude and a master of science degree in medical microbiology from the University of Georgia, and a master of public health degree with an emphasis in epidemiology from The John Hopkins University. She is a diplomat and an affiliate in the epidemiology specialty of the American College of Veterinary Preventive Medicine.

Her professional memberships include the American Veterinary Medical Association, the National Association of Federal Veterinarians, the Society for Risk Analysis, and the U.S. Animal Health Association. Dr. Kindred is president of the American Association of Food Hygiene Veterinarians and president-elect of the District of Columbia Veterinary Medical Association. She serves on the working committee of the U.S. delegation to the Codex Alimentarius Commission Committee on Food Hygiene. She has given presentations at national and international meetings and has published scientific papers on food safety, residue programs, and risk analysis.

IFT Names the Society's 1996 Fellows

The Institute of Food Technologists (IFT) has named 12 members as IFT Fellows for their outstanding contributions to IFT and the field of food science and technology. The Fellows and their contributions are listed below.

- Jerry N. Cash, Ph.D., professor and extension specialist, Dept. of Food Science and Human Nutrition, Michigan State University, for his extensive research in the area of tart cherry and potato processing and for extending research results to fruit and vegetable processors nationally.
- Andrew G. Ebert, Ph.D., senior vice president, Kellen Co., Atlanta, GA, for his distinguished career involving the safety evaluation and regulatory compliance of foods and food additives nationally and internationally.
- Glenn W. Froning, Ph.D., professor, Dept. of Food Science and Technology, University of Nebraska, Lincoln, for his contributions related to the color chemistry of poultry meat and the properties of mechanically deboned poultry.
- Virginia H. Holsinger, Ph.D., supervisory research chemist and research leader, Dairy Product Research Unit, U.S. Dept. of

Agriculture, Philadelphia, Pa., for her contributions in the research and development of the processing and utilization of milk and dairy products, whey-soy drink mix and low-fat mozzarella cheese.

• James Jay, Ph.D., adjunct professor, University of Nevada, Las Vegas, for his outstanding research in food microbiology. His book, *Modern Food Microbiology*, in its fourth edition, has been the leading food microbiology textbook since 1970.

• John B. Klis, former director of publications and editor of *Food Technology*, IFT, for his unrelenting service to IFT while maintaining the scientific and ethical integrity of *Food Technology* and the *Journal of Food Science*.

• Manfred Kroger, Ph.D., professor of food science, Dept. of Food Science, Pennsylvania State University, for his significant research in fermented milk products, and his devotion to the IFT Food Science Communicators' program.

• Rauno Andrew Lampi, Ph.D., consultant, Westboro, Mass., for his research to improve military and space meals through flexible packaging of thermo-processed foods, freeze-drying, thermoelectric refrigeration, and electrochemical heating.

• Chang Yong Lee, Ph.D., professor of food chemistry, Dept. of Food Science and Technology, Cornell University, for his significant contributions to the field of plant food biochemistry, particularly involving provitamin A carotenoids and enzymatic browning of fruits and vegetables.

• Dicki Lulay, director, Business Development & Ingredients Sales, Nabisco, Inc., Parsippany, N.J., for her dynamic leadership in the area of technical/business development in the food industry.

• Mary K. Schmidl, Ph.D., vice president of research, Humanetics Corp., St. Louis Park, Minn., for her contributions in the research and development of medical foods.

• Marvin A. Tung, Ph.D., professor and industrial research chair, Dept. of Food Science, University of Guelph, Ontario, Canada, for his understanding of food rheology research and heat transfer studies with steam/air mixtures that provide a sound basis for sterilizing foods in plastic.

The 1996 Fellows were honored at the Opening Session of IFT's Annual Meeting & Food Expo.

Tri-Clover Names Coggins District Manager

The appointment of Martin Coggins as a district manager has been announced by Tri-Clover Inc., an international manufacturer of pumps, valves, fittings and systems for process industries.

In his new capacity, Coggins will serve as a member of Tri-Clover's Team 2000 organization, providing sales and service support to food and dairy processors throughout Missouri, Kansas, Iowa, Nebraska and Colorado.

Coggins joins Tri-Clover with more than fifteen years experience in the food industry, most recently serving as a regional sales engineer with the Paul Mueller Corporation. In that capacity he was based in Springfield, MO.

Tri-Clover is a manufacturer of sanitary stainless steel valves, pumps and fittings, as well as automated flow control and Clean-In-Place systems.

AFFI Promotes Cox to Senior Vice President of Financial Operations

Joanne B. Cox has been promoted to the position of senior vice president of financial operations at the American Frozen Food Institute (AFFI). The announcement was made by AFFI's President and Chief Executive Officer Steven C. Anderson at a recent board of directors meeting. Cox previously held the position of vice president of financial operations.

Cox serves as AFFI's chief financial administrator, with responsibility for fiscal operations. She also handles all financial programs related to AFFI's subsidiaries, as well as other independent organizations managed by AFFI. During her 24-year tenure, she has held various positions in financial operations.

Rondele Appoints New Vice President of Operations

Rondele Foods announced the appointment of Chris Appel to the position of Vice President of Operations.

Mr. Appel will be responsible for all operations-related activities of Rondele Foods which include manufacturing, purchasing, quality and distribution. He will be located at Rondele's Enosburg Falls, Vermont facility.

Prior to joining Rondele, Mr. Appel was Director of Operations for Morningstar West, overseeing operations of three plants on the West Coast with revenue of more than $150 million and approximately 350 employees.

Rondele Foods is an affiliate company of Waterbury Holdings of Vermont, Inc. with general offices in Merrill, WI. Rondele has a broker and distribution system, as well as manufacturing facilities which produce bakers and cream cheese and a premium line of flavored spreadable cheeses. Plant locations are in Merrill, WI and Enosburg Falls, VT. A Sales and Distribution Center is located in Maspeth, NY.

Brick and Claypool Re-Elected by ADPI

Donald L. Brick, Swiss Valley Farms Company, Davenport, IA, was re-elected President of the American Dairy Products Institute during the association's 10th Anniversary Annual Meeting held last week in Chicago. Brick, a member of the ADPI Board of Directors since 1986, has served on the Institute's Executive Committee since 1987; he served as ADPI Vice-President in 1993 and 1994 and was elected President in 1995.

Re-elected as Vice-President was Dr. Larry L. Claypool, Mid-America Dairymen, Inc., Springfield, MO. Claypool was first elected a Director of the American Dairy Products Institute in 1985. He has been a member of the ADPI Executive Committee since 1987, served as ADPI Secretary in 1993 and 1994, and was elected Vice-President in 1995.

Other Institute Officers re-elected were: Secretary, Edward R. Kerr, Grande Cheese Company, Brownsville, WI and Treasurer, John P. Speiser, Diehl, Inc., Defiance, OH.

Elected to serve as members of the Institute's Executive Committee were the above-named Officers and Directors Lee E. Blakely, Dairyman's Cooperative Creamery Association, Tulare, CA, Mark Davis, Davisco International, Inc., Le Sueur, MN, Michael P. Fronk, Land O' Lakes, Inc., Minneapolis, MN, John A. Hardy, Foremost Farms USA, Bamboo, WI, Harlan H. Mammen, Associated Milk Producers, Inc., New Ulm, MN, William J. Merrick, III, Merrick's, Inc., Middleton, WI, H. Jack Pollei Waterford Food Products, Inc., Fond du Lac, WI, Richard W. Stammer, Agri-Mark, Inc., Lawrence, MA, John F. Underwood, Darigold, Inc., Seattle, WA, John D. Whetten, Dairy America, Inc., Dublin, CA, and Walt W. Wosje, Michigan Milk Producers Association, Novi, MI.

McMahon Elected to ADPI Board of Directors

Ken McMahon, General Manager, Ellsworth Cooperative Creamery, Ellsworth, WI, was elected to the Board of Directors of the American Dairy Products Institute, during the Institute's 10th Anniversary Annual Meeting held in Chicago last week. McMahon joined Ellsworth Cooperative Creamery in 1994. He previously had been with Associated Milk Producers, Inc. for 25 years.

The American Dairy Products Institute was founded in 1986 by a merger of the American Dry Milk Institute and the Whey Products Institute. The Institute expanded the scope of its activities when the Evaporated Milk Association merged to become part of ADPI in 1987. As the national trade association of the processed dairy products industry, ADPI represents firms associated with processed dairy products in all matters affecting the industry including government liaison, market development and promotion, product standards, and consumer relations. The American Dairy Products Institute is headquartered in Chicago; its Chief Executive Officer is Dr. Warren S. Clark, Jr.

World Dryer Appoints Bruce Bohner

David Ring, Vice President, Sales & Service for World Dryer Corporation, has announced the appointment of Bruce P. Bohner as the new Southern U.S. Regional Sales Manager based in Atlanta, Georgia.

Bruce's new position encompasses sales activities for the complete World Dryer and Electric-Aire product lines, including hand sanitation equipment. Bohner's duties include managing manufacturers multi-line representatives, handling national accounts, creation of product demand, conducting sales meetings, rolling out new products, and promotions to World Dryer reps and distributors.

Call for Cover Photos!

In keeping with our "look," *Dairy, Food and Environmental Sanitation* is constantly seeking interesting and visually stimulating photographs for our covers. If you have a **four-color** photo that is pertinent to the industry, and would like us to consider it for publication, please submit it along with a description of the photo and any credits to:

Publication Specialist
Dairy, Food and Environmental Sanitation
6200 Aurora Ave., Suite 200W
Des Moines, Iowa 50322-2863

Please note: unless otherwise requested at the time of submission, all photos become the property of *Dairy, Food and Environmental Sanitation* and will not be returned.

Custom Control Products, Inc. Awarded Patent for Pasteurization Control System

The United States Patent Office has awarded Custom Control Products, Inc. a patent for an Apparatus and Method for Controlling a Pasteurizing System (Patent 5,503,064). This invention is a device that controls a system used to pasteurize a liquid or semi-liquid food product such as milk or raw eggs. This new concept combines state of the art high technology with "think simple" efficiency, resulting in an all new standard pasteurizing package that meets all applicable FDA and 3-A/PMO guidelines for processing Grade "A" milk.

The Milk Safety Branch of the U.S. Food and Drug Administration (FDA) has established very high standards to ensure that pasteurizing systems produce products that are safe for human consumption. The most common modern pasteurization system is known as the high temperature short time (HTST) system. This HTST system pasteurizes products by maintaining a temperature level of about 162°F for a minimum of about 16-17 seconds.

Custom Control Products' HTST Pasteurizing System was primarily built on this principle and Custom Control Products' powerful Flow Diversion Valve Controller (FDVC) (Patent 5,054,385). The FDVC plays an integral part in the pasteurization process. The flow diversion valve controls the flow of the pasteurized product to the holding tanks. If it doesn't meet pasteurization standards, the FDVC diverts the unpasteurized product back through the heat exchanger until it does. Custom Control's FDVC uses an Allen-Bradley SLC-500 programmable logic controller (PLC) that determines whether a product has been pasteurized or not. The "Perfect" HTST system

controls: main HTST functions, raw and holding tanks selections, pumps and valves, product selection, batch selection, hot water set, flow diversion valve, CIP operations, vitamin solution dispenser, and report generation.

CCPI's HTST control system has an operator interface screen (OIT) that helps the operator choose the correct operations in a logical sequence, thus making it is *very* easy to use. One of the screens depicts the HTST system components and piping, making it very easy for the operator to see whether the intended operation is actually occurring.

Custom Control Products, Inc. provides quality control systems and auxiliary products, backed by personalized professional service, to the dairy, food, beverage, industrial and pharmaceutical industries. For further information, contact Custom Control Products, Inc., 1300 N. Memorial Drive, Racine, WI 53404, 414/637-9225.

NAMA Publishes New Certified Listing Book

For almost 40 years, the vending industry has had a voluntary machine evaluation program to enable equipment manufacturers to build machines in conformity with U.S. Public Health Service (USPHS) sanitary requirements.

From only a dozen or so manufacturers and their machines listed in the first evaluation book, the program has grown today to include more than 50 manufacturers with hundreds of different models of vending machines listed in the current book which has just been published by the National Automatic Merchandising Association (NAMA).

The machine evaluation program allows vending operators, customers, public health, military and other user groups to identify those machines that meet a voluntary industry standard. Called the *NAMA Standard for the Sanitary Design and Construction of Food and Beverage Vending Machines*, it was developed by and is kept current with the active participation of NAMA's Automatic Merchandising Health-Industry Council (AMHIC), comprising state and federal regulatory officials, vending operators, machine manufacturers and industry representatives.

The 1996-97 edition of the *Listing of Certified Food and Beverage Vending Machines* includes a full listing of each manufacturer's certified models and the dates they first were certified to meet the requirements of the standard. The listing book is published every other year with supplements issued for new models periodically.

Manufacturers who voluntarily participate in the program have their models tested initially and then annually by independent evaluators contracted by NAMA and AMHIC. After passing the evaluation, manufacturers are issued *Letters of Compliance* for the specific models involved and are allowed to display the NAMA Service Mark on or near the machine identification plates.

AMHIC meets at least twice yearly to review the program, monitor its various aspects, and evaluate the standards. In late 1995

AMHIC established a new category for machines dispensing frozen food and set standards for their temperature-holding ability. Additionally, performance requirements for refrigerated food machines were increased.

For more information about the NAMA Vending Machine Evaluation Program, the Construction Standard, or AMHIC, contact Larry M. Eils, director of health, safety and technical standards for NAMA at its Chicago headquarters 312-346-0370.

Selecting Silicone Antifoams & Release Agents for Food Processing & Packaging Simplified by OSi Specialties Group

Witco's OSi Specialties Group has issued a brochure on its silicone antifoams and release agents for food processing and packaging applications. The tool explains how to select the right product for specific applications, includes information on regulatory compliance, and provides details on how to test the effectiveness of the products in a customer's application.

Controlling unwanted foam in food processing and packaging applications helps increase the efficiency of the process, increases the capacity of processing equipment and facilitates plant clean up. However, in this tightly regulated industry, effectiveness is not enough; products must also comply with strict FDA, BATF and USDA regulations and some must be Kosher-certified, as well.

For additional information about OSi Specialties products, or to ask questions specific to our application, call the Foam Control Information Center Hotline at (800) 295-2392 (outside the U.S. and Canada, call (607) 974-8131).

AFFI Says OSHA Proposal Would Increase Reporting Requirements and Violate Privacy

In comments to the Occupational Safety and Health Administration (OSHA), the American Frozen Food Institute (AFFI) commended the agency for its efforts to clarify current injury and illness reporting and record keeping requirements of the Occupational Safety and Health Act, but objected to draft provisions that would impose inappropriate burdens on businesses.

Among AFFI's concerns are draft provisions to broaden criteria for recordable and reportable injuries or illnesses. AFFI said that by focusing only on injuries and illnesses that are disabling, serious, or significant, the reporting and record keeping program would be easier to understand, would generate more results, and would help alleviate some of OSHA's administrative burdens.

According to AFFI, the proposed rule would also require corporate officers to certify the accuracy and completeness of daily incidence reports. "In many instances the corporate officer could not know, with complete certainty, the accuracy and completeness of documents that record day-to-day events, particularly when the corporate officer is not responsible for day-to-day operations," AFFI said.

AFFI also objected to a provision that would grant virtually unrestricted access to employees' injury and illness records. AFFI said the proposed rule would allow employees, former employees, and their representatives access to supplementary injury and illness records, currently available only to government officials, which would compromise an employee's right to privacy. Personal information such as the person's name, home address, and any medical conditions that may be disclosed in the reporting process would be required on the proposed incident reports.

In 1971, OSHA published the occupational illness and injury recording and reporting regulation, intended to increase employer and employee awareness of the types of injuries and illnesses that occur in the workplace, promote adherence to safe work practices, identify workplace hazards, facilitate health and safety inspections by OSHA compliance staff, and produce statistical data on the incidence and nature of workplace injuries throughout the country.

FDA Solicits Comments on Ruminant Protein in Ruminant Feed

In the May 14, 1996, *Federal Register*, FDA published an Advance Notice of Proposed Rulemaking (ANPRM) soliciting comments on the issue of using protein derived from ruminants (for example, cattle, sheep, and goats) in ruminant feed. Animal feed containing protein derived from ruminants may contain the disease agent that causes transmissible spongiform encephalopathies (TSE's), such as bovine spongiform encephalopathy, in animals. This action is being taken to protect the health of animals and to reduce any potential risk which might be faced by humans.

In the *Federal Register* of August 29, 1994, FDA issued a proposed rule declaring that specified offal from adult (more than 12 months of age) sheep and goats is not generally recognized as safe for use in ruminant feed and is an unapproved food additive when added to ruminant feed. FDA proposed this action because the specified offal may contain the agent that causes scrapie, a TSE of sheep and goats.

Since the proposal was issued, the Agency has been evaluating the comments submitted on the proposal, monitoring the scientific advances made in understanding the interrelationships among the animal TSE's, and participating in a number of national and international task force/symposia to better understand the bovine spongiform encephalopathy (BSE) epidemic in the United Kingdom (U.K.) BSE has been diagnosed in over 155,600 head of cattle in the U.K. Epidemiological evidence gathered in the U.K. suggests a link between an outbreak of BSE and feeding animals protein derived from ruminants.

In recent months, ten cases of a variant form of Creutzfeldt-Jakob disease (v-CJD) with a new neuropathological profile have been identified in the U.K. The appearance of 10 cases of v-CJD, a spongiform encephalopathy in humans, raises the possibility that they are causally linked to BSE, but a link with BSE cannot be confirmed on the basis of this evidence alone.

No cases of BSE have been diagnosed in the U.S. Despite the fact that there is no problem with BSE in the U.S., the Agency believes it would be prudent to take action to ensure that BSE will not become a problem. FDA is interested in receiving information and comments to use in assessing whether protein derived from ruminants should be considered not generally recognized as safe for use as a ruminant feed or prior sanctioned for such use and subject to food additive regulations in the Federal Food, Drug, and Cosmetic Act (the Act). Under this provision of the Act, unless the protein derived from ruminants could be determined to be safe, use of these ingredients would cause the feed to be adulterated.

FDA is requesting scientific and economic information and other comments relating to the prohibiting of ruminant protein in ruminant feed. Additional information about the notice can be obtained in the *Federal Register* or by contacting Dr. George Graber, Center for Veterinary Medicine. HFV-220, Food and Drug Administration, 7500 Standish Place, Rockville, MD 20855.

Penn State Dairy-Map Profitability Program Hires Regional Coordinator

Dairy-MAP, a program developed by Penn State's College of Agricultural Sciences to help boost the profitability of Pennsylvania's dairy farms, has added a new staff member. John Rutherford, extension associate in dairy and animal science, has been named Dairy-MAP's western regional director.

Rutherford will help to maintain communication with local Dairy-MAP teams, industry partners and faculty at Penn State's University Park Campus. He also will coordinate program scheduling and promotion.

Dairy-MAP, which stands for Dairy Management and Profitability, helps producers learn up-to-date business management skills tailored specifically for the dairy industry. Each Dairy-MAP workshop features six to eight hours of instruction, split over two sessions held one week apart. Between sessions, participants do homework to help them begin applying business concepts on the farm.

