CHEMSTAR

CHEMICAL SELF-FUNDED TECHNICAL ADVOCACY AND RESEARCH

A REPORT ON THE YEAR 1989-1990

CONTENTS

CHAIRMAN'S REMARKS

CHEMSTAR Panels now operate in diverse ways to accomplish their goals. Efforts include direct response to proposed or existing regulations; generation of research data to support regulatory positions; and, proactive sharing of safety techniques and education of company personnel on safe handling, transport and storage of chemicals. This diversity reflects a positive evolution from the original single-focus concept of the panels to their current status as complex organizations fulfilling many different needs of our industry.

Earnest W. Deavenport, Jr.
Eastman Chemical Company
Chairman,
CHEMSTAR Policy Committee

The CHEMSTAR Business Councils — a new type of organization — expand even further the scope of self-funded activities under the CMA umbrella. Distinct from the panels, which focus on specific chemical product concerns, the Councils are forums for companies to share information and develop consistent approaches to business efficiency improvements. As the Councils grow in number and focus, they should provide an excellent complement to the constructive activities of our companies ongoing in the Panels and Standing Committees of CMA.

Impacts of the CHEMSTAR organizations are visible in a significantly growing group of improved regulatory situations and cooperative relationships with companies, and other industries in the US and abroad. The financial benefits that the organizations bring to our companies deserve notice and appreciation. Our interests will continue to be served well by placing high priority on our awareness, recognition and commitment to active participation in CHEMSTAR activities.

PRESIDENT'S OVERVIEW

The past decade was a time of tremendous expansion for CHEMSTAR. During 1989-90 the number of Panels grew to a record-high of 51. Proliferation of research and advocacy projects accentuated the need for companies to coordinate their participation in division activities, and the CHEMSTAR Contacts were established. Exciting new ventures — Business Councils — were developed as a forum for addressing business-related (as opposed to chemical-specific) issues. And CHEMSTAR continued to develop an international flavor as companies from around the world sought to join or emulate programs initiated by the Panels and Councils.

Helping the chemical industry stay viable in the face of mounting regulations, and furthering the industry's emphasis on safety, are goals of the CHEMSTAR groups. Panels save industry money by negotiating with agencies to eliminate unnecessary testing requirements and reporting burdens. They also continue to be successful in negotiating appropriate testing programs. During the past year, the Biocides Panel was able to convince EPA that a consolidated approach to chrome and arsenic pesticide evaluation, centered on individual testing of chromic acid and arsenic acid, would satisfy all outstanding data development needs. This is expected to save industry a minimum of $6 million. In December, the PCB Panel achieved a significant victory when EPA issued a new notification and manifesting rule for handling PCB wastes under TSCA. This rule was advocated by the PCB Coalition as an alternative to a Congressional proposal to move responsibility for regulating the storage and disposal of PCBs under RCRA. The shift to RCRA would have been costly to industry for compliance and cleanup. However, the EPA rule, while tightening government control over PCB wastes, will not cause a major change in chemical industry practices. These advocacy activities consume a significant portion of panel resources (63% of time, 40% of money). In all, CHEMSTAR panels made 359 submissions to government agencies in 1989-90 — a 61% increase over the previous year.

Complementing the Panels, the new Business Councils are designed to help the chemical industry in a different way. Through coordination with the ongoing dues-funded activities of the Association, the councils give the industry a valuable capability to pursue specialized business interests while maintaining coordination, consistency, and efficiency across the broad spectrum of the industry's issues and interests. The first council, on Total Quality, will help companies become more quality conscious and efficient. Other councils, with projects ranging from improving internal quality audit and communication procedures to eliminating duplication of effort on supplier and carrier audits, are anticipated.

More than ever, workshops and symposia were economical means of sharing information. The audiences included company personnel, agency officials and scientists from a variety of disciplines. In November, the Crystalline Silica Panel held a workshop to discuss the preliminary results of an independent review of studies on the crystalline silica/lung cancer issue. In addition to the academicians, 100 industry representatives attended. Also in November, the Chlorine Dioxide Panel cosponsored a very successful international symposium with EPA and the American Water Works Association Research Foundation. The symposium raised the awareness of the 250 participants to the importance of chlorine dioxide for the disinfection of potable drinking water in the U.S. This symposium

Robert A. Roland
President,
Chemical Manufacturers Association

also caused EPA to reassess its original position on banning some uses of chlorine dioxide. In addition, as a result of its annual Safety Seminars, the Hydrogen Fluoride Panel is developing several task groups to conduct more in-depth reviews of such topics as protective clothing, transportation, and safe storage systems.

"Diversified" became a word to describe CHEMSTAR activities during 1989-90. With the formation of the first Business Council — Total Quality — CHEMSTAR became the focus for an industry-wide initiative to improve the quality of goods and services.