Rutherford, who works from the Penn State Cooperative Extension office in Indiana County, will assist in producing high-quality materials for marketing and delivery of the Dairy-MAP program. He also will conduct educational workshops as part of a team, help teach Dairy-MAP personnel, and summarize program evaluations. For more information, contact John Rutherford at (412) 349-1149 or Lisa Holden at (814) 863-3672.

Experienced Business Executives Needed for Unique Volunteer Opportunities in Central Europe and Russia

In response to steadily increasing requests for U.S. volunteers with senior-level experience in the cold storage/frozen food processing and packing industry, the Citizens Democracy Corps (CDC) is intensifying recruitment efforts for its Enterprise and Economic Development Program with an emphasis on these areas of specialization. CDC is a nonprofit organization dedicated to mobilizing American volunteers to assist the development of market economies in Central Europe and throughout Russia.

CDC's Enterprise and Economic Development Program provides an opportunity for U.S. volunteers with senior-level managerial skills to act as "Entrepreneur Advisors" and assist small and medium-sized companies in these newly democratic countries. Through its field offices in Warsaw, Bucharest, Sofia, Moscow, St. Petersburg, southern Russia, Siberia, and the Russian Far East, CDC identifies promising businesses and conducts a thorough due diligence on these potential host companies.

Currently CDC has exciting opportunities in Poland with a company providing cold storage services and manufacturing of frozen fruit and vegetables. The ideal advisors for these assignments will have experience in general management, marketing and sales.

Qualified volunteers are carefully matched with host companies whose requests for

assistance most closely fit the individual's interests and skills. Due to the challenges inherent in these assignments, volunteers are asked to serve generally for up to six weeks. Housing, local transportation and interpreter services are provided by host companies. Airfare and program coordination are provided by CDC. Volunteers are asked to cover meals, health insurance and incidentals.

Individuals interested in the program should send their resume to the Citizens Democracy Corps, 1400 Eyes St. N.W., Suite 1125, Washington, D.C. 20005. Telephone (202)872-0933 or 800-394-1945.

FDA Publishes Proposed Rule on Extralabel Drug Use in Animals

In the May 17, 1996 *Federal Register*, FDA published a proposed rule to allow veterinarians to prescribe extralabel uses in animals of approved animal drugs and human drugs under certain conditions. This proposed rule was developed to implement the Animal Drug Use Clarification Act (AMDUCA), which was signed into law on October 22, 1994. AMDUCA was designed to provide veterinarians with greater flexibility by authorizing use of approved drugs under conditions for which no drugs are approved. AMDUCA will become effective after the publication of the final rule implementing the statute.

Prior to the enactment of AMDUCA, the Federal Food, Drug, and Cosmetic Act (the Act) required users of approved new animal drug products to follow the exact directions on the labeling of the drug. This extralabel use restriction precluded use in species or for indications (disease or other conditions) not listed in the labeling, use at dosage levels higher than those stated on the label, and other extralabel purposes. In addition, the Act did not provide for the use of human drugs for treating animals.

Once these proposed implementing regulations are adopted as a final rule, the Act will permit veterinarians, like physicians, to prescribe extralabel uses of approved drugs for their patients. Although certain restrictions will be placed on veterinarians prescribing animal and human drugs in an extralabel manner, these restrictions generally apply only to the use of drugs extralabelly in food-producing animals. A key constraint is that any extralabel use must be by or on the order of a veterinarian within the context of a veterinarian-client-patient relationship.

AMDUCA includes a number of provisions that permit the Agency to restrict extralabel use in certain circumstances. For example, if there is a finding that there is a reasonable probability that an extralabel use may present a risk to public health from drug residues in animal-derived food, the Agency may establish a safe level for a residue for such extralabel use by regulation or order and may require the development of analytical methods for residue detection. If, after affording an opportunity for public comment, FDA finds that an extralabel animal drug use presents a risk to public health or that no analytical method has been developed and submitted, the Agency may prohibit such extralabel use. In addition, AMDUCA states that the Agency may set forth requirements with respect to access to records of veterinarians to ascertain any use or intended use that might present a risk to public health.

Neither AMDUCA nor the proposed implementing regulations are intended to lessen the responsibility of the manufacturer, the veterinarian, or the food producer with regard to drug residues. Under AMDUCA and this proposal, any amount of residue resulting from an extralabel use would constitute a violation of the Act if a safe level or tolerance has not been established.

AMDUCA's legislative history suggests that Congress intended AMDUCA and its implementing regulations to codify FDA's existing discretionary policies with respect to extralabel drug use. These discretionary policies had recognized the necessity for extralabel use as part of a veterinarian's practice, and had established policies and procedures permitting the Agency to exercise enforcement discretion in certain circumstances. These discretionary policies are expressed in two compliance policy guides, CPG 7125.06 and CPG 7125.35, which recognize the shortage of drugs approved for many therapeutic needs in a number of animal species, especially minor or exotic species. Because the statute does not become effective until publication of the final implementing regulation, FDA's current discretionary policies, as described in these CPG's, remain in effect until the final rule is published. Copies of these CPG's are available from the Communications and Education Branch, Food and Drug Administration, Center for Veterinary Medicine (HFV-12), 7500 Standish Place, Rockville, MD 20855 (telephone: 301-594-1755).

Further information on this proposed rule is included in the *Federal Register* notice. Copies of the proposal are also available from the Communications and Education Branch (address above).

A link to the text of the proposed rule is available for review or downloading on CVM's Internet Website at http://www.cvm.fda.gov. The document as it appears in the *Federal Register* is also available in PDF format from the U.S. Government Printing Office's Access search screen at:

http://www.access.gpo.gov/su_docs/aces/aces140.html (Search on extralabel).

Industry**Products**

G & H Products Corporation

G&H Launches New Range of Horizontally Ported Positive Displacement Pumps

G & H Products Corp. is now launching horizontally ported positive displacement pumps as an extension to the vertically ported GHPD pump line. The GHPD pump with horizontal ports allows easy installation into existing pipelines configured for a horizontally ported pump, and incorporates many of the benefits of the GHPD pump line.

The GHPD pumps were the first in the industry to obtain USDA dairy acceptance for CIP cleaning. They feature a HyClean seal design, profiled o-rings in the pump head, and a heavy duty gearbox to handle a variety of applications. Easy maintenance, low shear and gentle product handling are a result of the innovative design.

There are 6 pump sizes available in a total of 22 models in the GHPD line, including 6 all stainless steel versions for harsh or highly sanitary processing applications. The GHPD pump head and all product contact parts are AISI 316 stainless steel, all are authorized to carry the 3A symbol.

G & H Products Corp., Kenosha, WI

Reader Service No. 356

Compact SSLN700 Reels Ideal for In-Plant and Processing Applications

Hannay Series SSLN700 stainless steel spring rewind hose reels are compact, narrow frame reels designed for a variety of in-plant and processing applications. These rugged reels are used extensively in the food processing and beverage bottling industries for washdown and cleanup operations.

Like all Hannay stainless steel reels, these reels will never rust or stain because the fluid path, frames, discs and drums are all made of solid 304 stainless steel. They can also be easily sanitized, making them ideal for improving efficiency, productivity and cleanliness in food and beverage processing.

These versatile reels feature a spring rewind and handle single 1/4" through 1/2" I.D. hose. The standard inlet is a 90° ball bearing swivel joint with 1/2" female NPT threads; the standard outlet is 1/2" female NPT threads. SSLN700 reels handle up to 45 ft. (13.7 m) of 1/4" and 3/8" hose, and up to 50 ft. (15.2 m) of 1/2" hose. They operate at pressures to 3,000 psi (207 bar) and handle product temperatures from +20°F to +400°F (-7°C to +204°C).

Hannay Reels, Westerlo, NY

Reader Service No. 357

Line of 3-A Sanitary Hydroheaters Available from Hydro-Thermal

Hydro-Thermal Corporation has developed a line of automatic Hydroheaters® approved for all sanitary applications in food, dairy, beverage, pharmaceutical, and biotech processes, as well as other applications where cleanliness is critical. Made of 316 stainless steel, the direct steam injection heaters have no moving parts or orifices in the product contact area, eliminating plugging, fouling, and scaling.

The sanitary models, like other Hydroheaters, transfer heat by injecting precise amounts of steam at high velocity, yielding 100 percent efficient heat transfer. Available in three sizes to fit 1-inch, 1.5-inch, or 2.5-inch connections, the Hydroheaters fit easily into existing piping systems, and can accommodate flow rates up to 180 gpm, steam flow rates up to 13,000 lbs./hr., and maximize temperature rise up to 250° F, with precise temperature control of ± 1/2°F (1/4°C).

The units can be installed horizontally or vertically, and are the only direct contact steam injection heaters that are self-draining when mounted in either orientation. Hydroheaters are designed to be cleaned in place with no moving parts in the product contact area. Each unit is sealed for external wash down, and can be disassembled or assembled with no special tools for easy internal inspection.

The Hydroheaters are manufactured to 3-A specifications, and are

ideal for any application where hot water is required or where direct steam injection can be used for in-line heating of process fluids or cooling of slurries, providing precise temperature control, uniform heating, and complete cookout.

Hydro-Thermal, Waukesha, WI

Reader Service No. 358

Make Pipe Identification Easy with Valve Tag Stamps from Seton

The American National Standards Institute (ANSI) requires identification of materials in pipes of less than 3/4" (19mm). Using Valve Tag Stamps and blank valve tags from Seton Identification Products allows you to create the valve tags you need right on the job site.

Seton's Valve Tag Stamps are made from durable steel and are available in numbers or letters in character sizes of 1/4" or 1/2". Using a hammer and a blank valve tag, you can create your own custom tags in sharp face gothic lettering. Seton can also provide you with a variety of blank valve tags, in brass, stainless steel or aluminum to fit your application.

Seton Identification Products, Branford, CT

Reader Service No. 359

Reusable Temperature Logger Is Just $49!

Onset Computer Corporation introduces the most cost-effective way to record temperature; the new HOBO® Temp data logger. This miniature, battery-powered data logger is dependable and easy-to-use. Start the logger and offload its data with inexpensive BoxCar® software for Windows or Mac.

The HOBO® Temp data logger measures temperature from -4°F to +158°F (-20°C to +70°C) and stores 1800 data points in 2K of nonvolatile EEPROM memory. The tiny logger (2.375" × 1.875" × 0.75") weighs only one ounce and includes a two year, user-replaceable battery.

Use point-and-click BoxCar® software for Windows or Mac to start the logger, read out the collected data, and view a time-stamped temperature graph. Data is easily transferred to popular spreadsheet programs for further analysis.

Onset Computer Corporation's customers are using more than 100,000 data loggers worldwide in a variety of applications. NASA uses HOBO® data loggers to measure temperatures inside space shuttles and astronauts' space suits. Temperature data collected by HOBO® loggers on a recent mission assisted NASA engineers in designing a new heating system for the space suits. This technology is now available to you at a revolutionary price!

Onset Computer Corporation, Pocasset, MA

Reader Service No. 360

Idetek, Inc.

Parallux™ Detects Antibiotics in Milk

Parallux™ detects antibiotics in milk with unsurpassed simplicity and accuracy. Based on a laser-fluorescence immunoassay system, Parallux automatically provides results in just 3 minutes. It processes and analyzes multiple analyses simultaneously. A single Test Cartridge can screen for up to 6 Beta-Lactam antibiotics, in addition to a wide range of other antibiotics.

Idetek develops, manufactures and sells rapid test kits used for food safety and food quality control. In addition to Parallux, Idetek offers LacTek™ for the detection of drug residues in dairy and meat products, BIND® for the detection of *Salmonella* in just 22 hours, kits for *Staphylococcus* Enterotoxin in foods, and the HY-LiTE bioluminescence systems for in-plant sanitation monitoring.

Idetek, Inc., Westbrook, ME

Reader Service No. 361

Rugged Full-View Visual Flow Indicators Include Impact-Deterrent Shields

Ultra-sturdy investment cast bodies and a shatterproof plastic shield are standard features in the new line of full-view visual flow indicators from L.J. Star, designed to carry 70 psi, 120 psi or 150 psi ratings. These competitively priced units, available in both flanged and threaded designs, use borosilicate glass cylinders and incorporate a number of other standard features that are available only as premium-price options in other lines. And all are immediately available from stock.

Designed to be mounted on-line in process piping systems, these L.J. Star Visual Flow Indicators provide operators a full view of the flow of virtually any process pipeline fluid, while imposing minimal additional pressure-drop on the line.

Two basic styles are available in the new line, plain and drip-tube versions. Plain full-view indicators provide, essentially, a transparent pipeline segment, allowing unobstructed viewing of the process fluid in order to monitor the presence or absence of flow, color, turbulence, clarity, etc. Drip-Tube Indicators, mounted vertically,

provide accurate 360° viewing of very low flow rates or of intermittent flow. Shatter resistant plastic impact-deterrent shields are standard on both styles, providing protection for the glass column.

L.J. Star Incorporated, Fredonia, NY

Reader Service No. 362

Flex-Valve 9500 Series Enclosed Type Pinch Valves with Elastomer Sleeves that Meet FDA Requirements

The Flex-Valve 9500 Series enclosed type pinch valve from Flexible Valve Corporation features a full, round elastomeric sleeve that spans the entire length of the valve and is available in polymers that meet FDA requirements. Durable Van Stone flanges are integral with the sleeve body. Ideal for food and pharmaceutical processing applications, the 9500 Series valves are used extensively for handling liquids, granules, pastes, and other difficult to control flows.

The Flex-Valve 9500 Series is a simple on/off valve that is easy to assemble and cost effective to operate. For flow control or shut off, the rubber sleeve is pinched by injecting air or hydraulic pressure directly between the casing and the rubber sleeve. When the valve is in the open position, the contour of the rubber sleeve assures unobstructed flow without dead spots or cavities.

Flexible Valve Corporation, South Hackensack, NJ

Reader Service No. 363

New Milk & Dairy Product Analyzers from Foss Food Technology

FFT announces the MilkoScan S 50 range of Infra-Red analyzers with capability to measure fat, protein, lactose, total solids & SNF.

Foss Food Technology, Inc.

The instruments are configured to meet diverse needs with modular design allowing subsequent upgrading. With no sample preheating, automatic clean & zero, and up to 10 onboard calibrations, a wide variety of milk & dairy product testing is met. PC compatible with Windows software available.

The instruments are equally suited for QC laboratory, production laboratory, at-line or in receiving areas.

The MilkoScan S 50 range employs AOAC/IDF approved methodology and nationwide support is available from FFT's regionally based support personnel.

Foss Food Technology Corporation, Eden Prairie, MN

Reader Service No. 364

Groen Ball Valves Available with Air Actuation

Groen's complete line of Flush Mounted and In-Line sanitary ball valves are available with a compact air actuator. Available on both 2" and 3" ball valves, the cast aluminum vane type air actuator uses compressed air to open and close the valve.

Groen Ball Valves are precision Investment Cast, machined and finished from all 316 stainless steel. They can be operated manually or ordered with air actuation capabilities. All Groen Ball Valves are USDA approved and are easily disassembled without tools. They are ideal for food, confectionery, drug, cosmetic and many chemical processing applications.

Groen Flush Mounted Ball Valves can be fitted to dish or cone bottom tanks or ordered with Groen's own Premier Line™ or Elite Line™ of hemispheric bottom agitator kettles. Groen In-Line Ball Valves are ideal for product flow control anywhere in a processing line.

Groen's Process Equipment Group, Elk Grove Village, IL

Reader Service No. 365

Cox Lynn™, A Totally New Temperature Logger

COX Recorders introduces its totally new temperature logger, the COX Lynx™. The COX Lynx™ is based on new technology which was pioneered at Refrigerated Transport Electronics, Inc. – COX's manufacturing partner on the project. Refrigerated Transport Electronics is best known for their shipboard reefer container monitoring systems.

COX Lynx™ is currently available in a "one-trip" transit monitoring configuration and in a multi-use model for fixed base and controlled monitoring applications. COX Lynx™ is distinguished by superior temperature accuracy (± 0.25°F/ ± 0.14°C) which is unsurpassed by any other data logging device currently on the market. In addition, COX Lynx™ overcomes the technological limitation of most loggers in that uses special technology which permits exceptional responsiveness to temperature changes. This is important as sluggish temperature response times (which are characteristic of most loggers) may give an inaccu-

rate reading in situations where there is a damaging "spike" of higher temperatures in chilled or frozen commodities. Easy-to-use Windows® software reads, displays, graphs and prints recorded data using an IBM or compatible PC.

COX Recorders, Upland, CA

Reader Service No. 366

Low-Micron Self-Cleaning Filters Never Require A Cartridge Change

The new Acadia CLEARSTAR® self-cleaning filters from Hayward Water Technologies Group remove particles as small as 5 microns from a water supply line. They provide permanent positive protection for sensitive water system components, normally operating reliably and efficiently for years without the waste, mess and maintenance time required with replaceable cartridge filters.

Acadia CLEARSTAR® filters are a solution to particulate contamination problems in water supplies for professional suites, food preparation facilities and laboratories, for example, for any application where RO units serve a critical role, or for systems where flow-restrictors or fine spray nozzles are used.

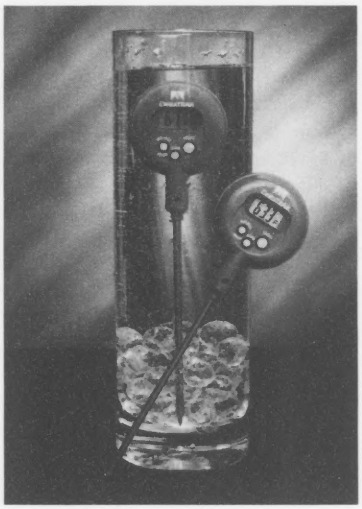
They are equally well suited to use with well water systems or municipal systems, and to supplies with highly variable sediment loading. In such systems, removing low-micron particles from the water supply line can often mean the difference between having a fully functional, trouble-free water system and dealing with an ongoing maintenance headache.

Acadia filters are completely self-cleaning. The stainless steel filter element never needs replacement. Offered with a selection of micron ratings, they provide filtration in the 5 to 300 micron range.

In operation, water flows into the clear plastic filtration chamber, through the permanent filter element where particulates are removed, and then into the system via the outlet connection. There is never any doubt as to whether or not a cleaning cycle is required because the filter element is clearly visible from any angle. And, there is no need to disassemble the filter housing to clean the element. A quick turn of the manifold control handle does the job, briefly interrupting system flow while sending a high-intensity reverse stream of water through the filter element, flushing away accumulated solids. A cleaning cycle typically requires less than a minute to complete.

Hayward Water Technologies Group, Elizabeth, NJ

Reader Service No. 367



Delta Trak, Inc.

New Waterproof Digital Thermometer: A First!

DeltaTRAK's new #12201 Digital Thermometer is the first of its kind that you can actually wash with soap and water! Completely water submersible with digital speed, accuracy and min-max memory, it can perform in so many ways:

- Record the final rinse temperature of your hi-temp dishwasher for proper sanitization. No more glass and mercury!
- As a versatile food thermometer you can use it in steam or wet places.
- Attach to a cord and lower it inside a milk tank to check milk temperature at mid level.
- Leave it in a refrigerator, display case, etc. to check the lowest and highest temperatures.

It's fast, accurate, economical and so easy to use, it's revolutionary!

Delta Trak, Inc., Pleasanton, CA

Reader Service No. 368

G&H Extends Its Centrifugal Pump Range

G&H Products Corp. is adding four additional sizes to its GHH centrifugal pump line. Now, the GHH pump series consists of nine pump sizes; and four different models. In total, 22 pumps are now available in the centrifugal pump line.

The four new sizes added to the GHH line are the GHH 15, 25, 35, and 45, falling mid range between the existing 10, 20, 40, 50, and 60 sizes. With the new pumps, greater sizing precision can be reached for optimum pump selection, increased application efficiency, and in certain cases smaller motors which can decrease operating costs.

The entire line of GHH centrifugal pumps is designed for premium efficiency with very low maintenance. Only one shaft seal is required for all pump models, and interchangeable spare parts can decrease maintenance parts inventories. GHH centrifugal pumps have low N.P.S.H. requirements, and operate with low power consumption at low noise levels. All are constructed of AISI 316L stainless steel, and all are authorized to carry the 3A symbol.

G&H Products Corp., Kenosha, WI

Reader Service No. 369

BusinessExchange

Services/Products

Model III ss x

*U.S Pat. No. 4,380,166

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Model III ss x now shipping!

New adapters** connect directly to HTST's sanitary pressure sensors

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815-726-1683 (Voice & FAX)

**Adapters may be ordered separately–fit all previous models.

Reader Service No. 124

COMPLETE LABORATORY SERVICES

Ingman Labs, Inc.
2945 - 34th Avenue South
Minneapolis, MN 55405
612-724-0121

Reader Service No. 153

Professional Opportunities

ENVIRONMENTAL HEALTH LABORATORY DIRECTOR

St. Louis County Health Department (St. Louis County, Missouri) is seeking candidates to plan, organize and direct personnel and laboratories involved in air pollution, industrial hygiene, milk, food, water and radiological analysis. The successful candidate should have a Doctorate Degree in Analytical Chemistry or a related biomedical specialty and 6 years public health or medical laboratory experience, including 3 years administrative or supervisory capacity. Qualified candidates should phone (314) 889-2429 immediately or fax a resume to (314) 889-7703.

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Reader Service No. 111

Dairy, Food and Environmental Sanitation, Vol. 16, No. 8, Pages 506-523

Holders of 3-A Symbol Council Authorization on August 1996

Questions or statements concerning any of the holder's authorizations listed below, model numbers or the equipment fabricated, should be addressed to: Administrative Officer, 3-A Symbol Council, 3020 Bluff Rd., Columbia, SC 29209; Phone (803) 783-9258; Fax (803) 783-9265.

01-07 Storage Tanks for Milk and Milk Products

2 APV Crepaco, Inc. (5/1/56)
100 South CP Avenue
Lake Mills, Wisconsin 53551

28 Waukesha Cherry-Burrell (10/3/56)
(A United Dominion Company)
575 E. Mill Street
Little Falls, New York 13365

117 DCI, Inc. (10/28/59)
P.O. Box 1227, 600 No. 54th Avenue
Street Cloud, Minnesota 56301

76 Damrow Company (10/31/57)
(A Div. of DEC Int'l., Inc.)
196 Western Avenue, P.O. Box 750
Fond du Lac, Wisconsin 54935-0750

127 Paul Mueller Co. (6/29/60)
P.O. Box 828
Springfield, Missouri 65801

440 Scherping Systems (2/28/85)
801 Kingsley Street
Winsted, Minnesota 55395

571 Viatec Process/Storage Systems (8/15/89)
500 Reed Street
Belding, Michigan, 48809

31 Walker Stainless Equipment Co., Inc. (10/4/56)
Elroy, Wisconsin 53929

02-08 Pumps for Milk and Milk Products

63R APV Fluid Handling-Americas (4/29/57)
100 South CP Avenue
Lake Mills, Wisconsin 53551

830 APV Fluid Handling-Americas (5/5/95)
100 South CP Avenue
Lake Mills, Wisconsin 53551-1799

858 APV Fluid Handling-Americas (10/30/95)
100 South CP Avenue
Lake Mills, Wisconsin 53551-1799

636 Abel Pumps Corporation (7/10/91)
79 North Industrial Park
511 North Avenue
Sewickley, Pennsylvania 15143-2339
(Mfr: Abel Pumps, Buchen, Germany)

793 Ampco Pumps Co. (9/14/94)
4000 W. Burnham Street
Milwaukee, Wisconsin 53215

214R Ben H. Anderson Manufacturers (5/20/70)
Box A
Morrisonville, Wisconsin 53571

212R Babson Brothers Company (2/20/70)
Dairy Systems Division
1400 West Gale
Galesville, Wisconsin 54630

205R Boumatic (5/22/69)
1919 S. Stoughton Road
P.O. Box 8050
Madison, Wisconsin 53716

739 CSF Inox S.P.A. (6/25/93)
Strada per Bibbiano
7 - Montecchio E. (RE)
Italy
(U.S. Rep: Sanchelima Intl.
1781-83 N.W. 93rd Avenue
Miami, Florida 33172)

709 Conexiones Inoxidables (1/18/93)
de Puebla S.A. de C.V.
Vicente Guerrero No. 211
Xicotepec de Juarez
Edo, Puebla, Mexico
(U.S. Rep: Ben Dolphin Consulting,
4735 Lansing Drive
North Olmsted, Ohio 44070)

820 Drum Industries, Inc. (3/17/95)
2501 Constant Comment Place
Louisville, Kentucky 40299
(Mfg. by: Alfa Laval Pumps, LTD
Easbourne East Sussex
England BN 23 6PQ)

671 Flowtech, Inc. (4/1/92)
1900 Lake Park Drive
Smyrna, Georgia 30080

466 Fluid Metering, Inc. (1/10/86)
29 Orchard Street
Oyster Bay, New York 11771

828 Flux Pumps Corp. (4/13/95)
4430 Commerce Circle
Atlanta, Georgia 30336
(Mfg. by: Flux Geraete GmbH
Talweg 12
D75433 Maulbronn
Germany)

306 Fristam Pumps, Inc. (5/2/78)
2410 Parview Road
Middleton, Wisconsin 53562

65R G & H Products Corp. (5/22/57)
7600-57th Avenue
P.O. Box 1199
Kenosha, Wisconsin 53141

325 Johnson Pumps (U.K.) Ltd. (12/19/79)
Highfield Industrial Estate
Edison Road, Eastbourne
East Sussex, England BN23 6PT
(U.S. Rep: Viking Pump, Inc.
406 State Street, P.O. Box 8
Cedar Falls, Iowa 50613)

145R ITT Jabsco Products (11/20/63)
1485 Dale Way
Costa Mesa, California 92626
(Mfg. by: ITT Jabsco, England)

502 Inoxpa, s.a. (4/28/87)
C/. Telers, 54
17820 Banyoles
Gerona, Spain

314 Len E. Ivarson, Inc. (12/22/78)
3100 W. Green Tree Road
Milwaukee, Wisconsin 53209

603 Johnson Pumps (U.K.) Ltd. (8/16/90)
Highfield Industrial Estate
Edison Road, Eastbourne
East Sussex, England BN23 6PT
(U.S. Rep: Viking Pump, Inc.
406 State Street, P.O. Box 8
Cedar Falls, Iowa 50613)

604 Johnson Pumps (U.K.), Ltd. (8/16/90)
Highfield Industrial Estate
Edison Road, Eastbourne
East Sussex, England BN23 6PT
(U.S. Rep: Viking Pump, Inc.
406 State Street, P.O. Box 8
Cedar Falls, Iowa 50613)

841 Johnson Pumps (U.K.), Ltd. (8/18/90)
Highfield Industrial Estate
Edison Road, Eastbourne
East Sussex, England BN23 6PT
(U.S. Rep: Viking Pump, Inc.
406 State Street, P.O. Box 8
Cedar Falls, Iowa 50613)

792 KSB, Inc. (9/14/94)
4415 Sarellen Road
Richmond, VA 23231
(Mfg. by: KSB AK Tiengesellschaft
Frankenthal, Germany)

673 Alfa Laval Pumps, Inc. (4/16/92)
9201 Wilmot Road
Kenosha, Wisconsin 53141-1426

654 Mono Pumps Ltd., Dresser Pump Div. (10/22/91)
Martin Street
Audenshaw, Manchester
England M34 5DQ
(U.S. Rep: MonoFlo, Dresser Pump Division
Dresser Industries
821 Live Oak Drive
Chesapeake, Virginia 23320-2601)

400 Netzsch Incorporated (8/15/83)
119 Pickering Way
Exton, Pennsylvania 19341-1393

810 O.M.A.C. SRL Pompe (1/2/95)
Via G. Bernini 4, I-42043
Rubiera (RE) Italy
(U.S. Rep: Sanchelima International Inc.
1783 N.W. 93rd Avenue
Miami, Florida 33172

827 PACKO Diksmuide NV (4/14/95)
Cardijnlaan 10
B8600 Diksmuide, Belgium
(Not available in the USA)

684 PCM.POMPES (7/9/92)
17 Rue Ernest Laval
B. P. 35 - 92173 Vanves Cedex, France
(U.S. Rep: Alfa Laval Pumps, Inc.
9201 Wilmot Road
Kenosha, Wisconsin 53141-1426)

701 Pierre Guerin SA (10/27/92)
BP. 12 - 79210
Mauze-Sur-Le-Mignon
France
(U.S. Rep: Alfa Technical Group, Inc.
601 Thompson Road N.
Syracuse, New York)

241 Puriti, S.A. de C.V. (9/12/72)
Alfredo Nobel 39
Industrial Puente de Vigas
Tlalnepantla, Mexico
(U.S. Rep: Waukesha Cherry-Burrell
611 Sugar Creek Road
Delavan, WI 53115)

148R Moyno Industrial Products (4/22/64)
A Division of Robbins & Myers, Inc.
1895 W. Jefferson Street
Springfield, Ohio 45501-0960

364 Roper Pump Company (7/28/82)
P.O. Box 269
Commerce, Georgia 30529

595 Seepex, Inc. (3/16/90)
(Formerly Pumpen-und Maschinenbau)
1834 Valley Street
Dayton, Ohio 45405

568 Shanley Pump & Equipment, Inc. (5/15/89)
2525 S. Clearbrook Drive
Arlington Heights, Illinois 60005
(Mfg. by: Allweiler, West Germany)

678 Shanley Pump & Equipment, Inc. (5/11/92)
2525 S. Clearbrook Drive
Arlington Heights, Illinois 60005
(Mfg. by Allweiler, West Germany)

507 Sine Pump (7/21/87)
c/o Sundstrand Fluid Handling
14845 West 64th Street
Arvada, Colorado, 80004

567 Stainless Products, Inc. (4/4/89)
1649-72nd Avenue
P.O. Box 169
Somers, Wisconsin 53171

860 Sudmo North America (11/28/95)
4403 First Avenue SE, Suite 500
Cedar Rapids, Iowa 52402
(Mfg. by: Sudmo Schleicher AG
Industiestr. 7
D-73469, Reisburg
Germany)

462 TEXMAC Inc. (12/5/85)
3001 Stafford Drive
Charlotte, North Carolina 28266-8128
(Mfg. by: Nokamura Osaka, Japan)

72R L.C. Thomsen Inc. (9/14/57)
1303-43rd Street
Kenosha, Wisconsin 53140

26R Tri-Clover, Inc. (9/29/56)
9201 Wilmot Road
Kenosha, Wisconsin 53141

609 Tuthill Corp. (12/12/90)
Tuthill Pump Division
12500 S. Pulaski Road
Alsip, Illinois 60658

52R Viking Pump, Inc. (12/31/56)
A Unit of IDEXX Corporation
406 State Street, P.O. Box 8
Cedar Falls, Iowa 50613
(Mfg. by: Johnson Pump
Highfield Ind. Estate, Edison Road
Eastbourne, E. Sussex
UK BN 23 6PT)

29R Waukesha Cherry-Burrell (10/3/76)
611 Sugar Creek Road
Delavan, Wisconsin 53115

04-03 Homogenizers and High Pressure Pumps of the Plunger Type

75 APV Homogenizer Group (6/26/57)
500 Research Drive
Wilmington, Massachusetts 01887

390 American Lewa, Inc. (6/9/83)
132 Hopping Brook Road
Holliston, Massachusetts 01760
(Mfg. by: Lewa, Germany)

247 Bran & Luebbe, Inc. (4/14/73)
1025 Busch Parkway
Buffalo Grove, Illinois 60015

657 Microfluidics Corp. (11/4/91)
P.O. Box 9101
30 Ossipee Road
Newton, Massachusetts 02164-9101

558 Niro Soavi S.p.A. (1/3/89)
43100 Parma (Italy)
VIA M. Da Erba Edoari, 29/A
Distributed in the U.S. by
Niro Hudson, Inc.
1600 Country Road F
Hudson, Wisconsin 54016

847 Stork Food Machinery (9/7/95)
Airport Parkway
Box 1258
Gainesville, Georgia 30503
(Mfg. by: Stork Amsterdam B.V.
Ketelstraat 2
021 JX Amsterdam
The Netherlands)

770 Tetra Pak Engineering (6/13/94)
8400 Lakeview Parkway, Ste. 500
Pleasant Prairie, Wisconsin 53158
(Mfg. by: Tetra Pak-Stainless Equipment AB
Lund, Sweden)

87 Waukesha Cherry-Burrell (12/29/57)
(Fluid Handling Division)
611 Sugar Creek Road
Delavan, Wisconsin 53115

05-14 Stainless Steel Automotive Milk Transportation Tanks for Bulk Delivery and/or Farm Pick-up Service

379 Bar-Bel Fabricating Co., Inc. (3/15/83)
N. 3760 Hwy. 12 & 16
Mauston, Wisconsin 53948

756 Beall Trailers of California (2/21/94)
1301 South Avenue
Turlock, California 95380-5108

70R Brenner Tank, Inc. (8/5/57)
450 Arlington Avenue, P.O. Box 670
Fond du Lac, Wisconsin 54936

40 Hills Stainless Steel & Equipment Co., Inc. (10/20/56)
505 W. Koehn Street
Luverne, Minnesota 56156

201 Paul Krohnert Mfg. Ltd. (4/1/68)
811 Steeles Avenue, P.O. Box 126
Milton, Ontario, Canada L9T 2Y3
(Not available in U.S.A.)

513 Nova Fabricating, Inc. (8/24/87)
404 City Road
P.O. Box 231
Avon, Minnesota 56310

85 Polar Tank Trailer, Inc. (12/20/57)
Holdingford, Minnesota 56340

653 Tremcar (10/10/91)
1, Tougas Street
Iberville, Quebec, Canada J2X 2P7
(U.S. Rep: Bay State Tr. & Tr.
527 Winthrop
Rehobeth, Massachusetts 02769)

25 Walker Stainless Equip. Co., Inc. (9/28/68)
625 State Street
New Lisbon, Wisconsin 53950

623 Walker Stainless Eq. Co., Inc. (3/28/91)
560 E. Burleigh Boulevard
P.O. Box 358
Tavares, Florida 32778

437 West-Mark (11/30/84)
2704 Railroad Avenue, P.O. Box 418
Ceres, California 95307

09-09 A1 Instrument Fittings and Connections Used on Milk and Milk Products Equipment

32 ABB Instrumentation, Inc. (10/4/56)
(Formerly Taylor Instruments)
P.O. Box 20550
Rochester, New York 14602-0550

865 APV Heat Transfer Tec (1/25/96)
395 Fillmore Avenue
Tonawanda, New York 14150
(Mfg. by: Pasilac Electronics
Silkelorg, DENMARK)

428 ARI Industries, Inc. (9/12/84)
381 ARI Court
Addison, Illinois 60101

747 Alloy Engineering Co., Inc. (1/11/94)
304 Seaview Avenue
Bridgeport, Connecticut 06607

321 Anderson Instrument Co., Inc. (6/14/79)
156 Auriesville Road
Fultonville, New York 12072

872 Brookfield Eng. Lab, Inc. (3/28/96)
240 Cushing Street
Stoughton, Massachusetts 02072-2398

851 Chicago Stainless Equipment (9/28/95)
511 Weston Ridge Drive
Naperville, Illinois 60563

586 Diversey Equipment Tech. (12/14/89)
151 Harvey West Boulevard
Santa Cruz, California 95060

315 Burns Engineering, Inc. (2/5/79)
10201 Bren Road, East
Minnetonka, Minnesota 55343

763 EG & G Berthold Laboritorium Prof. (4/21/94)
Berthold GmbH & Co. KGCalmbacher Str. 22
D-7547 Bad Wildbad 1, Germany
(U.S. Rep: Berthold Systems, Inc.
101 Corporation Drive
Aliquippa, Pennsylvania 15001-4863)

206 The Foxboro Company (8/11/69)
33 Commercial Street
Foxboro, Massachusetts 02035

592 Claud S. Gordon Co. (2/27/90)
5710 Kenosha Street
P.O. Box 500
Richmond, Illinois 60071

866 Dovex S.S., Inc. (1/29/96)
2400 N.E. 2nd Street
Minneapolis, Minnesota 55418

620 Larad Equipment (2/25/91)
26 Pearl Street
Bellingham, Massachusetts 02019

794 Leeds and Northrup Co. (9/14/94)
795 Horsham Road
P.O. Box 1010
Horsham, Pennsylvania 19044-8010

588 Minco Products, Inc. (12/20/89)
7300 Commerce Lane
Minneapolis, Minnesota 55432

863 Nelson-Jameson (1/11/96)
2400 East 5th Street, P.O. Box 647
Marshfield, Wisconsin 54449
(Mfg. by: Chicago Stainless Equipment
511 Weston Ridge Drive
Naperville, Illinois 60563)

487 Pyromation, Incorporated (12/16/86)
5211 Industrial Road
Fort Wayne, Indiana 46825

367 RDF Corporation (10/2/82)
23 Elm Avenue
Hudson, New Hampshire 03051

495 Rosemount Analytical Division (2/13/87)
2400 Barranca Parkway
Irvine, California 92714

826 Rosemount, Inc. (4/6/95)
12001 Technology Drive
Eden Prairie, Minnesota 55344

732 SensorTec, Inc. (5/18/93)
16335-7 Lima Road
Huntertown, Indiana 46748

873 Smar International Corporation (4/2/96)
7240 Brittemoore, Suite 118
Houston, Texas 77041

420 Stork Food Machinery, Inc. (4/17/84)
P.O. Box 1258/Airport Parkway
Gainesville, Georgia 30503

32 ABB Kent-Taylor (10/4/56)
1175 John Street
P.O. Box 20550
Rochester, New York 14602-0550

690 Texas Thermowell, Inc. (8/25/92)
P.O. Box 1535
Hwy. 96 North
Silsbee, Texas 77656

444 Tuchenhagen North America, Inc. (6/17/85)
196 Western Avenue
Fond du Lac, Wisconsin 54936-1458

836 Valmet Automation (7/2/95)
30 Thomas Drive
Westbrook, Maine 04092
(Mfg. by: Valmet-Finland
P.O. Box 237 SF-33101
Tampere, Finland)