During 1989-90, cooperative efforts between CHEMSTAR and other parts of the Association increased. The Total Quality Council teamed with the Engineering and Operations Committee and the International Affairs Committee to prepare comments and testimony on the U.S. Government's role in the voluntary standards process. The Trimellitate Esters Panel and the Environmental Management Committee's Reporting Issues Task Group filed joint comments on proposals to delist terephthalic acid from SARA Section 313. In addition, Panel and Council representatives are lending their expertise to the development of several Responsible Care Codes, most notably those on Product Stewardship and Distribution.

Cooperative efforts between Panels have also become more common. In October, the 2-Ethylhexanol, Isopropanol, and Phthalate Esters Panels submitted joint comments to EPA on the Interim Final Rule on Procedures Governing Testing Consent Agreements and Test Rules. In addition, the similarity of their issues will result in the merger of the Ethylhexanoic Acid and 2-Ethylhexanol Panels into the Oxo Process Panel early next year.

The complexity of some issues could, however, lead to the formation of segmented or separate Panels to handle specific topics. Members of the Lubricant Additives Panel are considering establishing a separate group to consider engine testing criteria, and some rubber additives and alkanolamines producers may form a panel to address nitrosamines.

Companies, legislators, and regulators around the world continue to emphasize environmental concerns. Interest in the development of a cradle-to-grave environmental management philosophy is increasing. Individual states in the U.S. are exercising their sovereignty in a flurry of legislation designed to be more restrictive than Federal laws. Internationally, the establishment of a unified European market is expected by 1992. For all of these reasons, interest in the CHEMSTAR approach to issue and research management is expected to remain high. With more companies becoming aware of CHEMSTAR and the projects already underway, expanded membership in individual panels and councils is also anticipated. The Biocides Panel already has more than 35 members, and the Crystalline Silica Panel recently registered its 52nd member.

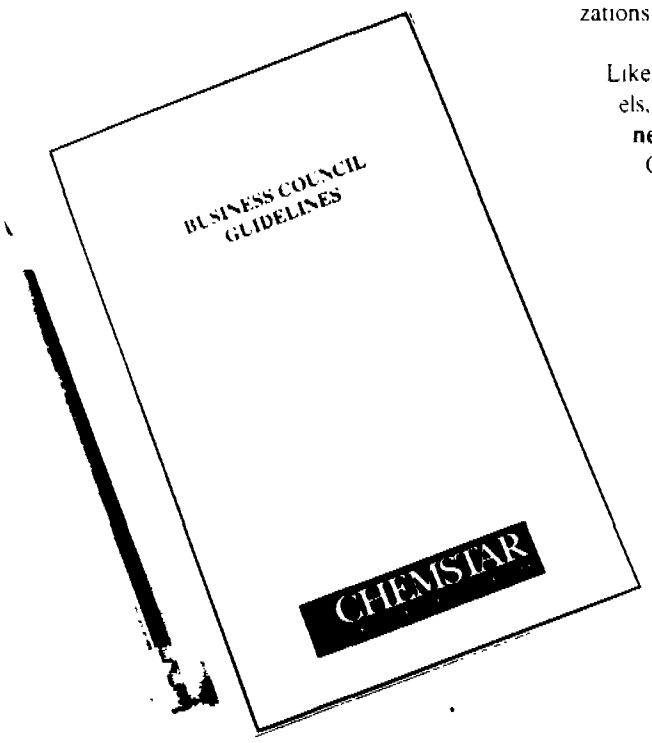
The number, variety and range of regulations and issues are expected to continue expanding. As the number of panels and councils increases and these groups continue to become larger and more complex, the techniques for managing them will also evolve. CHEMSTAR will develop innovative ways to keep the groups responsive on ever shortening timescales. These methods will then be linked to efficient mechanisms for informing all members and maintaining their active participation in the decision-making process.

CHEMSTAR stands ready to meet the challenges of the 1990s.

June 1990

THE BUSINESS COUNCILS

In October, the Board of Directors approved a new category of self-funded organizations under the Association—the Business Councils. These councils may address research, data-gathering, program and advocacy activities in those designated business sector or business function areas that are part of, or significant to, chemical manufacturing interests. Within CMA, the CHEMSTAR Division was designated to provide management support for the Councils.



Member companies focusing on business areas closely allied with chemical manufacturing (such as chemical distribution) or on improvement of business performance (such as total quality management) can now form self-supporting groups to address these issues under CMA auspices. A typical Council will decide on short- and long-term goals, formulate strategies, establish necessary task groups, develop a budget and an agreement for cost sharing among members, recruit additional members, and establish networks with other interested organizations.

Like the chemical-specific Panels, **the advantages of the Business Councils are many.** Council members benefit from the experiences of other members as innovative approaches to solving generic problems arise from group discussions. Companies develop a cohesive approach to legislative and regulatory issues in these specialized areas. The financial burden of research is lightened by sharing the costs and effort with other companies that have a vested interest in the results. And all activities are conducted under standard CMA procedures designed to protect against antitrust violations.

During the seven months since initiation of the Business Council concept, four groups have begun exploring formation. At year's end, the Total Quality Council is chartered and two others are in various stages of the approval process.

The Business Councils represent an important new service offered by CMA. The CHEMSTAR Division welcomes the opportunity to explore topics for new Councils and invites contacts from CMA member companies.

TOTAL QUALITY COUNCIL

CHAIRMAN
Raymond Attebery
Quantum Chemical

DATE CHARTERED
1990

CURRENT TASK GROUPS
ASQC Liaison
Education
International Affairs
Publicity

COUNCIL MANAGER
Langley Spurlock

The Council formed to address quality management issues of concern to the chemical manufacturing industry. Activities include: integrating quality concepts within the chemical and related industries, advocating the interests of the chemical industry before quality standard-setting organizations (domestic and international) and related government agencies, and encouraging the development of educational and training programs on quality management.

In April the Council represented CMA at hearings before the National Institute of Standards Technology. CMA's testimony, along with a majority of more than 70 speakers, supported more government interaction in the existing voluntary standards development and implementation system.

During the next year the Council seeks to become an active player in the voluntary standards system, both within the US and internationally.

Total Quality Council Organizational Meeting

During 1989-90, three new panels were requested and approved. Manufacturers and users of an individual chemical — Cobalt — and two chemical categories — Brominated Flame Retardants and Chlorinated Pool Chemicals — organized. In two instances (cobalt and chlorinated pool chemicals), manufacturers simply had a proactive interest in worker safety and customer education in the areas of safe handling, transportation and storage techniques. The driving force for the Brominated Flame Retardants group was concern about the extent and types of EPA-required testing under TSCA. All three panels are now fully organized and proceeding toward their initial objectives.

Brominated Flame Retardants

CHAIRMAN:
Don Lynam
Ethyl Corporation

DATE CHARTERED:
1990

CURRENT TASK GROUPS:
Analytical Chemistry
Executive Committee
Toxicology Research
Users' Group

PANEL MANAGER
Has Shah

The Brominated Flame Retardant Industry Panel, a group that formed in 1985 under the auspices of the Fire Retardant Chemicals Association, became a CHEMSTAR Panel in January.

As part of CHEMSTAR, BFRIP submitted comments to EPA on the Twenty-Fifth Report of the Interagency Testing Committee. The report recommends that EPA mandate the testing of several brominated flame retardant chemicals for potential environmental and health effects. A proposed test rule from EPA is expected by late 1990. BFRIP member companies responded individually to the request in the Twenty-Sixth ITC Report for information on seventeen additional brominated flame retardant chemicals.

Efforts continued on research initiated prior to the Panel's move to CMA. The Panel obtained EPA approval for sampling protocols developed for selected BFRs under the Dioxin/Dibenzofuran TSCA Section 4 Test Rule. The Panel also submitted analytical protocols for these chemicals to EPA for approval. The Agency response is expected in August or September of 1990.

BFRIP decided to partially fund a research project at the University of North Carolina to investigate the atmospheric stability of polybrominated dibenzodioxins and polybrominated dibenzofurans. Completion of this project is expected in two years.

The Panel monitored European regulatory activities and established a liaison with EBFRIP, the European Brominated Flame Retardant Industry Panel, to coordinate US and European activities on BFRs. The Panel plans to present BFRIP-sponsored research at the Tenth International Conference on Dioxin in September 1990, to be held at the University of Bayreuth in the Federal Republic of Germany.

Panel member companies will continue to work with EPA as the Agency reviews analytical protocols submitted under the Dioxin/Dibenzofuran Test Rule. The Panel will respond to the proposed TSCA Section 4 test rule when it is published, and will continue to monitor both US and foreign regulatory activities.

Chlorinated Pool Chemicals

DATE CHARTERED:
1989

CHAIRMAN
David Stocker
Monsanto
Chemical Company

CURRENT TASK GROUPS:
Transportation
Hazard Assessment

PANEL MANAGER:
Barbara Francis

The Panel formed to promote safety practices worldwide in the processing, packaging, warehousing, transportation and use of chlorinated pool chemicals.

Initially, the Panel produced a videotape that provides information on dealing with pool chemical emergencies. Additionally, a bulletin containing guidelines for safe handling and storage of pool chemicals has been completed. Both the videotape and the bulletin are being widely distributed to emergency response personnel.

The Panel is preparing a transportation bulletin which should be available for distribution in 1990. The Panel will continue to interact with code-setting organizations such as the National Fire Protection Association and intends to conduct laboratory research to aid code- and standard-setting agencies in better classifying pool chemicals.

Cobalt

DATE CHARTERED:
1989

CHAIRMAN
David Bebout
The Hall
Chemical Company

CURRENT TASK GROUPS:
None

PANEL MANAGER:
Susan Howe

The Panel formed to interact with regulatory agencies and other appropriate organizations on cobalt safety, health, and environmental issues. The first focus of the Panel was to assess current toxicological information for adequacy and to address the June 1990 International Agency for Research on Cancer review of cobalt and cobalt compounds.