612 Viatran Corp & Haenni Druckmittler (12/13/90)
300 Industrial Drive
Grand Island, New York 14072

779 Wahl InStreet, Inc. (8/10/94)
5750 Hannum Avenue
Culver City, California 90231

522 Weed Instrument Company, Inc. (12/28/87)
707 Jeffrey Way
Round Rock, Texas 78664

879 Zurich Industria E (6/3/96)
Comercio LTDA
R. Serra da Piedade, 183
Sao Paulo - SP - Brazil 03131-080
(Not available in the USA)

10-03 Milk and Milk Products Filters Using Disposable Filter Media, as Amended

593 Filtration Systems (3/2/90)
Div. of Mechanical Mfg. Corp.
10304 N.W. 50th Street
Sunrise, Florida 33351

704 Pall Trinity Micro Corp. (11/6/92)
3643 State Route 281
Cortland, New York 13045-0930

720 R-P Products (3/19/93)
Box 388, 407 Jefferson Street
Three Rivers, Michigan 49093

435 Sermia International (11/27/84)
771 Boul. Industriel
Blainville, Quebec
Canada J7C 3V3
(U.S. Rep: Edward W. Fox, Jr.
1201 W. Allen, No. 15
Bloomington, Iowa 47403)

296 L. C. Thomsen, Inc. (8/25/77)
1303 43rd Street
Kenosha, Wisconsin 53140

35 Tri-Clover, Inc. (10/15/56)
9201 Wilmot Road
Kenosha, Wisconsin 53141

11-05 Plate-type Heat Exchangers for Milk and Milk Products

880 AGC Engineering (6/7/96)
8509 Quarry Road
Manassas, Virginia 22110

365 APV Heat Exchanger AS (9/8/82)
Platinvej, 8
P.O. Box 329
DK-6000 Kolding
Denmark
(Not available in U.S.A.)

20 APV Crepaco, Inc. (9/4/56)
395 Fillmore Avenue
Tonawonda, New York 14150

120 Alfa-Laval, Agri, Inc. (12/3/59)
11100 No. Congress Avenue
Kansas City, Missouri 64153

17 Tetra Pak Processing (8/30/56)
8400 Lake View Parkway
Pleasant Prairie, Wisconsin 53158

718 Babson Bros. Co. (3/8/93)
Dairy Systems Div.
1400 West Gale Avenue
Galesville, Wisconsin 54630

30 Cherry-Burrell Corp. (10/2/56)
Process Equipment Division
P.O. Box 35600
Louisville, Kentucky 40232-5600

14 Chester-Jensen Co., Inc. (8/15/56)
5th & Tilghman Sts., P.O. Box 908
Chester, Pennsylvania 19016

791 The Coburn Co., Inc. (9/14/94)
834 E. Milwaukee Street, Box 147
Whitewater, Wisconsin 53190
(Mfg. by: Elmega S./L.
Apartado De Cerros, 1
Camino Vrejo De Mourelle, S/N
15840 [Santa Comba] La Coruna
Spain)

468 Niro, Inc. Evaporator Division (2/2/86)
9165 Rumsey Road
Columbia, Maryland 21045-1991

622 ITT Standard (2/25/91)
175 Standard Parkway
Cheektowaga, New York 14227
P.O. Box 1102
Buffalo, New York 14240-1102

15 Kusel Equipment Co. (8/15/56)
820 West Street, P.O. Box 87
Watertown, Wisconsin 53094

360 Laffranchi Wholesale Co. (7/12/82)
P.O. Box 338
Ferndale, California 95536

414 Paul Mueller Co. (12/13/83)
P.O. Box 828
Springfield, Missouri 65801

279 The Schlueter Company (8/30/76)
3410 Bell Street, P.O. Box 548
Janesville, Wisconsin 53547-0548
(Mfg. by: Samuel Parker, New Zealand)

650 Schmidt-Bretten, Inc. (10/3/91)
20475 Woodingham Drive
Detroit, Michigan 48221

670 Flomax International, Ltd. (4/1/92)
2 Robert Street
P.O. Box 11-020
Ellerslie, Auckland 5
New Zealand
(U.S. Rep: Masport, Inc.
6140 McCormick Drive
Lincoln, Nebraska 68507)

658 Thermaline (11/15/91)
180-37th Street
Auburn, Washington 98001

610 Universal Dairy Equipment (12/13/90)
Auckland, New Zealand
11100 N. Congress Avenue
Kansas City, Missouri 64153
(Mgr. Skellerup Engineering,
Ellersie, Auckland 5,
New Zealand)

12-05 Tubular Heat Exchangers for Milk and Milk Products

438 APV Heat Transfer Tech. (12/10/84)
395 Fillmore Avenue
Tonawanda, New York 14150

248 Allegheny Bradford Corp. (4/16/73)
P.O. Box 200, Route 219 South
Bradford, Pennsylvania 16701

243 Babson Brothers Company (10/31/72)
Dairy Systems Division
140 West Gale
Galesville, Wisconsin 54630

734 The Diversified-Berdell Group, Inc. (5/19/93)
1710 Flushing Avenue
Ridgewood, New York 11385

605 Cherry-Burrell (8/30/90)
Process Equipment Division
P.O. Box 35600
Louisville, Kentucky 40232-5600

103 Chester-Jensen Co., Inc. (6/6/58)
5th & Tilghman Sts., P.O. Box 908
Chester, Pennsylvania 19016

824 DASI Industries, Inc. (3/17/95)
11200 Rockville Pike, Suite 300
Rockville, Maryland 20852
(Mfg. by: Sacome Incapsa
30001 Murcia Spain)

613 Efrex Corp. (12/27/90)
11 Kitty Hawk Drive
Pittsford, New York 14534-1620

712 Enerquip, Inc. (2/24/93)
611 North Road
P.O. Box 368
Medford, Wisconsin 54451

298 Feldmeier Equipment, Inc. (1/28/85)
6800 Town Line Road
P.O. Box 474
Syracuse, New York 13211

307 G & H Products Corp. (5/2/78)
7600-57th Avenue
P.O. Box 1199
Kenosha, Wisconsin 53141

217 Girton Manufacturing Co. (1/31/71)
Millville, Pennsylvania 17846

616 ITT Standard (1/4/91)
175 Standard Parkway
P.O. Box 1102
Buffalo, New York 14240-1102

711 Kusel Equipment Co. (2/24/93)
820 West Street
Watertown, Wisconsin 53094

238 Paul Mueller Co. (6/28/72)
P.O. Box 828
Springfield, Missouri 65801

96 C. E. Rogers Co. (3/31/64)
1895 Frontage Road, P.O. Box 118
Mora, Minnesota 55051

532 Scherping Systems (6/8/88)
801 Kingsley Street
Winsted, Minnesota 55395

392 Stork Food Machinery, Inc. (6/9/83)
(Mfg. by: Stork, Netherlands)
P.O. Box 1258/Airport Parkway
Gainesville, Georgia 30503

614 Tetra Pak Processing Systems (5/2/91)
P.O. Box 179
8400 Lake View Parkway, Suite 500
Pleasant Prairie, Wisconsin 53158
(Mfg. by: Tetra Pak Stainless Equipment AB,
P.O. Box 64
Bruggaregatan 23, S-221 00
Lund, Sweden)

591 Thermotech/Div. of Fristam Pumps, Inc. (2/8/90)
2410 Parview Road
Middleton, Wisconsin 53562

632 Yula Corporation (6/4/91)
330 Bryant Avenue
Bronx, New York 10474

13-09 Farm Milk Cooling and Holding Tanks

802 Agroequcpos Heker, S.A. (11/10/94)
De C.V.
Ind. Torreon, Coah, MEXICO
(U.S. Rep: James Read
M. E. Stainless
601 High Plain Drive
Bel Air, Maryland 21014)

49R Alfa Laval Agri, Inc. (12/5/56)
11100 North Congress Avenue
Kansas City, Missouri 64153

240 Babson Brothers Company (9/6/72)
Dairy Systems Division
1400 West Gale
Galesville, Wisconsin 54630

4R Dairy Equipment Co. (6/15/56)
1919 S. Stoughton Road
Madison, Wisconsin 53716

179R Heavy Duty Products (Preston) Ltd. (3/8/66)
1261 Industrial Road
Cambridge (Preston)
Ontario, Canada N3H 4W3
(Not available in U.S.A.)

12R Paul Mueller Co. (7/31/56)
1600 W. Phelps, P.O. Box 828
Springfield, Missouri 65801

611 Universal Dairy Equipment (12/13/90)
11100 N. Congress Avenue
Kansas City, Missouri 64153

16-05 Evaporators and Vacuum Pans for Milk and Milk Products

132 APV Anhydro (10/26/60)
182 Wales Avenue
Tonawanda, New York 14150

277 Contherm, Inc. (8/19/76)
P.O. Box 352, 111 Parker Street
Newburyport, Massachusetts 01950

500 Dedert Corporation (4/9/87)
20000 Governors Drive
Olympia Fields, Illinois 60461

186R Marriott Walker Corp. (9/6/66)
925 E. Maple Road
Birmingham, Michigan 48011

273 Niro Evaporators, Inc. (5/20/76)
(Formerly Niro Atomizer
Food and Dairy)
9165 Rumsey Road
Columbia, Maryland 21045

639 Niro-Sterner, Inc. (7/10/91)
421-6th Street South
Winsted, Minnesota 55395

107R C.E. Rogers Co. (7/31/58)
So. Hwy #65, P.O. Box 118
Mora, Minnesota 55051

299 Stork Food Machinery, Inc. (11/16/77)
P.O. Box 1258, Airport Parkway
Gainesville, Georgia 30503

17-07 Formers, Fillers and Sealers of Single Service Containers for Milk and Milk Products

366 Autoprod, Inc. (9/15/82)
5355 115th Avenue N.
Clearwater, Florida 34620

382 Combibloc, Inc. (4/15/83)
4800 Roberts Road
Columbus, Ohio 43228
(Mfg. by: Jagenberg, West Germany)

192 Evergreen Packaging (1/3/67)
2400-6th Street S.W., P.O. Box 3000
Cedar Rapids, Iowa 52406

488 Fords Holmatic, Inc. (12/22/86)
1750 Corporate Drive, Suite 700
Norcross, Georgia 30093

619 Hassia Verpackungsmaschinen GmbH (2/22/91)
63691 Ranstadt 1/Hessen Germany
(Hassia U.S.A., Inc. 39 Plymouth Street
Fairfield, New York 07007)

473 International Paper Company (6/12/86)
Extended Shelf-Life Division
4020 Stirrup Creek Drive, Bldg. B200
Durham, North Carolina 27703

735 Kvalitetsproduktion AB (6/11/93)
S-693 29 Degerfors, Sweden
(U.S. Rep: Flowtech, Inc.
1900 Lake Park Drive, Ste. 345
Smyrna, Georgia 30080)

731 LIEDER-Maschinenbau Gmbh & Co. KG (5/18/93)
Postfach 1252/Im Laab 3
3033 Schwarmstedt, Germany

743 Liqui-Box Corporation (11/16/93)
6950 Worthington-Galena Road
Worthington, Ohio 43085

330 Milliken Packaging (8/26/80)
White Stone, South Carolina 29353
(Mfg. by: Chubukkikai, Japan)

442 Milliken Packaging (2/21/85)
White Stone, South Carolina 29386

137 Elopak, Inc. (10/17/62)
30000 South Hill Road
New Hudson, Michigan 48165

281 Purity Packaging Corp. (11/8/76)
800 Kaderly Road
Columbus, Ohio 43228

848 Septipack, Inc. (9/24/95)
2313 Benson Mill Road
Sparks, Maryland 21159

(Mfg. by: ARCII
4, Avenue de l'europe
ZAC des Hawks de Chatou
78402 Chatou Cedex, France)

482 Serac, Inc. (8/25/86)
300 Westgate Drive
Carol Stream, Illinois 60188

681 Shikoku Kakoki Co., Ltd. (6/8/92)
No. 10-01 Nishinokawa
Tarohachisu, Kitajima-Cho
Itanogun, Tokushima, Japan
(U.S. Rep: Elopak, Inc.
30000 South Hill Road
New Hudson, Michigan 48165)

351 Tetra Pak, Inc. (1/7/82)
909 Asbury Drive
Buffalo Grove, Illinois 60089
(Mfg. by: A. B. Tetra, Italy)

220 Tetra Rex Packaging Systems (4/24/71)
451 East Industrial Boulevard
Minneapolis, Minnesota 55413

694 IPS (9/23/92)
7700 Camino Real, Suite 202, Bldg. D
Miami, Florida 33143
(Mfg. by: Time Pack
GmbH, Weissensburg
Germany)

19-04 Batch Continuous Freezers for Ice Cream, Ices, and Similarly Frozen Dairy Foods, as Amended

141 APV Crepaco, Inc. (4/15/63)
100 South CP Avenue
Lake Mills, Wisconsin 53551

146 Cherry-Burrell Corp. (12/10/63)
P.O. Box 35600
Louisville, Kentucky 40232-5600

286 Tetra Laval Food Hoyer, Inc. (12/8/76)
7711 95th Street, P.O. Box 0902
Pleasant Prairie, Wisconsin 53158-0902
(Mfg. by: O. G. Hoyer A/S, Denmark)

465 Leon's Frozen Custard (12/17/85)
3131 S. 27th Street
Milwaukee, Wisconsin 53151

573 Processing Machinery & Supply Co. (9/28/89)
1108 Frankford Avenue
Philadelphia, Pennsylvania 19125
(Mfg. by: PMS Italiana, Italy)

355 Emery Thompson Machine & Supply Co. (3/9/82)
1349 Inwood Avenue
Bronx, New York 10452

22-05 Silo-type Storage Tanks for Milk and Milk Products

154 APV Crepaco, Inc. (2/10/65)
100 South CP Avenue
Lake Mills, Wisconsin 53551

168 Waukesha Cherry-Burrell (6/16/65)
575 E. Mill Street
Little Falls, New York 13365

160 DCI, Inc. (4/5/65)
P.O. Box 1227, 600 No. 54th Avenue
Street Cloud, Minnesota 56301

181 Damrow Co. (5/18/66)
(Div. of DEC Int'l., Inc.)
196 Western Avenue, P.O. Box 750
Fond du Lac, Wisconsin 54935-0750

312 Feldmeier Equipment, Inc. (9/15/78)
6800 Town Line Road
P.O. Box 474
Syracuse, New York 13211

439 JV Northwest, Inc. (1/22/85)
28120 S.W. Boberg Road
Wisonville, Oregon 97070

702 Paul Krohnert Manufacturing, Ltd. (11/6/92)
P.O. Box 126
811 Steeles Avenue
Milton, Ontario, Canada L9T 2Y3
(Not available in the U.S.A.)

155 Paul Mueller Co. (2/10/65)
1600 W. Phelps, P.O. Box 828
Springfield, Missouri 65801

503 Ripley Stainless, Ltd. (5/1/87)
RR #3, Site 41
Summerland, British Columbia V0H 1Z0
(Not available in U.S.A.)

479 Scherping Systems (8/3/86)
801 Kingsley Street
Winsted, Minnesota 55395

675 Stainless Fabrication, Inc. (4/22/92)
4455 W. Kearney
Springfield, Missouri 65803

165 Walker Stainless Equipment Co., Inc. (4/26/65)
Elroy, Wisconsin 53929

23-02 Equipment for Packaging Viscous Dairy Products

174 APV Crepaco, Inc. (9/28/65)
Filling & Wrapping Systems Div.
100 South CP Avenue
Lake Mills, Wisconsin 53551

868 Cryovac Division (3/5/97)
W.R. Grace & Co-Conn
P.O. Box 464
Duncan, South Carolina 29223-0464

209 Doboy Packaging Machinery Incorp. (7/23/69)
869 S. Knowles Avenue
New Richmond, Wisconsin 54017

853 Elmar Industries (10/11/95)
200 Gould Avenue, P.O. Box 245
Buffalo, New York 14043-0245

674 Hayssen Manufacturing (4/20/92)
5300 Highway 42 North
P.O. Box 571
Sheboygan, Wisconsin 53082-0571

447 Mateer-Burt Co., Inc. (7/22/85)
434 Devon Park Drive
Wayne, Pennsylvania 19087

870 Phoenix Engineering & Design Co. (3/22/96)
4634 Case Drive, P.O. Box 1467
Janesville, Wisconsin 53546

343 Tetra Laval Food Hoyer, Inc. (7/6/81)
7711 95th Street, P.O. Box 0902
Pleasant Prairie, Wisconsin 53158-0902
(Mfg. by: Alfa Hoyer, Denmark)

679 Ice Cream Novelties (6/1/92)
Division of Popsicle Inc., Ltd.
5305 Harvester Road
P.O. Box 610
Burlington, Ontario, Canada L7R 3Y5
(U.S. Rep: Sunshine Biscuits
100 Woodbridge Center Drive
Woodbridge, New Jersey 07095-1196)

635 Interbake Dairy Ingredients Div. (7/10/91)
2821 Emerywood Parkway
Suite 210
Richmond, Virginia 23294

760 Jordan Manufacturing, Inc. (2/23/94)
Rt. 1, Box 42 A 1
Crossville, Alabama 35962

537 Osgood Industries, Inc. (7/19/88)
601 Burbank Road
Oldszmar, Florida 34677

666 Rapidpak (3/5/92)
1725 West 8th Street
Appleton, Wisconsin 54911

740 Raque Food Systems, Inc. (6/25/93)
11002 Decimal Drive
Louisville, Kentucky 40299

222 Sweetheart Packaging (11/15/71)
(Formerly Fort Howard Pkg. Corp.)
10100 Reistertown Road
Owing Mills, Maryland 21117

24-02 Non-coil Type Batch Pasteurizers

158 APV Crepaco, Inc. (3/24/65)
100 South CP Avenue
Lake Mills, Wisconsin 53551

161 Waukesha Cherry-Burrell (4/5/65)
(A Unit of AMCA Int'l., Inc.)
575 E. Mill Street
Little Falls, New York 13365

187 DCI, Inc. (9/26/66)
P.O. Box 1227, 600 No. 54th Avenue
Street Cloud, Minnesota 56302

819 JayBee Precision, Inc. (3/17/95)
Kirk Pasture Road, P.O. Box 231
Bristol, New Hampshire 03222-0231

166 Paul Mueller Co. (4/26/65)
P.O. Box 828
Springfield, Missouri 65801

878 Walker Stainless Equipment (5/14/96)
625 State Street
New Lisbon, Wisconsin 53950

25-02 Non-coil Type Batch Processors for Milk and Milk Products

159 APV Crepaco, Inc. (3/24/65)
100 South CP Avenue
Lake Mills, Wisconsin 53551

162 Waukesha Cherry-Burrell (4/5/65)
(A Unit of AMCA Int'l., Inc.)
575 E. Mill Street
Little Falls, New York 13365

188 DCI, Inc. (9/26/66)
P.O. Box 1227, 600 No. 54th Avenue
Street Cloud, Minnesota 56301

725 Inox-Tech, Inc. (4/14/93)
6705 Route 132
Ville Ste-Catherine
Quebec, Canada J0L 1E0
(U.S. Rep: Michael Ripka, Pres., Bionex
12615 E. Meridian Avenue
Payallup, Washington 98373)