The Panel interacted with several international organizations in sponsoring an observer to the June 1990 IARC meeting. Through their combined efforts, they were able to provide IARC with valuable information which was used in their assessment and classification of cobalt and cobalt compounds as a Group 2B animal carcinogen, rather than as a Group 2A human carcinogen.

In the future, the Panel will address environmental issues that affect cobalt, which include the ATSDR draft toxicity profile that is due to be published in the fall of 1990.

CONTINUING PANELS

Forty-nine CHEMSTAR Panels are now officially approved by CMA. At year's end, three new groups await official approval—Methyl Bromide, Nitrosamines, and Sodium Bromide. CHEMSTAR membership rosters during the year included 250 companies and 21 associations. Among the company members, 104 were members of CMA and 19 were non-US and non-Canadian. Participating companies and associations were represented on panels and task groups by approximately 340 persons with professional skills ranging from physical and biological sciences, through engineering and industrial hygiene to legal and business areas.

Alkanolamines

DATE CHARTERED:
1982

CURRENT TASK GROUP
Toxicology Research

PANEL MANAGER:
Jonathon Busch

CHAIRMAN,
Edward Bentley
Texaco Chemical
Company

The Panel provided EPA with unpublished health and safety studies and information on production, use, and exposure under TSCA Section 8(d). The Panel also monitored several studies sponsored by the National Toxicology Program. These included range-finding oral and developmental studies on monoethanolamine (MEA), diethanolamine (DEA), and triethanolamine (TEA), and a chronic dermal study on TEA. Following subchronic oral and dermal testing of DEA, NTP selected DEA for chronic dermal testing in rats and mice. The Panel prepared a status report summarizing the results of the subchronic testing of DEA by NTP.

The Panel formed to determine the toxicological properties and environmental effects of alkanolamines in response to concern raised by a limited Japanese study implicating triethanolamine as a possible carcinogen in mice. However, results of subsequent published and unpublished studies in rats and mice have indicated that TEA is not carcinogenic.

The Panel will submit comments to the American Conference of Government Industrial Hygenists regarding the potential carcinogenicity of TEA. The Panel will continue to monitor various research programs as guidance for its own future testing. Plans are underway for the Panel to sponsor dermal developmental studies on MEA and DEA. The Panel will monitor the efforts of certain European firms that are conducting an oral developmental study on MEA. The Panel also plans to revise its status report on DEA as results of the NTP chronic dermal study on DEA become available.

Alkylphenols & Ethoxylates

DATE CHARTERED:
1987

CURRENT TASK GROUPS:
Environmental Survey
Modeling Study
Toxicology

PANEL MANAGER:
Robert Romano

CHAIRMAN,
Richard Bennett
Texaco Chemical
Company

In cooperation with EPA, the Panel completed a voluntary national field exposure study of 30 rivers to determine the presence of nonylphenol and ethoxylates. In addition, the Panel signed a TSCA Section 4 consent order on 4-nonylphenol with EPA in February. The consent order requires physical/chemical, environmental fate, and aquatic acute and chronic testing of 4-nonylphenol.

The Panel formed to determine the health and environmental effects of alkylphenols and ethoxylates in manufacture and use. Initial efforts focused on responding to EPA concerns regarding the chemical fate and envi-

ronmental effects of nonylphenol. The Panel maintains liaison with the Soap and Detergent Association on scientific and regulatory issues. Membership is open to manufacturers, users, and formulators.

The Panel will continue to work with EPA on analyzing the nonylphenol field data. Results ultimately will be discussed at an open EPA/Panel workshop. Testing under the consent order will continue through 1991. The exposure assessment derived from the field study and the effects results from the aquatic bioassays will be used in risk assessments for nonylphenol.

Benzene

CHAIRMAN
Roger Daniel
The Dow Chemical Company

DATE CHARTERED
1976

CURRENT TASK GROUPS
Toxicology Research

PANEL MANAGER:
Carol Stack

Panel activity focused on responding to proposed benzene regulations. In August, EPA published final rules to reduce benzene air emissions from coke oven by-product recovery plants and benzene storage vessels. At the same time, EPA proposed regulations to curtail emissions from other stationary source categories, including waste operations and bulk transfer operations. The Panel worked closely with the CMA Hazardous Air Pollutants Work Group and the American Petroleum Institute Benzene Issues Group on comments that were submitted to EPA. The Agency issued final emission standards for these source categories in March.

In April, the Panel commented on proposed regulations for occupational exposure to benzene on Coast Guard-inspected vessels. The proposal adopted various aspects of the OSHA benzene standard, including the 1 ppm permissible exposure limit on exposure monitoring and medical surveillance. The Panel generally supported the proposed regulations and considered them to be flexible and performance-oriented.