710 Lee Industries, Inc. (2/10/93)
P.O. Box 687
514 West Pine Street
Phillipsburg, Pennsylvania 16866

167 Paul Mueller Co. (4/26/65)
P.O. Box 828
Springfield, Missouri 65801

687 SANIFAB (8/3/92)
528 North Street
Stratford, Wisconsin 54484

448 Scherping Systems (8/1/85)
801 Kingsley Street
Winsted, Minnesota 55395

520 Stainless Fabrication, Inc. (12/8/87)
4455 W. Kearney
Springfield, Missouri 65803

837 Viatec Process/Storage Systems (7/10/95)
500 Reed Street
Belding Michigan 48809

202 Walker Stainless Equip. Co., Inc. (9/24/68)
625 State Street, P.O. Box 202
New Lisbon, Wisconsin 53950-0202

26-03 Sifters for Dry Milk and Dry Milk Products

752 Andritz Sprout-Bauer (1/28/94)
Sherman Street
Muncy, Pennsylvania 17756

363 Kason Corp. (7/28/82)
67-71 East Willow Street
Millburn, New Jersey 07041

430 Midwestern Industries, Inc. (10/11/84)
915 Oberlin Road, P.O. Box 810
Massillon, Ohio 44648-0810

185 Rotex, Inc. (8/10/66)
1230 Knowlton Street
Cincinnati, Ohio 45223

656 Separator Engineering, Ltd. (11/4/91)
810 Ellingham Street
Pointe Clair, Quebec, Canada H9R 3S4
(U.S. Rep: Kason Corp.
1301 E. Linden Avenue
Linden, New Jersey 07036)

172 Sweco, Inc. (9/1/65)
(Division of Emerson Electric Company)
7120 Buffington Road
Florence, Kentucky 41042

27-02 Equipment for Packaging Dry Milk and Dry Milk Products

353 All-Fill, Inc. (3/2/82)
418 Creamery Way
Exton, Pennsylvania 19341

831 Custom Equipment Design (5/9/95)
1057 Highway 80 East, P.O. Box 4807
Monroe, Louisiana 71203

618 Hayssen Manufacturing Company (2/18/91)
225 Spartangreen Boulevard
Duncan, South Carolina 29334
(Manufactured by Yamato Scale Co.
Akasi, 673, Japan)

625 Ishida Company, Inc. (4/2/91)
44, Sanno-Cho, Shogoin
Sakyo-Ku, Kyoto, Japan
(U.S. Rep: Heat & Control
225 Shaw Road
S. San Francisco, California 94080)

409 Mateer-Burt Co. (10/31/83)
436 Devon Park Drive
Wayne, Pennsylvania 19087

497 Triangle Package Machinery Co. (2/26/87)
6655 West Diversey Avenue
Chicago, Illinois 60635

28-02 Flow Meters for Milk and Milk Products

270 ABB Instrumentation, Inc. (2/9/76)
P.O. Box 20550
Rochester, New York 14602-0550

272 Accurate Metering Systems, Inc. (4/2/76)
1651 Wilkening Court
Schaumburg, Illinois 60173

253 Badger Meter, Inc. (1/2/74)
4545 W. Brown Deer Road
P.O. Box 23099
Milwaukee, Wisconsin 53223

359 Brooks Instruments (6/11/82)
Highway 301 North
Statesboro, Georgia 30458

660 Danfoss A/S (11/20/91)
DK-6430
Nordborg, Denmark
(U.S. Rep: Danfoss Electronics
2995 Eastrock Drive
Rockford, Illinois 61109)

692 Endress & Hauser Flowtec AG (9/14/92)
Kägenstrasse 7
CH - 4153 Reinach, Switzerland
(U.S. Rep: Endress & Hauser, Inc.
2350 Endress Place
Greenwood, Indiana 46143)

797 Endress & Hauser, Inc. (10/10/94)
2350 Endress Place, P.O. Box 246
Greenwood, Indiana 46142
(Mfg. by: Endress & Hauser Flowtec AG
Kägenstrasse 7
CH - 4153 Reinach
Switzerland)

599 Euromatic Machine & Oil (4/26/95)
CO (UK) LTD
Westcroft Industrial Estate
Rhodes, Middleton, Manchester
M24 4GJ England
(Not available in the U.S.A.)

226 Bailey Fischer & Porter Co. (12/9/71)
125 E. County Line Road
Warminster, Pennsylvania 18974

477 Flowdata, Inc. (7/31/86)
1817 Firman Drive
Richardson, Texas 75081-1826

506 E G & G Flow Technology, Inc. (6/17/87)
4250 East Broadway Road
Phoenix, Arizona 85040

224 The Foxboro Company (11/16/71)
33 Commercial Street
Foxboro, Massachusetts 02035

717 Gemu Valves, Inc. (3/4/93)
3800 Camp Creek Parkway
Ste. 102, Bldg. 2400
Atlanta, Georgia 30331

649 Geo Technology (10/2/91)
12312 E. 60th Street
Tulsa, Oklahoma 74146

661 G/H Products Corp. (11/21/91)
7600-57th Avenue
P.O. Box 1199
Kenosha, Wisconsin 53142

562 Great Lakes Instruments, Inc. (2/6/89)
9020 West Dean Road
Milwaukee, Wisconsin 53224-0056

630 Halliburton Services (5/28/91)
Drawer 1431
Duncan, Oklahoma 73536-0346

574 Hersey Measurement Co., Inc. (10/12/89)
150 Venture Boulevard
P.O. Box 4585
Spartanburg, South Carolina 29305

512 Hoffer Flow Controls, Inc. (8/17/87)
107 Kitty Hawk Lane
Elizabeth City, North Carolina 27909

744 Honeywell (11/16/93)
Industrial Controls Div.
1100 Virgina Drive
Fort Washington, Pennsylvania 19034

733 Honeywell, Inc. (5/18/93)
16404 Black Canyon Highway
Phoenix, Arizona 85023-3095

265 Flow Automation (3/10/75)
9303 Sam Houston Parkway
Houston, Texas 77099-5298

535 Invalco, Inc. (7/22/88)
(A subsidiary of Smith Meter, Inc.)
P.O. Box 1183
Hutchinson, Kansas 67504

764 Johnson Yokogawa (4/22/94)
4 Dart Road
Newnan, Georgia 30265-1040
(Mfg. by: Yokogawa Electric Corp.
2-9-32 Nakacho
Musashino-shi, Tokyo,
180 Japan)

840 KOBOLD Instr. Inc. (7/17/95)
1801 Parkway View Drive
Pittsburgh, Pennsylvania 15205
(Mfg. by: KOBOLD Messring GmbH
Frankfort HRB 29376
Germany)

871 KOBOLD Instr. Inc. (3/28/96)
1801 Parkway View Drive
Pittsburgh, Pennsylvania 15205
(Mfg. by: Flowdata, Inc.
1817 Firman Drive
Richardson, Texas 75081-1826)

529 Krohne America, Inc (5/18/88)
7 Dearborn Road
Peabody, Massachusetts 01960
(Mfg. by: Altometer, Holland)

755 Liquid Controls Corporation (2/21/94)
105 Albrecht Drive
Lake Bluff, Illinois 60044
(Mfg. by: Processautomatic
Box 117,
61070 Vagnharad, Sweden)

778 Magnetrol Intl., Inc. (7/27/94)
5300 Belmont Road
Downers Grover, Illinois 60515

378 Micro Motion, Inc (2/16/83)
7070 Winchester Circle
Boulder, Colorado 80301

729 Peek Measurement, Ltd. (4/14/93)
Kings Worthy, Winchester
Hampshire, England S023 7QA
(U.S. Rep: Peek Measurement
10335 Landsbury, Ste. 300
Houston, Texas 77099-3407)

490 Rosemount, Inc. (1/8/87)
12001 Technology Drive
Eden Prairie, Minnesota 55344

585 Solartron (12/7/89)
11321 Richmond Avenue
Houston, Texas 77082-2615
(Mfg. by: Solartron, England)

587 Schlumberger Ind., Measurement Div. (12/18/89)
1310 Emerald Road
Greenwood, South Carolina 29646
(Mfg. by: Schlumberger, France)

550 Sparling Instruments Co., Inc. (10/26/88)
4097 N. Temple City Boulevard
P.O. Box 5988
El Monte, California 91731

715 Thermal Instrument Co. (2/25/93)
217 Sterner Mill Road
Trevose, Pennsylvania 19053

386 Turbo Instruments, Inc. (5/11/83)
4 Vashell Way
Orinda, California 94563
(Mfg. by: Turowerk, West Germany)

803 Turck, Inc. (11/18/94)
3000 Campus Drive
Plymouth, Minnesota 55441-2656
(Mfg. by: EGE - Eletronik
Ravensberg 34
D-24214 Gehorf
Germany)

664 Schutte & Koerting (12/16/91)
(A division of Ketema, Inc.)
XO Technologies Products
2233 State Road
Bensalxem, Pennsylvania 19020

29-01 Air Eliminators for Milk and Fluid Milk Products

340 Accurate Metering Systems, Inc. (6/2/81)
1651 Wilkening Court
Schaumburg, Illinois 60173

662 G/H Products Corp. (11/21/91)
7600-57th Avenue
P.O. Box 1199
Kenosha, Wisconsin 53142

436 Scherping Systems (11/27/84)
801 Kingsley Street
Winsted, Minnesota 55395

30-01 Farm Milk Storage Tanks

421 Paul Mueller Co. (4/17/84)
P.O. Box 828
Springfield, Missouri 65801

31-02 Scraped Surface Heat Exchangers

290 APV Crepaco, Inc. (6/15/77)
100 South CP Avenue
Lake Mills, Wisconsin 53551

323 Waukesha Cherry-Burrell (7/26/79)
Process Equipment Division
P.O. Box 35600
Louisville, Kentucky 40232-5600

274 Contherm, Inc. (6/25/76)
111 Parker Street, P.O. Box 352
Newburyport, Massachusetts 01950

496 FMC Corp.
Fran Rica Systems (2/23/87)
P.O. Box 30127
Stockton, California 95213-0127

361 N.V. Terlet (7/12/82)
P.O. Box 62
7200 AB Zutphen
Netherlands
(U.S. Agent Manning & Lewis-NJ)

32-01 A1 Uninsulated Tanks for Milk and Milk Products

397 APV Crepaco, Inc. (6/21/83)
100 South CP Avenue
Lake Mills, Wisconsin 53551

264 Waukesha Cherry-Burrell (1/27/75)
(A Unit of AMCA Int'l., Inc.)
575 E. Mill Street
Little Falls, New York 13365

268 DCI, Inc. (11/21/75)
600 No. 54th Avenue, P.O. Box 1227
Street Cloud, Minnesota 56301

708 Lee Industries, Inc. (1/12/93)
P.O. Box 688
Phillipsburg, Pennsylvania 16866

844 Paul Mueller Co. (8/24/95)
1600 West Phelps Street
Springfield, Missouri 65801

354 C.E. Rogers Co. (3/3/82)
1895 Frontage Road, P.O. Box 118
Mora, Minnesota 55051

683 SANIFAB (7/9/92)
A Division of A&B Process Systems Corp.
528 North Street
Stratford, Wisconsin 54484

441 Scherping Systems (3/1/85)
801 Kingsley Street
Winsted, Minnesota 55395

852 Viatec Process/Storage Systems (10/18/95)
500 Reed Street
Belding, Michigan 48809

339 Walker Stainless Equip. Co., Inc. (6/2/81)
625 State Street
New Lisbon, Wisconsin 53950

33-01 Polished Metal Tubing for Dairy Products

310 Allegheny Bradford Corp. (7/19/78)
P.O. Box 200 Route 219 South
Bradford, Pennsylvania 16701

812 A.T.I. s.r.l. (1/26/95)
Viale Resegone 7
22036 Erba (Como)
Italy
(U.S. Rep: Norca Corporation
185 Great Neck Road
Great Neck, New York 11022)

413 Azco, Inc. (12/8/83)
P.O. Box 567
Appleton, Wisconsin 54912

809 Damascus-Bishop Tube Co. (1/2/95)
795 Reynolds Industrial Park Road
Greenville, Pennsylvania 16125

736 Kvalitetsproduktion AB (6/11/93)
S-693 29 Degerfors, Sweden
(U.S. Rep: Flowtech, Inc.
1900 Lake Park Drive, Ste. 345
Smyrna, Georgia 30080)

308 Rath Manufacturing Co., Inc. (6/20/78)
2505 Foster Avenue
Janesville, Wisconsin 53545

368 Rodger Industries Inc. (10/7/82)
P.O. Box 186, R.R. 1
Blenheim, Ontario
Canada N0P 1A0
(Not available in U.S.A.)

776 Siam Stainless (7/18/94)
Fittings & Tubulars
Bangkok, Thailand
(U.S. Rep: Kurt Orban Partners
Kurt Orban
450 Kings Road
Brisbane, California 94005)

775 Trent Tube (7/18/94)
P.O. Box 77
East Troy, Wisconsin 53120

289 Tri-Clover, Inc. (1/21/77)
9201 Wilmot Road
Kenosha, Wisconsin 53141

331 United Industries, Inc. (10/23/80)
1546 Henry Avenue
Beloit, Wisconsin 53511

34-02 Portable Bins

647 Thomas Conveyor Company (9/18/91)
Tote System Division
555 I-35 South
Burleson, Texas 76028

35-00 Continuous Blenders

869 ADMIX, Inc. (3/14/96)
23 Londonderry Road
Londonderry, New Hampshire 03053

527 Arde Barinco, Inc. (3/15/88)
500 Walnut Street
Norwood, New Jersey 07648

590 Chemineer, Inc. (1/23/90)
125 Flagship Drive
North Andover, Massachusetts 01845

417 Cherry-Burrell (2/7/84)
Process Equipment Division
P.O. Box 35600
Louisville, Kentucky 40232-5600

825 GEI Processing, Inc. (3/30/96)
Machines Collette
One Indian Lane East
Towaco, New Jersey 07082
(Mfg. by: Machines Collette N.V.
Keerbaan 70
B-2160 Wommelgem
Belgium)

526 Hosokawa Bepex Corporation (3/16/88)
333 Taft Street NE
Minneapolis, Minnesota 55413

642 Mondomix Howden B.V. (8/7/91)
Reeweg 13
P.O. Box 98
1394 ZH Nederhorst den Berg
The Netherlands
(U.S. Rep: Donster and Co.
HCR-3, Box 128
Johnsburg, New York 12843)

680 Quadro Engineering, Inc. (6/3/92)
613 Colby Drive
Waterloo, Ontario
Canada N2V 1A1
(U.S. Rep: Zajac Equipment Supply
270 Roosevelt Trail
Windham, Maine 04062)

766 Semi-Bulk Systems (4/28/94)
159 Cassens Court
Fenton, Missouri 63026-2543

724 Silverson Machines, Inc. (4/14/93)
P.O. Box 589
355 Chestnut Street
East Longmeadow, Massachusetts 01028
(Mfg. by: Silverson Machines,
Chesham, England)

36-00 Colloid Mills

808 Boston Shearpump, Inc. (12/16/94)
P.O. Box 390161
Cambridge, Massachusetts 02139-9998

846 IKA Works, Inc. (9/7/95)
2635 North Chase Parkway, S.E.
Wilmington, North Carolina 28402-7499

608 Kinematica, Inc. (10/17/90)
19 Normandy Road
Newton, Massachusetts 02166
(Mfg. by: Kinematica AG,
CH-6014 Littau/Lucerne, Switzerland)

293 Waukesha Cherry-Burrell (8/25/77)
611 Sugar Creek Road
Delavan, Wisconsin 53115

37-01 A1 Liquid Pressure and Level Sensing Devices

738 ABB Instrumentation, Inc. (6/25/93)
1175 John Street
Rochester, New York 14602-0550

576 Ametek/Mansfield & Green Division (10/13/89)
8600 Somerset Drive
Largo, Florida 34643

822 Ametek US Gauge Division (3/17/95)
PMT Products
820 Pennsylvania Boulevard
Feasterville, Pennsylvania 19053

318 Anderson Instrument Co., Inc. (4/9/79)
156 Auriesville Road
Fultonville, New York 12072

659 Bindicator Company (11/20/91)
1915 Dove Street
Port Huron, Michigan 48060

525 Caldwell Systems Corporation (3/4/88)
1200 Diamond Circle, Unit K
Lafayette, Colorado 80026

850 Chicago Stainless Equip. (9/28/95)
511 Weston Ridge Drive
Naperville, Illinois 60563

672 Computer Instruments Corp. (4/3/92)
1000 Shames Drive
Westbury, New York 11590

706 Bindicator Company (12/29/92)
1915 Dove Street
Port Huron, Michigan 48060

829 DCT Instruments (4/13/95)
1165 Chambers Road
Columbus, Ohio 43212
(Mfg. by: Sensotec Inc.
1200 Chesapeake Avenue
Columbus, Ohio 43212)

862 Delta Controls Corporation (11/30/95)
585 Fortson Street
Shreveport, Louisiana 71107

640 Dresser Industries (7/16/91)
Instrument Division
250 East Main Street
Stratford, Connecticut 06497

663 Dresser Industries (12/4/91)
Instrument Division
210 Old Gate Lane
Milford, Connecticut 06460

405 Drexelbrook Engineering Co. (9/27/83)
205 Keith Valley Road
Horsham, Pennsylvania 19044

861 Dwyer Instruments, Inc. (11/28/95)
P.O. Box 373
Michigan City, Indiana 46360
(Mfg. by: Ametek, U.S. Gauge Div.
PMT Products
820 Pennsylvania Boulevard
Feasterville, Pennsylvania 19053)

459 Endress + Hauser, Inc. (10/17/85)
2350 Endress Place
Greenwood, Indiana 46142
(Mfg. by: Endress + Hauser GmbH,
Hauptstrasse 1,
D-79689 Maulburg, Germany)

524 Flow Technology, Inc. (1/14/88)
4250 E. Broadway Road
Phoenix, Arizona 85040

876 Fisher-Rosemount Singapore (5/14/96)
Private Limited
1 Pandan Cresent
Singapore 0512
Republic of Singapore
(U.S. Rep.: Rosemount, Inc.
12001 Technology Drive
Eden Prairie, Minnesota 55344)

463 The Foxboro Company (12/6/85)
33 Commercial Street
Foxboro, Massachusetts 02035

668 GP: 50 New York, Ltd. (3/30/92)
2770 Long Road
P.O. Box 1150
Grand Island, New York 14072

651 Granzow, Inc. (10/3/91)
2300 CrownPoint Executive Drive
Charlotte, North Carolina 28227
(Mfr: Kubler AG
Baar, Switzerland)