The Panel also supported a research program on benzene-induced leukemogenesis in cooperation with API. The two-phase program investigates the effect of benzene and its metabolites on hematopoiesis in the mouse and man.

Since its formation, the Panel has pursued an active research and advocacy program. Responding to a NIOSH occupational study linking benzene exposure to leukemia, the Panel sponsored an industry epidemiology study in 1983. Also, in cooperation with API, the Panel established a research program investigating subchronic toxicity, metabolism and reproductive effects.

The Panel's immediate focus will be on research; however, regulatory activities are expected to continue. Response to state initiatives is anticipated, particularly in California where a "no significant risk level" has been proposed under Proposition 65 implementation. The ACGIH TLV Committee also will recommend a lower workplace threshold limit value for consideration in 1990-91.

Biocides

CHAIRMAN
Claude Wolf
Nalco Chemical Company

DATE CHARTERED:
1986

CURRENT TASK GROUPS:
Antimicrobial Exposure Assessment
Arsenic Acid
Executive
Legislative
Mercury Compounds
Regulatory
Scientific

PANEL MANAGER:
Has Shah

The Panel worked actively with EPA on implementation of the Federal Insecticide, Fungicide, and Rodenticide Act. The amended FIFRA requires EPA to reregister all pesticides by 1997 and imposes a strict schedule to meet that deadline. Under Phase 2 of the reregistration program, the Panel submitted comments and met with EPA and the Office of Management and Budget concerning EPA's proposed changes in data requirements for each product. The proposed changes expand significantly the amount of testing necessary to support the reregistration of products. As a result of Panel efforts, EPA significantly reduced the number of changed data requirements in its final guidance document. Under Phase 3, the Panel persuaded EPA to reduce the requirements to summarize completed studies and report adverse effects. Furthermore, the Agency modified its summarization guidance to permit an abbreviated format in certain situations.

In addition, EPA has agreed to require companies to identify *nominal*, not *minimum*, concentrations on antimicrobial product labels. The Panel also participated with other industry associations in discussions with EPA and OMB concerning the Label Data Call-In. The discussions resulted in clarification of information submission requirements and extended deadlines for registrants with large numbers of registrations. The Panel provided input to EPA on the Agency's newly developed Registration Booklet that outlines procedures for registrations, amend-

ments, and other administrative requirements for pesticide registrants.

The Legislative Task Group monitored legislation in both houses of Congress on pesticides, identifying several areas of concern to Panel members. These include: food safety, pesticide exports, and proposed amendments to FIFRA that would modify the cancellation and suspension provisions and increase registration maintenance fees.

The Panel continued to work with the California Department of Food and Agriculture to minimize data requirements for industrial biocides under the Birth Defects Prevention Act. The Panel also monitored the implementation of Proposition 65 and provided guidance to Panel member companies on responses to regulations.

The Panel filed comments with Agriculture Canada on a proposed restructuring of pesticide registration in Canada. The Panel's comments point out ways in which industrial biocides differ from other pesticides and recommend appropriate distinctions in regulatory treatment.

The Antimicrobial Exposure Assessment Task Group submitted a final report to EPA in March on an antimicrobial exposure assessment study conducted in response to a 1987 data call-in. The objective of the study was to measure exposure of applicators to active ingredients used in nonagricultural biocides under actual conditions of use, within a specified array of application methods and use settings. The protocol for the study was approved by EPA, and the study was conducted in accordance with good laboratory and field practice requirements. The report concluded that dermal dosing levels, while applying biocides by various application methods, were mostly below the typical dose rates reported for agricultural pesticides applied by similar methods.

The Arsenic Acid Task Group, which is concerned with arsenic, chrome and copper compounds, continued to work with EPA on the Chromated Arsenical Reregistration Standard. The Task Group persuaded EPA to allow testing of arsenic acid and chromic acid as representative compounds, rather than to require testing of all formulated products, and succeeded in reducing the amount of required testing under the various data call-ins and the Reregistration Standard. This reduction lowered the cost of testing from about $7 million to less than $1 million. As part of a negotiated program on ecological effects, the Task Group initiated aquatic and avian toxicity testing for arsenic acid and chromic acid. The testing is scheduled for completion by summer 1991. The Task Group will work with EPA in determining the health effects data needs and will conduct the testing necessary to support the registration requirements.

In an expansion of scope, the Task Group responded to the FIFRA Phase 2 Reregistration Guidance for copper and copper oxides used in wood preservatives. The Task Group will work with EPA to determine the data needs and will generate the required data to support the reregistration requirements. The Task Group also worked with the Consumer Product Safety Commission on a research project to determine the extent of release of arsenic from playground equipment. The Task Group reviewed the protocol for the project and provided comments to CPSC. The Commission is scheduled to issue its final report in fall 1990.

The Mercury Compounds Task Group initiated aquatic toxicity, avian toxicity, skin sensitization, and subchronic dermal toxicity testing with phenylmercuric acetate in response to EPA reregistration requirements. All studies will be completed in 1991. The Task Group and EPA reached an agreement on phasing out the use of mercurial biocides to preserve indoor paints. The agreement responds to concerns that the presence of these chemicals in interior paint presents a health hazard. The agreement allows a phase-out period for affected users, somewhat limits the use of the products in exterior paints and coatings, and requires further scientific studies. Two Task Group member companies will conduct extensive research to address the Agency's concerns about the continued use of mercurial biocides in exterior applications.

The Panel formed in 1986 to respond to the California Department of Food and Agriculture Data Call-In Notices on biocidal chemicals registered in the state. The data call-ins required that registrants submit data on chronic toxicity, oncogenicity, reproductive effects, teratogenicity, mutagenicity, and neurotoxicity. The Panel since has focused on a variety of issues impacting the biocides industry as a whole, and various task groups have addressed issues surrounding specific biocides.

The Panel will continue to focus on EPA's implementation of the FIFRA amendments, including data call-ins to be issued by November 1990, and new container, storage and disposal regulations. The Panel also will monitor EPA's export policy and pesticide labeling activities. California activities likely will include initiatives on the November 1990 ballot that may impact Panel biocide manufacturers. The Panel will submit comments to the Canadian government in connection with its ongoing revision of pesticide registration procedures. The Panel plans to hold a conference on Canadian pesticide regulations in fall 1990.

Butadiene

CHAIRMAN:
Norman Morrow
Exxon Chemical Americas

DATE CHARTERED:
1984

CURRENT TASK GROUPS:
Toxicology Research
Industrial Hygiene
Ethylene/Propylene
OSHA Activities

PANEL MANAGER
Elizabeth Moran

The Panel joined with the International Institute of Synthetic Rubber Producers to develop comments and testimony for the upcoming OSHA rulemaking on a workplace standard for butadiene. As part of this activity, the Panel explored alternative risk assessment methodologies for butadiene, which use all available biological, mechanistic, and species differences data in estimating risk. The Panel is developing a research program to better understand the biological effects of butadiene, and to allow more accurate estimation of the potential risk to humans.

The Panel added advocacy activities on three related chemicals: ethylene, propylene, and 4-vinylcyclohexene. For ethylene and propylene, the major goal is to obtain delisting from the SARA Section 313 list. Petitions filed by the Panel were denied, although EPA recognized that these chemicals are not directly toxic. To further bolster its legal position, the Panel filed comments jointly with the Cyclohexane and Fluorocarbon Panels opposing the proposed listing of CFCs on the SARA Section 313 list. The proposal was based upon indirect effects and specifically referenced the listing of ethylene and propylene for similar effects. The third chemical, 4-VCH, is inadvertently produced during butadiene manufacture and use, and was listed by the Interagency Testing Committee for test rule development under TSCA Section 4. The Panel and IISRP are working with EPA to develop a consent order that will address the ITC concerns.

The Panel formed in the aftermath of EPA consideration of butadiene under TSCA Section 4(f). The Panel aimed to collect and evaluate information needed to assess safety, environmental, and health issues arising from production, storage, transportation, use, and disposal of butadiene. The Panel provided comments to the Agency on two risk assessments and worked with the Agency in assessing "short-term" releases of butadiene. EPA then referred butadiene to OSHA under TSCA Section 9(a), for development of a workplace standard.

The Panel will continue to follow the development of the OSHA workplace standard on butadiene. In addition, butadiene will be among the first chemicals regulated under the Clean Air Act amendments. The Panel has begun a study aimed at determining the fugitive emissions for butadiene, the results of which will be useful in CAA discussions. The Panel also will be active in negotiating and implementing consent order and voluntary testing on 4-VCH under TSCA Section 4. The Panel is still exploring ways to modify the EPA position on the listing of ethylene and propylene under SARA.

Butylated Hydroxytoluene

CHAIRMAN:
John Zora
Neville-Synthese Organics

DATE CHARTERED:
1977

CURRENT TASK GROUPS
None

PANEL MANAGER:
Susan Howe

The Panel continued cooperative efforts with the European BHT Manufacturers Association through meetings and information exchange. The Panel submitted information for inclusion in "Summary Evaluation of the Mutagenicity/Genotoxicity of BHT." At the request of EBMA, the Panel also submitted its literature review, "Hemorrhagic Effects of Butylated Hydroxytoluene," for consideration at the thirty-seventh meeting of the Joint FAO/WHO Expert Committee on Food Additives.

The Panel was organized to conduct the research and advocacy necessary to support the continued use of BHT in food additive applications. In 1978, the Panel filed comments in response to an FDA proposal for interim regulations requiring testing to resolve safety questions. To date, FDA has not issued an interim regulation. The Panel submitted a Citizen Petition in 1986 requesting that FDA issue a regulation recognizing a prior sanction for use of BHT. The FDA has not yet announced a date for its decision on the Petition.