633 Griffith Industrial Products Company (6/21/91)
P.O. Box 111
Putnam, Connecticut 06260

749 Haenni Cie & AG (1/17/94)
CH-3303
Jegenstorf, Switzerland
(U.S. Rep: Viatran Corporation
300 Industrial Drive
Grand Island, New York 14072)

771 Hawk America (6/13/94)
1741 W. Rose Garden Lane
Phoenix, Arizona 85027

832 H.O. Trerice Co. (5/12/95)
12950 W. Eight Mile Road
Oak Park, Michigan 48237-3288
(Mfg. by: Bourdon-Sedene
125 Rue De La Marre
41 100 Vendome
France)

557 Honeywell, Inc. (12/21/88)
Industrial Controls Div.
1100 Virginia Drive
Fort Washington, Pennsylvania 19034

629 ISE-Magtech (5/20/91)
907 Bay Star
Webster, Texas 77598-1531

598 FMC Invalco, Inc., (3/22/90)
A FMC Corp. Subsidiary
P.O. Box 1183
Hutchinson, Kansas 67504-1183

572 ITT Conoflow (9/25/89)
P.O. Box 768, Rt. 78
Street George, South Carolina 29477

798 Kay-Ray/Sensall, Inc. (10/14/94)
1400 Business Center Drive
Mount Prospect, Illinois 60056

842 Klay Instruments B.V. (8/18/95)
Nijverheidsweg 5
NL 7991 CZ Dwingeloo
The Netherlands
(Not available in the U.S.A.)

396 King Engineering Corp. (6/13/83)
P.O. Box 1228
Ann Arbor, Michigan 48106

501 Lumenite Electronic Company (4/27/87)
2331 N. 17th Avenue
Franklin Park, Illinois 60131

768 MTS Sensors Division (6/6/94)
3001 Sheldon Drive
Cary, North Carolina 27513

596 Magnetrol International (3/20/90)
5300 Belmont Road
Downers Grove, Illinois 60515

627 Milltronics, Inc. (4/12/91)
730 The Kingsway
Peterborough, Ontario
Canada K9J 7B1
(U.S. Rep: Milltronics, Inc.
709 E. Stadium Drive
Arlington, Texas 76011)

864 Nelson-Jameson (1/11/96)
2400 East 5th Street, P.O. Box 647
Marshfield, Wisconsin 54449
(Mfg. by: Chicago Stainless Equipment
511 Weston Ridge Drive
Naperville, Illinois 60563)

597 NUOVA FIMA S.p.A. (3/20/90)
Via C. Battisti 59
28045 - INVORIO (N0) Italy
(Not available in U.S.A.)

523 Paper Machine Components, Inc. (1/3/88)
Miry Brook Road
Danbury, Connecticut 06810

554 Par Sonics, Inc. (11/30/88)
R.D. #1 - Box 505
Centre Hall, Pennsylvania 16828

563 PI Components Corp. (2/13/89)
350 Loop 290 South
Brenham, Texas 77833

644 Princo Instruments, Inc. (8/22/91)
1020 Industrial Highway
Southampton, Pennsylvania 18966-4095

815 ProMag PM LTD (2/24/95)
4251 Rhoda Drive
Baton Rouge, Louisiana 70819

328 Rosemount, Inc. (5/22/80)
12001 Technology Drive
Eden Prairie, Minnesota 55344

784 Sensotec, Inc. (9/2/94)
1200 Cheseapeake Avenue
Columbus, Ohio 43212-2288

515 Setra Systems, Inc. (9/14/87)
45 Nagag Park
Acton, Massachusetts 01720

583 S. J. Controls, Inc. (11/11/89)
2248 Obispo Avenue #203
Long Beach, California 90806

875 SOR (4/15/96)
14685 W. 105th Street
Lenexa, Kansas 66215-5964

638 Span Instruments (7/10/91)
1947 Avenue "K"
Plano, Texas 75074

285 K Systems Corp. (Tank Mate Division) (12/7/76)
4919 Butterfield Road
Hillside, Illinois 60162

641 Tempress A/S (7/16/91)
Engtoften 6, DK-8260
Viby J, Denmark

765 Tri-Clover, Inc. (4/27/94)
9201 Wilmot Road
Kenosha, Wisconsin 53141

754 Valmet Automation (2/15/94)
30 Thomas Drive
Westbrook, Maine 04092
(Mfg. by: Valmet-Finland
P.O. Box 237 SF-33101
Tampere, Finland)

410 Viatran Corporation (11/1/83)
300 Industrial Drive
Grand Island, New York 14072

569 WEISS Instruments, Inc. (5/24/89)
85 Bell Street
West Babylon, New York 11704
(Mfg. by: Nuova-Fima, Italy)

600 Weksler Instruments Corporation (4/27/90)
250 E. Main Street
Stratford, Connecticut 06497

646 WIKA Instrument Corp. (9/10/91)
1000 Wiegand Boulevard
Lawrenceville, Georgia 30243
(Mfg. by: WIKA Ind. Corp.
63911 Klingenberg
Germany)

685 Winter's Thermogauges, Ltd. (8/3/92)
2220-3 Midland Avenue
Scarborough, Ontario
Canada M1P 3E6
(U.S. Rep: Winter's Thermogauges, Inc.
100 Sonwil Drive
Buffalo, New York 14225)

38-00 Cottage Cheese Vats

541 Kusel Equipment Company (9/16/88)
820 West Street
Watertown, Wisconsin 53094

385 Stoelting, Inc. (5/5/83)
P.O. Box 127
Kiel, Wisconsin 53042-0127

40-01 Bag Collectors for Dry Milk and Dry Milk Products

453 Hosokawa MikroPul E. Systems (9/4/85)
102 American Road
Morris Plains, New Jersey 07950

381 Marriott Walker Corp. (4/12/83)
925 E. Maple Road
Birmingham, Michigan 48011

456 C. E. Rogers Company (9/25/85)
P.O. Box 118
Mora, Minnesota 55051

41-00 Mechanical Conveyors

631 Flexicon Corporation (5/28/91)
1375 Stryker's Road
Phillipsburg, New Jersey 08865

42-00 In-Line Strainers

855 Flowtech Inc. (10/30/95)
1900 Lake Park Drive, No. 345
Smynra, Georgia 30080

655 Tri-Clover, Inc. (10/23/91)
9201 Wilmot Road
Kenosha, Wisconsin 53141

606 Waukesha Cherry-Burrell (9/18/90)
611 Sugar Creek Road
Delavan, Wisconsin 53115

44-01 Air Driven Diaphragm Pumps

713 Warren Rupp, Inc. (2/5/93)
800 North Main Street
P.O. Box 1568
Mansfield, Ohio 44905

833 Wilden Pump & Engr. Co. (6/22/95)
22069 Van Buren Street
Grand Terrace, California 92313-5651

669 Skellerup Engineering, Ltd. (3/30/92)
2 Robert Street
P.O. Box 11-020
Ellerslie, Auckland 5
New Zealand
(U.S. Rep: Masport, Inc.
6140 McCormick Drive
Lincoln, Nebraska 68507)

805 Tri-Clover (11/18/94)
9201 Wilmont Road
Kenosha, Wisconsin 53141
(Mfg. by: KWW
Dusseldorf, Germany)

45-00 Cross Flow Membrane Modules

807 CeraMem Separations (11/30/94)
12 Clematis Avenue
Waltham, Massachusetts 02154

813 Golden Technologies Co., Inc. (2/2/95)
1697 Cole Boulevard, Suite 300
P.O. Box 4040
Golden, Colorado 80402

786 North Carolina SRT, Inc. (8/31/94)
1018 Morrisville Parkway
Morrisville, North Carolina 27560
(Mfg. by: Tohshin Seiko Co., Ltd.
42-2 Aza Shinmei Tazawa Ohkuma
Watari-Cho, Watari-Gun
Miyagi 889-23 Japan)

46-00 (Refractometers and Optical Sensors)

785 Bran & Lubbe, Inc. (9/1/94)
1025 Busch Parkway
Buffalo Grove, Illinois 60089
(Mfg. by: Bran & Lubbe
Norderstdt
GMbH [Germany])

859 The Electron Machine Corp. (11/4/95)
15820 CR 450 West
P.O. Box 2345
Umatilla, Florida 32784

800 Epsilon Industrial Inc. (10/24/94)
2215 Grand Avenue Parkway
Austin, Texas 78728

783 James C. Camp (9/2/94)
dba Advantec Process Systems
95 Wyngate Drive
Newnan, Georgia 30265
(Mfg. by: BTG Inc.
2364 Park Central Boulevard
Decatur, Georgia 30035-3987)

737 Katrina, Inc. (6/17/93)
91 Western Maryland Parkway
Hagerstown, Maryland 21740

697 Liquid Solids Control, Inc. (10/21/92)
P.O. Box 259
Farm Street
Upton, Massachusetts 01568

751 Maselli Misure S.p.A. (1/20/94)
Via Baganza, 4/3
43100 Parma, Italy
(U.S. Rep: Maselli Measurements, Inc.
P.O. Box 7571
7746 Lorraine Avenue
Stockton, California 95267)

882 Optek-Danulat Inc. (6/25/96)
279 S. 17th Avenue, Suite 10
West Bend, Indiana 53095
(Mfg. by: optek-Danulat GmbH
HaedenkampstraBe 18
D-45143 Essen
Germany)

767 Perstorp Analytical, Inc. (6/6/94)
12101 Tech Road
Silver Spring, Maryland 20904

750 PT Papertech, Inc. (1/20/94)
4850 The Dale
West Vancouver
B. C. Canada V7W 1K3
(U.S. Rep: BD Services Corporation
300 North Commercial Street
Bellingham, Washington 98227)

742 Reflectronics, Inc. (9/15/93)
3009 Montavesta Road
Lexington, Kentucky 40502

817 Technitron Labs Inc. (2/24/95)
306 Looney Road
Piqua, Ohio 45346

50-00 Level Sensing Devices

705 Bendicator Company (12/29/92)
1915 Dove Street
Port Huron, Michigan 48060

51-00 (Formerly 08-17R) Plug-Type Valves

787 Cipriani, Inc. (8/31/94)
Tassalini S.P.A.
23195 LaCadena Drive, Suite 103
Laguna Hills, California 92653

772 G & H Products (6/13/94)
7600 - 57th Avenue
Kenosha, Wisconsin 53141

780 L. C. Thomsen, Inc. (8/31/94)
1303 - 43rd Street
Kenosha, Wisconsin 53140

239 LUMACO (6/3/72)
9-11 East Broadway
Hackensack, New Jersey 07601

788 Puriti, S.A. De C. V. (9/12/72)
Alfredo Nobel No. 39
Fracc. Ind. Pte. de Vigas
Tlalnepantha, Mexico
(U.S. Rep: Waukesha Cherry-Burrell
611 Sugar Creek Road
Delavan, Wisconsin 53115)

781 Robert James Sales, Inc. (8/31/94)
699 Hertel Avenue, Suite 260
Buffalo, New York 14207

357 Tanaco Products (4/15/82)
3860 Loomis Trail Road
Blaine, Washington 98230

777 Tech Control Ent. (8/2/85)
3725 N. Murray Road
Otis Orchard, Washington 99027
(Mfg. by: Tech Control, Taipei, TAIWAN)

271 The Foxboro Company (3/8/76)
33 Commercial Street, No. 05-4A
Foxboro, Massachusetts 02035

790 Tri-Clover, Inc. (9/14/94)
9201 Wilmont Road
Kenosha, Wisconsin 53141-1413

759 VNE Corporation (3/16/94)
1149 Barberry Drive
Janesville, Wisconsin 53545

761 Waukesha Cherry-Burrell (12/17/93)
611 Sugar Creek Road
Delavan, Wisconsin 53115

52-00 (Formerly 08-17H) Thermoplastic Plug Type Valves

577 Ralet-Defay (11/2/89)
66, Boulevard Poincare
1070 Brussels, Belgium
(U.S. Agent GENICANAM, Chazy, New York)

53-00 (Formerly 08-17A) Compression Type Valves

484 APV Crepaco, Inc. (10/22/86)
100 South CP Avenue
Lake Mills, Wisconsin 53551

730 APV Crepaco (4/21/93)
100 South C P Avenue
Lake Mills, Wisconsin 53551-1799

552 Alloy Products Corp. (11/23/57)
1045 Perkins Avenue
P.O. Box 529
Waukesha, Wisconsin 53187

245 Babson Brothers Company (2/12/73)
Dairy System Division
20903 West Gale Avenue
Galesville, Wisconsin 54630

443 Badger Meter, Inc. (4/30/85)
6116 East 15th Street
P.O. Box 581390
Tulsa, Oklahoma 74158-1390

686 Bardiani Valvole S.R.L. (8/3/92)
Via G. Vittorio, 53
43045 Fornovo (PR) Italy
(U.S. Rep: Sanchelima Int.
1763 Northwest 93rd Avenue
Miami, Florida 33172)

538 Cipriani, Inc. (7/31/86)
23195 La Cadena Drive, Suite 103
Laguna Hills, California 92653
(Mfg. by: Fratelli Tassalini, Italy)

716 Conexiones Inoxidables (3/4/93)
de Puebla S.A. de C.V.
Vicente Guerrero No. 211
Xicotepec de Juarez
Edo, Puebla Mexico
(U.S. Rep: Ben Dolphin Consulting,
4735 Lansing Drive
North Olmsted, Ohio 44070)

376 Definox Division (9/13/93)
Defontaine, Inc.
16720 W. Victor Road
New Berlin, Wisconsin 53151

530 G & H Products Corp. (5/31/88)
7600-57th Avenue
P.O. Box 1199
Kenosha, Wisconsin 53141

480 Niro Inc.
Evaparator Division (8/8/86)
9165 Rumsey Road
Columbia, Maryland 21045-1991

607 Kammer Valve, Inc. (9/25/90)
510 Parkway View Drive
Pittsburgh, Pennsylvania 15205
(Mfg. by: Kammer Ventile GmbH
Manderscheidtstr. 19
45141 Essen 1, Germany)

570 LUMACO (8/9/89)
9-11 East Broadway
Hackensack, New Jersey 07601

881 MTS Milchtechnik AG (6/14/96)
Street Galler Strasse 19
CH-9042
Speicher AR
Switzerland
(U.S. Rep: Mr. James Lucas
Lucas & Associates
965 Mission Street
San Francisco, California 94103)

594 Oden Corp. (3/6/90)
255 Great Arrow Avenue
Buffalo, New York 14207

483 On-Line Instrumentation, Inc. (10/15/86)
Rt. 376, P.O. Box 541
Hopewell Junction, New York 12533

652 Pierre Guerin SA (10/4/91)
BP.12 - 79210
Mauze-Sur-Le-Mignon
France
(U.S. Rep: Alfa Technical Group, Inc.
601 Thompson Road N.
Syracuse, New York 13211)

551 Puriti, S.A. de C.V. (9/12/72)
Alfredo Nobel 39
Fracc. Ind. Puente de Vigas
Tlalnepantla, Mexico
(U.S. Rep: Waukesha Cherry-Burrell
611 Sugar Creek Road
Delavan, Wisconsin 53115)

149R Q-Controls (5/18/64)
Subsidiary of Cesco Magnetics
93 Utility Court
Rohnert Park, California 94928

748 Richards Industries (1/11/94)
3170 Wasson Road
Cincinnati, Ohio 45209-2381

762 Stainless Products, Inc. (12/18/80)
P.O. Box 169
1649 - 72nd Avenue
Somers, Wisconsin 53171-0169

806 Steri Technologies, Inc. (11/23/94)
857 Lincoln Avenue
Bohemia, New York 11716
(Mfg. by: Aseptomag AG
Bachweg 3, Postfach 415
CH-3401 Burgdorf
Switzerland)

804 Sudmo North America (11/18/94)
4740 E. 2nd Street, Suite C-20
Benicia, California 94510
(Mfg. by: Sudmo Schleicher AG
Industriester 7 D-73469
Reisburg, Germany)

823 Sudmo North America (3/17/95)
4403 First Avenue, Suite 500
Cedar Rapids, Iowa 52402
(Mfg. by: Sudmo Schleicher AG
Industiester 7 D-73469
Riesburg, Germany)

542 L.C. Thomsen, Inc. (8/31/57)
1303-43rd Street
Kenosha, Wisconsin 53140

34A Tri-Clover, Inc. (10/15/56)
9201 Wilmot Road
Kenosha, Wisconsin 53141

467 Tuchenhagen North America, Inc. (1/13/86)
(Mfg. by: Otto Tuchenhagen, West Germany)
196 Western Avenue
Fond du Lac, Wisconsin 54936-1458

789 Tuchenhagen North America, Inc. (9/15/94)
196 Western Avenue
Fond du Lac, Wisconsin 54936-1458
(Mfg. by: Scan Flow A/S
Skelhojsvej 9, d k 9541 Suldrup
Denmark)

561 VACU-PURG, Inc. (1/26/89)
214 West Main Street
P.O. Box 272
Fredericksburg, Iowa 50630

584 Valvinox, Inc. (11/27/89)
650 1ere Rue.
Iberville-QUE-Canada J2X 3B8

796 VNE Corp. (10/11/94)
1149 Barberry Drive
Janesville, Wisconsin 53547
(Mfg. by: EGMO LTD.
1 Hayotsrim, P.O. 266
Nahariya, Israel)

555 Waukesha Cherry-Burrell (12/11/57)
611 Sugar Creek Road
Delavan, Wisconsin 53115

86R Waukesha Specialty Co., Inc. (12/20/57)
P.O. Box 160, Hwy. 14
Darien, Wisconsin 53114

54-00 A2 (Formerly 08-17B) Diaphragm-Type Valves

565 APV Crepaco, Inc. (10/22/86)
100 South CP Avenue
Lake Mills, Wisconsin 53551-1799
(Mfg. by: APV Rosista, Inc., W. Germany & Denmark)

877 APV Crepaco, Inc. (5/14/96)
100 South CP Avenue
Lake Mills, Wisconsin 53551-1799

615 AsepCo (1/4/91)
1101 San Antonio
Mountain View, California 94043

814 Burkert Contromatic Corp. (2/2/95)
1091 North Batavia Street
Orange, California 92667
(Mfg. by: Buerkert Steuer-Und Regeltechnik
Christian-Buerkert-Str 13-17
D-74653 Ingelfinger
Germany)

745 Cashco, Inc. (12/9/93)
P.O. Box 6, Hwy. 140 West
Ellsworth, Kansas 67439-0006

617 Definox Division (2/1/91)
Defontaine, Inc.
16720 W. Victor Road
New Berlin, Wisconsin 53151

856 Flowtech (10/30/95)
1900 Lake Park Drive, No. 345
Smyrna, Georgia 30080

637 Gemu Valves, Inc. (7/10/91)
3800 Camp Creek Parkway
Bldg. 2400, Suite 102
Atlanta, Georgia 30331

514 H. D. Bauman Inc. (8/24/87)
35 Mirona Road
Portsmouth, New Hampshire 03801

203R ITT Engineered Valves (11/27/68)
33 Centerville Road
Lancaster, Pennsylvania 17603

494 Saunders Valve, Inc. (2/10/87)
16516 Air Center Boulevard
Houston, Texas 77032-5103

55-00 Boot Seal Valves for Milk & Milk Products

839 G & H Products Corp. (7/11/95)
7600 - 57th Avenue
P.O. Box 1199
Kenosha, Wisconsin 53141-1199
(Mfg. by: Keofitt A/S
Snaremosvej 27
DK-7000 Fredericia
Denmark)

821 Keofitt, Inc. (3/17/95)
1001 W. Glen Oaks, Suite 221
Mequon, Wisconsin 53092
(Mfg. by: Keofitt A/S
Snaremosvej 27
DK-7000 Fredericia
Denmark)

56-00 (Formerly 08-17E) Inlet and Outlet Leak-Protector Plug Valve

34E Tri-Clover, Inc. (10/15/56)
9201 Wilmot Road
Kenosha, Wisconsin 53141

57-00 (Formerly 08-17F) Tank Outlet Valve

531 G & H Products Corp. (5/31/88)
7600 57th Avenue
P.O. Box 1199
Kenosha, Wisconsin 53141-1199

534 Lumaco (6/30/72)
9-11 East Broadway
Hackensack, New Jersey 07601

643 Paul Mueller Company (8/22/91)
1600 West Phelps
Springfield, Missouri 65801

58-00 (Formerly 08-17M) Vacuum Breakers and Check Valves

843 APV Crepaco, Inc. (8/24/95)
100 South CP Avenue
Lake Mills, Wisconsin 53551

691 Definox Division (1/25/83)
Defontaine, Inc.
16720 W. Victor Road
New Berlin, Wisconsin 53151

835 G & H Products Corp. (6/22/95)
7600 - 57th Avenue, P.O. Box 1199
Kenosha, Wisconsin 53141-1199

834 Stanfos, Inc. (6/22/95)
3908 - 69th Avenue
Edmonton, Alberta
Canada T6B 2V2
(U. S. Rep: Andron Stainless Corporation
8901 Farrow Road, Suite 101
Columbia, South Carolina 29203

857 Steel & O'Brien, Mfg. Co. (10/30/95)
12850 Route 39
Sardinia, New York 14134

689 VNE Corporation (8/17/92)
1149 Barberry Drive
Janesville, Wisconsin 53547

59-00 (Formerly 08-17D) Automatic Positive Displacement Sampler

291 Accurate Metering Systems Inc. (6/22/77)
(Mfg. by: Diessel, Germany)
1650 Wilkening Court
Schaumburg, Illinois 60173

284 Bristol Equipment Co. (11/18/76)
210 Beaver Street
P.O. Box 696
Yorkville, Illinois 60560

693 Micropure Filtration, Inc. (9/17/92)
2323 6th Street, P.O. Box 7007
Rockford, Illinois 61125
(Mfg. by: Olper Maschinen & Armaturen
Olpe, Germany)

60-00 (Formerly 08-17G) Rupture Discs

422 BS & B Safety Systems, Inc. (6/12/84)
7455 E. 46th Street
Tulsa, Oklahoma 74145-6379

407 Continental Disc Corp. (10/14/83)
3160 W. Heartland Drive
Liberty, Missouri 64068

854 Fike Metal Prod. (10/17/95)
Div. Fike Corp.
704 South 10th Street
Blue Springs, Missouri 64015

61-01 (Formerly 08-17I) Steam Injected Heaters

728 APV Unit Systems Inc. (4/14/93)
395 Fillmore Avenue
Tonawanda, New York 14150

811 Hydro-Thermal Corporation (1/1/95)
400 Pilot Court
Waukesha, Wisconsin 53188

560 Pick Heaters, Inc. (1/19/89)
P.O. Box 516
West Bend, Wisconsin 53095

874 Q-Jet Systems, Inc. (4/2/96)
704 Powell Lane, P.O. Box 350
Lewiston, New York 14092-0350

62-00 (Formerly 08-17L) Hose Assemblies

795 Able Hose & Rubber, Inc. (9/14/94)
2307 E. Hennepin Avenue
Minneapolis, Minnesota 55413

758 Crouch Supply Co. (2/22/94)
P.O. Box 163829
902 S. Jennings
Ft. Worth, Texas 76161

721 Dixon Valve & Coupling Co. (3/23/93)
800 High Street
Chestertown, Maryland 21620

774 The Briggs Co. (7/18/94)
3 Bellecor Drive
New Castle, Delaware 19720

757 Nelson-Jameson, Inc. (2/21/94)
P.O. Box 647
2400 East 5th Street
Marshfield, Wisconsin 54449

727 Pure Fit, Inc. (4/14/93)
924 Marcon Boulevard
Allentown, Pennsylvania 18103

799 Rubber World (10/21/94)
936 Links Avenue
Landisville, Pennsylvania 17538

698 Sanitary Couplers, Inc. (10/23/92)
696-698 Pleasant Valley Drive
Springsboro, Ohio 45066

700 Titan Industries, Inc. (10/23/92)
11121 Garfield Avenue
South Gate, California 90280

63-00 (Formerly 08-17R) Sanitary Fittings

470 Advance Stainless Mfg. Corp. (3/30/86)
218 West Centralia Street
Elkhorn, Wisconsin 53121

380 Allegheny Bradford Corp. (3/21/83)
P.O. Box 200 Route 219 South
Bradford, Pennsylvania 16701

79R Alloy Products Corp. (11/23/57)
1045 Perkins Avenue, P.O. Box 529
Waukesha, Wisconsin 53187

682 Andron Stainless, Ltd. (6/30/92)
6170 Tomken Road
Mississauga, Ontario
Canada L5T 1X7
(U.S. Rep: Andron Stainless Corp.
8901 Farrow Road, #101
Columbia, South Carolina 29223)

349 APN, Inc. (12/15/81)
921 Industry Road
Caledonia, Minnesota 55921

621 Bradford Castmetals (2/25/91)
P.O. Box 33
Elm Grove, Wisconsin 53122

688 Cajon Company (8/4/92)
9760 Shepard Road
Macedonia, Ohio 44056

645 Cipriani, Inc. - Tassalini S.P.A. (8/27/91)
23195 LaCadena Drive, Suite #103
Laguna Hills, California 92653

696 Conexiones Inoxidables (10/1/92)
de Puebla S. A. de C. V.
Vicente Guerrero No. 112
Xicotepec de Juarez
Edo. Puebla, Mexico
(U.S. Rep: Ben Dolphin Consulting
4735 Lansing Drive
North Olmsted, Ohio 44070)

528 Dayco Products, Inc. (3/16/88)
1 Prestige Place
Miamiburg, Ohio 45342

677 EXCEL-A-TEC, Inc. (5/8/92)
N93 W14635 Whittaker Way
Menomonee Falls, Wisconsin 53051

838 Food & Dairy Quality Mgmt. Inc. (7/10/95)
245 E. 6th Street, Suite 416
Street Paul, Minnesota 55101

67R G & H Products Corp. (6/10/57)
P.O. Box 1199
7600-57th Avenue
Kenosha, Wisconsin 53141

773 Herrli AG (7/15/94)
3210 Kerzers
Switzerland
(U.S. Rep.: VNE Corp.
P.O. Box 1698
Janesville, Wisconsin 53547)

454 Jensen Fittings Corp. (9/11/85)
107-111 Goundry Street
North Tonawanda, New York 14120-5998

389 Lee Industries, Inc. (5/31/83)
P.O. Box 688
Philipsburg, Pennsylvania 16866

703 Parker Hannifin Corp. (11/6/92)
Instrument Connectors Div.
9400 South Memorial Parkway
Huntsville, Alabama 35803

200R Paul Mueller Co. (3/5/68)
1600 W. Phelps Street, Box 828
Springfield, Missouri 65801

726 Pure Fit, Inc. (4/14/93)
924 Marcon Boulevard
Allentown, Pennsylvania 18103

242 Puriti, S.A. de C.V. (9/12/72)
Alfredo Nobel 39
Industrial Puente de Vigas
Tlalnepantla, Mexico
(U.S. Rep: Waukesha Cherry-Burrell
611 Sugar Creek Road
Delavan, Wisconsin 53115)

424 Robert-James Sales, Inc. (8/31/84)
699 Hertel Avenue, Suite 260
Buffalo, New York 14207

699 Rodger Industries, Inc. (10/23/92)
P.O. Box 186
Blenheim, Ontario
Canada N0P 1A0
(Not available in the U.S.A)

334 Stainless Products, Inc. (12/18/80)
1649-72nd Avenue, Box 169
Somers, Wisconsin 53171

741 Steel & O'Brien Mfg., Inc. (8/26/93)
12850 Route 39
Sardinia, New York 14134

391 Stork Food Machinery, Inc. (6/9/83)
P.O. Box 1258/Airport Parkway
Gainesville, Georgia 30503
(Mfg. by: Stork Amsterdam, Netherlands)

449 Tech Controls Enterprise Co., Ltd. (8/2/85)
3725 N. Murray Road
Otis Orchard, Washington 99027
(Mfg. by: Tech. Control, Taipei, TAIWAN)

73R L.C. Thomsen, Inc. (8/31/57)
1303-43Road Street
Kenosha, Wisconsin 53140

34R Tri-Clover, Inc. (10/15/56)
9201 Wilmot Road
Kenosha, Wisconsin 53141

707 Valvinox, Inc., SG RM Div. (1/5/93)
650-1st Street
Iberville, Quebec, Canada J2X 3B8
(Mfg. by: SG RM, France
Not available in U.S.A.)

304 VNE Corporation (3/16/78)
1149 Barberry Drive
Janesville, Wisconsin 53547

82R Waukesha Cherry-Burrell (12/17/93)
611 Sugar Creek Road
Delavan, Wisconsin 53115

64-00 (Formerly 08-17N) Pressure Reducing and Back Pressure Regulating Valve

782 CASHCO, Inc. (8/31/94)
P.O. Box 6
Ellsworth, Kansas 67439-0006

753 G & H Products (2/1/94)
7600 - 57th Avenue
P.O. Box 1199
Kenosha, Wisconsin 53141

769 Richards Industries Valve Group (6/6/94)
3170 Wasson Road
Cincinnati, Ohio 45209

65-00 Sight &/or Light Windows & Sight Indications & Contact with Milk & Milk Products

849 Jacoby TarBox Division of (9/25/95)
Clark Reliance Corp.
16633 Foltz Industrial Parkway

867 J.M. Canty, Inc. (2/19/96)
590 Young Street
Tonawanda, New York 14150
Strongsville, Ohio 44136

845 L. J. Star Inc. (9/7/95)
P.O. Box 280
Fredonia, New York 14063
(Mfg. by: Herberts Industrieglas
GmbH & Co.
KG, Wuppertal
Germany)

818 Tri-Clover, Inc. (3/10/95)
9201 Wilmot Road
Kenosha, Wisconsin 53141-1413

ComingEvents

SEPTEMBER

·**2-3, Symposium on Yeast in the Dairy Industry,** Copenhagen, Denmark. The main objective of this Symposium is to provide a comprehensive view of the role of yeasts, both positive and negative aspects, in the dairy industry. For registration information, contact Prof. M. Jakobsen, The Royal Veterinary and Agricultural University, Dept. of Dairy and Food Science, Rolighedsvei 30, DK-1958 Frederiksberg C Denmark; telephone +45 35 28 32 15; fax +45 35 28 32 14.

·**6-7, International Symposium on the Influence of Codex Standards on International Trade in Dairy Products,** Düsseldorf, Germany. The symposium is intended for: general management, product development, product manufacturing, legislation, exporters/importers, and supervising and food inspection authorities. For additional information, contact Th. Kützemeier (Chair), German NC, Tel.: +49 228 98 24 3-0, fax: +49 228 98 24 3-20.

·**8-12, 110th AOAC International Meeting & Exposition.** For further information, contact Meeting and Education Department AOAC International, 481 North Frederick Ave., Suite 500, Gaithersburg, MD 20877 or phone (301) 924-7077.

·**8-13, Amsterdam, The Netherlands General Assembly ILAC 1996.** For further information, contact ILAC Secretariat NKO/STERIN/STERLAB, P.O. Box 29152, 3001 GD Rotterdam, The Netherlands.

·**10-12, Producing Safe Dairy Products Workshop,** hosted by The Wisconsin Center for Dairy Research in Madison, WI. Two days will be devoted to discussing the microbiology and control of dairy pathogens; one day will be dedicated to HACCP and other sanitation methods used in dairy plants and food processing systems. For more information, contact Sara Quinones at (608) 262-2217; fax (608) 262-1578; e-mail: quinones @ahabs. wisc.edu, 1605 Linden Dr., Madison, WI 53706.

·**10-14, The 11th International Packaging & Food Processing Machinery and Materials Exhibition,** Jakarta, Indonesia. For further information, telephone +44 (0)171 486 1951; fax +44 (0)171 486 8773 or +44 (0)171 413 8222.

·**11-12, 75th Anniversary of the Vermont Dairy Industry Association,** held at the Ramada Inn, S. Burlington, VT. For further information, contact Mr. Byron Moyer at 116 State St., Drawer 20, Montpelier, VT 05620-2901 or phone (802) 828-2433; fax (802) 828-2361.

·**12, 1996 Fall Education Conference,** sponsored by the Wisconsin Laboratory Association at the Chula Vista Resort in Wisconsin Dells, WI. Presenters were selected with the theme of Laboratory Safety. For additional information, contact the Conference Chairman, Greg Hustad at (715) 235-1128 or WLA President, George Nelson at (715) 232-2560.

·**12-13, HACCP Program Presents Hands-on Workshop,** in Chicago, IL. This workshop provides for an intensive day and a half evaluation of HACCP principles and elements for developing a successful program. Participants evaluate their HACCP plan against those designed by the experts. For additional information or to enroll, contact AIB, 1213 Bakers Way, Manhattan, KS 66502; phone (913) 537-4750; fax (913) 537-1493.

·**15-17, Quality Assurance in Food Laboratories,** Lisbon, Portugal. For further information, contact Prof. José Empis, Instituto Superior Tecnicoca, Dept. de Engenharia Quimica, Beccao de Biotecnologia, Av. Rovisco Pais, P-1096 Lisboa Codes, Portugal.

·**15-19, American Association of Cereal Chemists to Hold 81st Annual Meeting,** in Baltimore, MD at the Baltimore Convention Center. The annual meeting includes a technical program, technical and poster sessions, table-top exhibits, new products/services sessions, educational short courses and social events. Annual Meeting registration materials are available after May 1, 1996, from AACC headquarters, 3340 Pilot Knob Road, St. Paul, MN 55121-2097; telephone (612) 454-7250; fax (612) 454-0766.

·**17-20, Florida Public Health Association's 1996 Annual Educational Conference,** in Sarasota, FL. For further information, contact John M. McGuire or Vicki Hewell at the FPHA office (904) 387-5992.

·**19-20, 17th Annual Wisconsin Joint Conference,** A Dairy, Food and Environmental Health Symposium, at the Stevens Point Holidome, Stevens Point, WI. For more information, contact Neil Vassau, Dept. of Agriculture, Trade, & Consumer Protection, Bureau of Laboratory Services, P.O. Box 7883, Madison, WI 53707 or call (608) 267-3504.

·**19-20, The Florida Association of Milk, Food and Environmental Sanitarians' Annual Educational Conference,** in Gainesville, FL. The conference will be held at the Reitz Union on the campus of the University of Florida. For further information, contact Marian Ryan at (941) 293-6961.

·**24-26, New York State Association of Milk & Food Sanitarians Annual Conference,** Sheraton Inn, Liverpool, NY. For further information/details, contact Janene Lucia, Executive Secretary, NYSAMFS at: (607) 255-2892; fax (607) 255-7619; e-mail: jgg3@cornell. edu.

·**25-27, South Dakota Assn. of Healthcare Organizations 70th Annual Convention,** Rapid City, SD. Please direct all questions or comments to: Bud Jones or Suzanne Paradeis, SDAHO, 3708 Brooks Place, Suite #1, Sioux Falls, SD 57106; phone (605) 361-2281; fax (605) 361-5175.

·**26-27, Washington Milk and Food Sanitarians Association 1996 Annual Meeting,** at the West Coast Wenatchee Center Hotel in Wenatchee, WA. During this meeting, you'll hear professional speakers present the facts that are of vital interest to you today and in the future. For further information, contact Stephanie Olmsted, at (206) 270-9855.

·**26-27, MEHA's 8th Annual Food Protection Conference,** at Bill Oliver's Best Western Hotel in Cadillac, MI. For further information, contact Janet Morlik at (810) 257-3199.

·**30, Hazardous Waste Regulations for Generators,** offered by The University of Florida's Center for Training, Research and Education for Environmental Occupations (UF/TREEO) in Tampa, FL. The course teaches participants the latest requirements and the proper procedure for the accumulation, storage, transportation, and disposal of hazardous waste. Procedures for developing a contingency plan and how to comply with the DOT regulations that relate to hazardous waste are explained. The cost for the course is $295.00. To register call (352) 392-9570, ext. 112.

·**30-Oct. 4, Upakovka '96 and Agroprodmash '96 to be Held Concurrently,** in Moscow, Russia. Organized by NOWEA International, the foreign subsidiary of the Düsseldorf Trade Fair Company in Germany. The Dusseldorf Trade Fair Company is renowned as the organizer of interpack, the world's largest trade show for packaging machinery and materials and confectionery machinery. For further information, contact Düsseldorf Trade Shows, New York, 70 West 36th St., Suite 605, New York, NY 10018; telephone (212) 356-0400; fax (212) 356-0404 or visit the web site at http://www.dtsusa.com/dts/.

OCTOBER

·**2-4, International Conference on New Developments in Refrigeration for Food Safety and Quality Call for Papers, Co-sponsored by IAMFES.** Lexington, KY. Conference papers are sought from all areas of food refrigeration. The purpose of this conference is to provide an opportunity for food technologists, food processors, and refrigeration engineers from around the world to exchange current information on the role of refrigeration in the food chain. For further information, contact Food Refrigeration Conference, Univ. of Kentucky, 128 Agriculture Engineering Bldg., Lexington, KY 40546-0276; phone (606) 257-3000 ext. 111; fax (606) 257-5671; e-mail wmurphy@bae.uky.edu.

·**5-9, Water Environment Federation's 69th Annual Conference,** at the Dallas Convention Center in Dallas, TX. This year's conference theme focuses on environmental education. For conference information, in the U.S. and Canada call (800) 666-0206; outside the U.S. and Canada call (703) 684-2452; or in the U.S. and Canada fax (800) 444-2WEF; outside the U.S. and Canada (908) 885-6417.

·**8-12, 1st World Congress on Calcium and Vitamin D in Human Life,** Rome, Italy. Discussion will include the need to protect consumers through improved food quality and measures to enhance the quality and safety of food. Emphasis will be given to public communication and education, including reaching high-risk groups. For further information, contact Congress Secretariat, Maxitraveland s.r.l.-Via Zoe Fontana 220,00131 Rome, Italy; tel. +39.6.4131415; fax +39.6.4191868.

·**9-10, Iowa Association of Milk, Food and Environmental Sanitarians, Inc. Annual Conference,** Waterloo, IA at the Starlight Best Western. For further information, contact Janet Burns at (319) 927-3212.