The Panel will submit environmental and health data to the International Maritime Organization for consideration under the MARPOL Annex III shipping regulations. The Panel also will cooperate with FDA in its continuing evaluation of BHT and may develop additional scientific information, if appropriate. In addition, the Panel is awaiting the results of the EBMA-sponsored study, "The Role of Hepatocellular Injury in the Chronic Toxicity of BHT," and will maintain working relations with EBMA to facilitate the possible submission of the study to FDA.

Chlorine Dioxide

CHAIRMAN
Gregory Becker
Drew Chemical Co

DATE CHARTERED
1988

CURRENT TASK GROUPS:
Communication
Technical
Regulatory
Toxicology

PANEL MANAGER:
Robert Romano

In response to FIFRA data call-in requirements, the Panel began a voluntary rabbit teratology study on sodium chlorite. The Panel also began working with EPA on reregistration of chlorine dioxide under FIFRA. The Panel worked closely with the EPA Office of Drinking Water on the upcoming standard for sodium chlorite. The Panel cosponsored a very successful symposium in November with EPA and the American Water Works Association Research Foundation. By serving as a forum for scientific presentations, the symposium promoted the further use of chlorine dioxide as a disinfectant of potable drinking water.

The Panel formed in anticipation of an EPA proposal to regulate chlorine dioxide under the Safe Drinking Water Act by 1991. In addition, the State of California contracted for a risk assessment on chlorine dioxide and sodium chlorite. The Panel aims to gather, review, generate, and disseminate information on chlorine dioxide and its precursors, sodium chlorite and sodium chlorate. The Panel monitors and interacts with regulatory agencies and fosters scientific communications. Primary focuses of the Panel are generation, applications, health effects, safety, and test methods of chlorine dioxide.

Future Panel activities include completion and final audit of the sodium chlorite teratology study. Panel representatives will continue to interact with EPA on FIFRA data call-ins and reregistration, and with the Office of Drinking Water. The Panel will undertake additional testing which EPA may require under FIFRA. The Panel will spend a significant amount of time reviewing and commenting on the EPA Chlorine Dioxide Health Advisory Report which is the basis for the Drinking Water Standard. The Panel also will consider sponsoring a follow-up international symposium on chlorine dioxide in late 1991.

Chlorobenzenes

CHAIRMAN:
James Bryant
Standard Chlorine
Chemical Co., Inc

DATE CHARTERED:
1974

CURRENT TASK GROUPS:
Toxicology Research
FIFRA Data Call-In
1,2,4-Trichlorobenzene

PANEL MANAGER:
Carol Stack

The Panel continues to sponsor research to meet testing requirements under TSCA Section 4 and a FIFRA Data Call-In on paradichlorobenzene (PDCB). The Panel completed a 21-day dermal study on PDCB, and acute toxicity studies on PDCB in *Daphnia* (freshwater invertebrate) and the bobwhite quail. A comparative pharmacokinetics study also was completed and report preparation is in progress.

The Panel formed to sponsor voluntary research on chlorobenzenes. The focus on research remains, but now the emphasis is on completing mandated research on health and environmental effects. The Panel continues to provide technical support for the advocacy activities of the Chlorobenzenes Producers Association, an affiliate of the Synthetic Organic Chemical Manufacturers Association.

The Panel's TSCA testing program will continue with the conduct of dietary oncogenicity studies in rats and mice on 1,2,4-trichlorobenzene (TCB). Preliminary volatility studies on TCB in dosed feed are in progress. The other primary activity will be compliance with the FIFRA Data Call-In on PDCB. An inhalation developmental toxicity study on PDCB is in progress. Additional testing is anticipated following EPA review of submitted studies and Agency reevaluation of testing requirements.

Cresols

CHAIRMAN:
Kirby Boston
Merichem Company

DATE CHARTERED:
1984

CURRENT TASK GROUP:
Advocacy

PANEL MANAGER:
Barbara Francis

The Panel completed testing of three cresol isomers in compliance with a TSCA Section 4 test rule and submitted the last final reports on reproductive effects in December.

The Panel formed in 1984 in response to the TSCA Section 4 test rule. Subsequently, the Panel has worked with the EPA Test Rules Development Branch, Office of Solid Waste, and the National Toxicology Program to ensure that logical and scientifically sound testing programs are conducted on cresols.

After submission of the reports required under the test rule, the Panel formed the Advocacy Task Group to maintain a liaison with EPA. The Task Group will alert the Panel to needs for further activities.

Crystalline Silica

CHAIRMAN:
Joseph Shapiro
Unimin Corporation

DATE CHARTERED
1989

CURRENT TASK GROUPS:
Administrative
Analytical Methods
Science Review
Regulatory and Legal

PANEL MANAGER:
Elizabeth Gormley

In conjunction with the Panel-sponsored science review, the Panel held the Silica/Lung Cancer Issues Workshop in November. Over 100 industry representatives met to review and discuss the preliminary findings of eight Panel-funded experts. Due in part to the success of the workshop, the Panel has achieved its goal of 50 members.