·**10, Special Symposium: Qualitätssicherung in der Umweltanalytik (Quality Assurance in Environmental Analysis).** For further information, contact Dr. L. Kiessling, Gesellschaft Deutscher Chemiker, Abteilung Tagungen, Postfach 90 04 40, D-60444 Frankfurt, Germany or phone 069-7917-368; fax 069-7917-475.

·**15-16, Symposium on Microbial Food Spoilage,** Copenhagen, Denmark. Participants are invited to present posters related to microbial food spoilage. An abstract of maximum one page should be sent before September 1 to: Lene Jensen, Danish Institute of Fisheries Research, Dept. of Seafood Research, Technical University of Denmark, Bldg. 221, DK-2800 Lyngby, Denmark; phone +45 4525 2580; fax +45 4588 4774; e-mail: lej@ffl.min.dk. For further information on registration phone +45 88 33 22; fax +45 45 88 47 74; e-mail: fish@ ffl. min.dk.

·**16-18, 16th-Food Microbiology Symposium and Workshop,** Univ. of Wisconsin, River Falls, WI. The workshop is designed to provide practical demonstrations and discussion of various tests and instruments available for rapid detection, isolation and characterization of foodborne pathogens and toxins as well as prediction of shelf-life and checking hygiene and sanitation in food

processing facilities. For further information, contact Dr. Purnendu C. Vasavada, Dept. of Animal and Food Science, Univ. of Wisconsin-River Falls, River Falls, WI 54022 or phone (715) 425-3150; fax (715) 425-3785; internet: purnendu.c.vasavada@uwrf.edu.

·**16-18, Food Regulations & Their Impact on Product Development Seminar,** at Hotel International, Basel, Switzerland. This seminar provides comprehensive information about food regulations in the EC/EU, USA, and Latin America, using real-world examples to illustrate the effects of legislation, and how to achieve compliance. For detailed seminar agenda and registration information, please contact: Program Division: TECHNOMIC Publishing Co., Inc., 851 New Holland Ave., Box 3535, Lancaster, PA 17604 or phone (717) 291-5609/(800) 233-9936; fax (717) 295-9637.

·**20-23, The 1996 International Exposition for Food Processors® (IEFP) will Host "El Congreso de las Americas,"** at San Francisco's Moscone Center. IEFP attracts visitors from around the world in every segment of the processing industry, including canning and freezing, dairy, beverages, meat, pharmaceuticals and other industry segments. For more information, contact Janet Palmisano, Communications Coordinator at (703) 684-1080.

·**27-29, International Whey Conference,** sponsored jointly by the American Dairy Products Institute (ADPI), the U.S. National Committee of IDF (USNAC), and the International Dairy Federation (IDF) at the Westin Hotel O'Hare, Rosemont, IL. This international conference will bring together manufacturers of whey and whey products, firms manufacturing equipment used in whey processing, business leaders of the industry, and government and university researchers from throughout the world to discuss current topics of interest relating to the production, research, marketing and utilization of whey and whey products. Anyone interested in presenting papers at the conference should contact Dr. Warren S. Clark, Jr., Chief Executive Officer, American Dairy Institute, 130 N. Franklin St., Chicago, Il 60606; phone (312) 782-5455; fax (312) 782-5299.

·**28-31, Demands on Animal Hygiene Education and Research Seminar,** sponsored by Universidad Autonoma Metropolitana (UAM). An analysis of American and European requirements. The main subjects of discussion are: concepts on animal hygiene and environment; teaching methodology on animal hygiene; and theoretical and practical aspects. For more information, contact Dr. Jorge Saltijoral, UAM, Departamento de Produccion Agricola y Animal, Calzada del hueso 1100, Col. Villa Quietud, Coyoacan, C.P. 04960 Mexico D.F., or fax (525) 723-5480; e-mail oaxaca@cueyatl.uam.mx.

·**31-Nov. 2, NAMA National Convention and Exhibition,** Cervantes Convention Center, St. Louis, MO. Exhibitors of vending machines, food products and services related to the industry. For additional information, contact Larry Eils at (312) 346-0370.

NOVEMBER

·**13-14, The 16th Annual Northwest Food Sanitation Workshop,** at the Columbia River-Red Lion Hotel in Portland, OR. Experts from industry, government and academia will present timely information on food sanitation topics. For further information, contact Reitha McCabe, Food Science and Technology, 100 Wiegand Hall, Oregon State University, Corvallis, OR 97331-6602 or call (541) 737-3463; fax (541) 737-6525.

·**17-18, Second Conference on Quality Management in Clinical Laboratories,** Antwerp, Belgium. For further information, contact Congress Makers, fax +31-172-443680; e-mail: hoonhout@pi.net.

·**17-21, The American Public Health Association's 124th Annual Meeting & Exposition,** at the New York Coliseum in New York City. For further information call (202) 789-5646.

·**20-22, 2nd Annual Strategic Environmental Research and Development Program (SERDP) Symposium** in Vienna, VA. The Symposium provides a forum for the three federal SERDP partners - Department of Defense, the Department of Energy, and the Environmental Protection Agency-to share the results of SERDP supported research and development projects. For more information, contact Erin Cannelli, Registrar, Labat-Anderson Inc., 8000 Westpark Dr., Suite 400, McLean, VA 22102 or phone (703) 506-1400, ext. 512; fax (703) 506-0946; e-mail: Erin_Cannelli @ laib.labat.com.

3-A Sanitary Standards

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See the order form on page 530 for prices and ordering information or call 800-369-6337.

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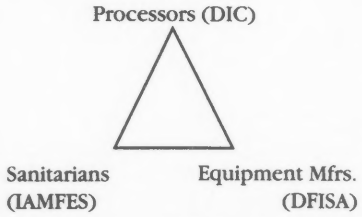
MARK OF COMPLIANCE

The 3-A Symbol Story

The 3-A Sanitary Standards Symbol Administrative Council, known throughout the industry as the "**3-A Symbol Council**," was organized in 1956. Its purpose is to grant authorization to use the **3-A Symbol** on equipment that meets 3-A Sanitary Standards for design and fabrication.



A Modern Concept

The modern concept of the 3-A program was established in 1944 when the Dairy Industry Committee (DIC) was formed. DIC is one of the three industry segments involved in the preparation of 3-A Sanitary Standards. These industry segments are:

- **Processors,** represented by DIC
- **Equipment Manufacturers**, represented by DFISA
- **Sanitarians**, represented by IAMFES

Use of the Symbol

Voluntary use of the **3-A Symbol** on dairy equipment:

- assures processors that equipment meets sanitary standards
- provides accepted criteria to equipment manufacturers for sanitary design & fabrication
- establishes guidelines for uniform evaluation and compliance by sanitarians.

3-A Sanitary Standards Symbol Administrative Council

3020 Bluff Road

Columbia, SC 29209-3502

803-783-9258 phone **803-783-9265 fax**

Reader Service No. 228

IAMFES Offers the Dairy Practices Council
"Guidelines for the Dairy Industry"

IAMFES has agreed with the Dairy Practice Council to distribute their *"Guidelines for the Dairy Industry."* DPC is a non-profit organization of education, industry and regulatory personnel concerned with milk quality and sanitation throughout the United States. In addition, its membership and subscriber rosters list individuals and organizations throughout the United States, Canada and other parts of the world.

For the past 26 years, DPC's primary mission has been the development and distribution of educational guidelines directed to proper and improved sanitation practices in the production, processing, and distribution of high quality fluid milk and manufactured dairy products.

The DPC Guidelines are written by professionals who comprise five permanent Task Forces. Prior to distribution, every Guideline is submitted for approval to the State Regulatory Agencies in each of the member states which are now active participants in the DPC process. Should any official have an exception to a section of a proposed guideline, that exception is noted in the final document.

The Guidelines are renown for their common sense and useful approach to proper and improved sanitation practices. We think that they will be a valuable addition to your professional reading library.

The entire set consists of 54 guidelines including:

1 Planning Dairy Freestall Barns
2 Effective Installation, Cleaning and Sanitizing of Milking Systems
3 Selected Personnel in Milk Sanitation
4 Installation, Clenaing, & Sanitizing of Large Parlor Milking Systems
5 Directory of Dairy Farm Building & Milking System Resource People
7 Sampling Fluid Milk
8 Good Manufacturing Practices for Dairy Processing Plants
9 Fundamentals of Cleaning and Sanitizing Farm Milk Handling Equipment
10 Fluid Milk Shelf-Life
11 Sediment Testing and Producing Clean Milk
13 Environmental Air Control & Quality for Dairy Food Plants
14 Clean Room Technology
16 Handling Dairy Products From Processing to Consumption
17 Causes of Added Water in Milk
18 Fieldperson's Guide to Troubleshooting High Somatic Cell Counts
21 Raw Milk Quality Tests
22 Control of Antibacterial Drugs and Growth Inhibitors in Milk and Milk Products
23 Preventing Rancid Flavors in Milk
24 Troubleshooting High Bacteria Counts of Raw Milk
25 Cleaning and Sanitizing Bulk Pickup and Transport Tankers
28 Troubleshooting Residual Films on Dairy Farm Milk Handling Equipment
29 Cleaning and Sanitizing in Fluid Milk Processing Plants
30 Potable Water on Dairy Farms
31 Composition and Nutritive Value of Dairy Products
32 Fat Test Variations in Raw Milk
33 Brucellosis and Some Other Milkborne Diseases
34 Butterfat Determinations of Various Dairy Products
35 Dairy Plant Waste Management
36 Dairy Farm Inspection
37 Planning Dairy Stall Barns
38 Preventing Off-flavors in Milk
39 Grade A Fluid Milk Plant Inspection
40 Controlling Fluid Milk Volume and Fat Losses
41 Milkrooms and Bulk Tank Installation
42 Stray Voltage on Dairy Farms
43 Farm Tank Calibrating and Checking
44 Troubleshooting Dairy Barn Ventilation Systems
45 Gravity Flow Gutters for Manure Removal in Milking Barns
46 Dairy Odor Control
47 Naturally Ventilated Dairy Cattle Housing
48 Cooling Milk on the Farm
49 Postmilking Teat Dips
50 Farm Bulk Milk Collection Procedures
51 Controlling the Accuracy of Electronic Testing Instruments for Milk Components
52 Emergency Action Plan for Outbreak of Milkborne Illness in the Northeast
53 Vitamin Fortification of Fluid Milk Products
54 Selection and Construction of Herringbone Milking Parlors
56 Dairy Product Safety (Relating to Pathogenic Bacteria)
57 Dairy Plant Sanitation
58 Sizing Dairy Farm Water Heater Systems
59 Production and Regulation of Quality Dairy Goat Milk
60 Trouble Shooting Microbial Defects: Product Line Sampling & Hygiene Monitoring
63 Controlling the Quality & Use of Dairy Product Rework
65 Installing & Operating Milk Precoolers Properly on Dairy Farms

If purchased individually, the entire set would cost $219. We are offering the set, packaged in three loose leaf binders for $125 plus $9 shipping and handling (outside the U.S., $21 for shipping and handling).

Information on how to receive new and updated Guidelines will be included with your order.

To purchase this important source of information, complete the order form below and mail or FAX (515-276-8655) to IAMFES.

Please enclose $125 plus $9 shipping and handling for each set of Guidelines. Shipments outside the U.S. are $125 plus $21 shipping and handling.

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	Pocket Guide to Dairy Sanitation (minimum order of 10)	.50	.75	
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Pocket Guide to Dairy Sanitation—per 10 .. $3.50

3-A Sanitary Standards
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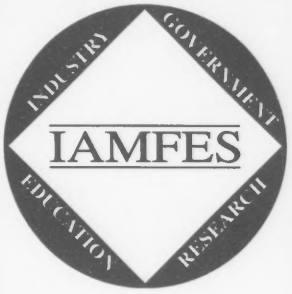

This is Your Personal Invitation to Join

The International Association of Milk, Food and Environmental Sanitarians, founded in 1911, is a non-profit educational association of food protection professionals. The IAMFES is dedicated to the education and service of its members, specifically, as well as industry personnel in general. Through membership in the Association, IAMFES members are able to keep informed of the latest scientific, technical and practical developments in food protection. IAMFES provides its members with an information network and forum for professional improvement through its two scientific journals, educational annual meeting and interaction with other food safety professionals.

Who are IAMFES Members?

The Association is comprised of a diverse membership of over 3,200 from 75 nations. IAMFES members belong to all facets of the food protection arena. The main groups of Association members fall into three categories: Industry Personnel, Government Officials and Academia.

Why are They IAMFES Members?

The diversity of its membership indicates that IAMFES has something to offer everyone involved in food protection and public health.

Your Benefits as an IAMFES Member

Dairy, Food and Environmental Sanitation — Published monthly, this is the official journal of IAMFES. Its purpose is the disseminating of current information of interest to the general IAMFES membership. Each issue contains three to five informational applied research or general interest articles, industry news and events, association news, columns on food safety and environmental hazards to health, a food and dairy industry related products section, and a calendar of upcoming meetings, seminars and workshops. All regular IAMFES members receive this publication as part of their membership.

Journal of Food Protection — A refereed monthly publication of scientific research and authoritative review articles. Each issue contains 15 to 20 technical research manuscripts and one to five articles reporting a wide variety of microbiological research pertaining to food safety and quality. The *Journal of Food Protection* is internationally recognized as the leading publication in the food and dairy microbiology field. This journal is available to all individuals who request it with their membership.

The IAMFES Annual Meeting — Held in a different city each year, the IAMFES Annual Meeting is a unique educational event. Three days of technical sessions, scientific symposia and commercial exhibits provide members and other industry personnel with over 200 presentations on the most current topics in food protection. It offers the opportunity to discuss new technologies and innovations with leading authorities in various fields concerned with food safety. IAMFES members receive a substantially reduced registration fee.

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To learn more about IAMFES and the many other benefits and opportunities available to you as a member, please call (515) 276-3344 or (800) 369-6337; fax (515) 276-8655.

"The mission of IAMFES is to provide food safety professionals worldwide with a forum to exchange information on protecting the food supply"

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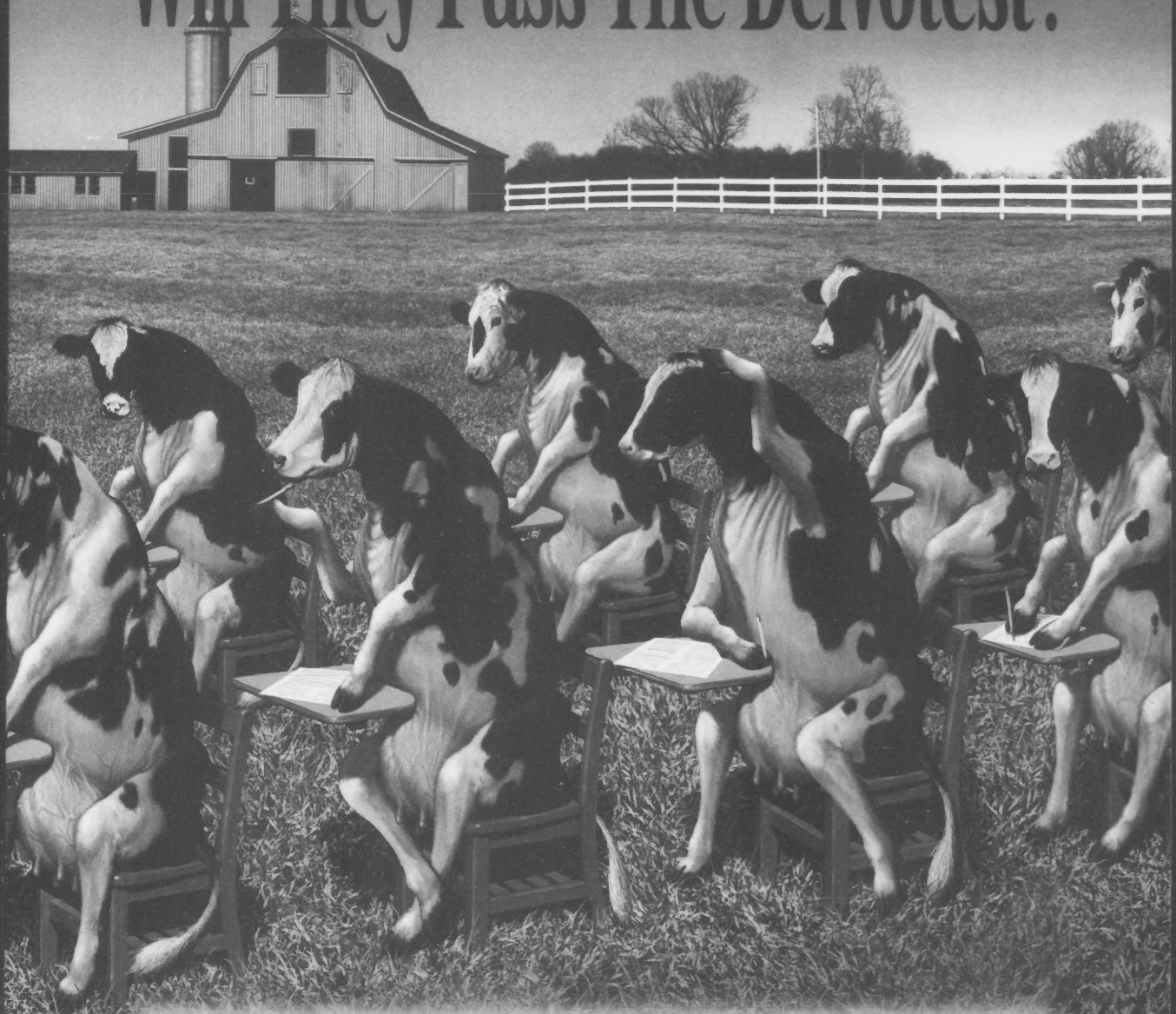

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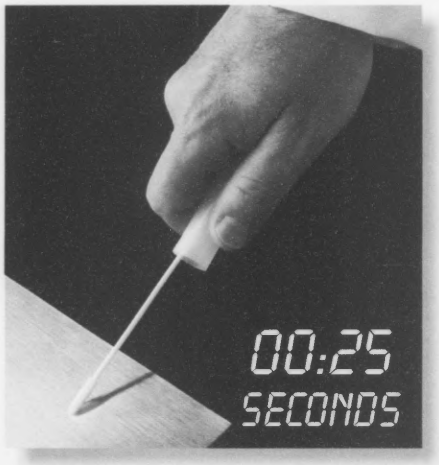

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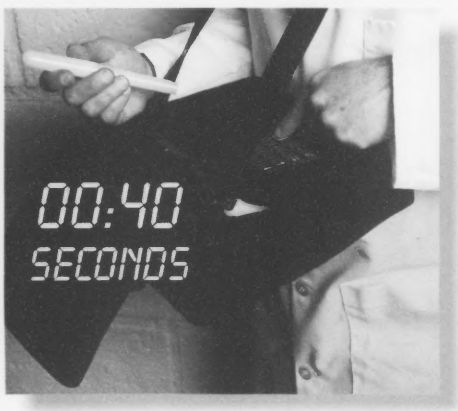

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