The Panel formed to address the 1987 International Agency for Research on Cancer listing of crystalline silica as a "probable" carcinogen. IARC classification as a probable carcinogen automatically requires firms that mine minerals and manufacture products containing crystalline silica compliance to the OSHA Hazard Communication Standard. The Panel began with nine members, dedicated to bringing together the silica industry to speak with a united voice on scientific, regulatory and analytical concerns stemming from the IARC Action. In another action, the National Toxicology Program proposed listing crystalline silica on its Sixth Annual Report on Carcinogens as "reasonably anticipated to be a carcinogen." The Panel commented to NTP five times within its first year asking that NTP await the outcome of the funded science review.

The Analytical Methods Task Group is planning an international workshop on methods for detecting and analyzing silica content. The workshop is scheduled for August 1991. The Regulatory/Legal Task Group will continue to follow the NTP listing processes. The Panel also will submit comments to OSHA on the use of automatic triggers and to the Mine Safety and Health Administration on permissible exposure limits for crystalline silica. The Science Review Task Group is turning to other scientific questions as the science review nears completion. The Panel will continue to monitor and respond to other technical, regulatory, and legal issues as they arise.

Cumene

CHAIRMAN:
Gene Hamilton
Georgia Gulf Corporation

DATE CHARTERED:
1985

CURRENT TASK GROUPS:
Health Effects
Environmental Effects

PANEL MANAGER
Barbara Francis

In compliance with a TSCA Section 4 Test Rule issued in 1988, the Panel initiated testing of health and environmental effects and environmental fate. The testing was completed in March, and the Panel decided to conduct further voluntary testing.

Through a judicial challenge, the Panel sought definition of "substantial" exposure limits by which the Agency can require testing under TSCA Section 4(a)(1)(B). In April, the Court ruled that EPA did not justify the test rule for cumene because meaningful criteria for defining "substantial or significant" environmental release and human exposure had not been established. The Court remanded the test rule to EPA and directed the Agency to provide a rationale for its exposure findings. The Court declined to stay the rule largely because most of the first-tier testing under the rule had been completed.

The Panel formed as a result of the Interagency Testing Committee's designation of cumene for priority testing under TSCA Section 4. The Panel's objective is to collect information that will allow assessment of health and environmental effects arising from production, storage, use and disposal.

The Panel is conducting a voluntary subchronic toxicity study and a metabolite identification study to provide further information on the effects of cumene. Results from these studies will be submitted to EPA in early 1991. The Panel will continue to interact with EPA on hazard assessment issues.

Cyclohexane

CHAIRMAN:
Russell Cook
Phillips Chemical Company

DATE CHARTERED:
1985

CURRENT TASK GROUP
Toxicology Research

PANEL MANAGER:
Jonathon Busch

The Panel is preparing for a final TSCA Section 4 test rule. EPA has delayed publication. This delay occurs in part because EPA has not developed criteria for defining substantial or significant exposure. Because of a recent court decision, the final test rule on cyclohexane will be delayed until EPA can develop an exposure definition which would apply generically to all chemicals subject to TSCA test rules. In preparation for the final test rule, the Panel reviewed bids from qualified laboratories to perform the research.

The Panel submitted comments to EPA opposing a SARA Section 313 listing petition filed by the National Resources Defense Council and the Governors of New Jersey, New York, and Vermont. The Panel's comments outline reasons why cyclohexane does not meet any of the statutory requirements for listing under Section 313. The Panel also undertook advocacy activities to affect amendments of the Clean Air Act.

Cyclohexane manufacturers formed the Panel to address the Interagency Testing Committee's intent to designate cyclohexane for priority testing under TSCA Section 4. EPA formally designated the chemical for health effects testing in 1986.

The Panel will comment to EPA on the anticipated TSCA final test rule and will spon-

sor required research as appropriate. The Panel also will work with the Butadiene Panel to develop specific language for recommended legislative action on SARA Section 313. The legislation would eliminate unnecessary reporting and prevent chemicals that have only indirect health effects from being listed.

Dibenzofurans/ Dibenzodioxins

DATE CHARTERED:
1984

CHAIRMAN:
Kenneth Burgess
The Dow Chemical Company

CURRENT TASK GROUPS:
None

PANEL MANAGER:
Elizabeth Gormley

The Environmental Defense Fund and the National Wildlife Federation appealed the 1988 summary judgment of their lawsuit against EPA. In the suit, EDF and NWF sought to force the Agency to initiate a TSCA Section 6 rulemaking on dioxins. The Federal Court ruled in favor of the Agency's right to "set its own priorities" in the face of citizens' petitions. The Panel decided to continue to participate as an intervenor on behalf of EPA in the appeal of this lawsuit.

The Panel formed when EDF and NWF filed the TSCA Section 21 Petition. In addressing the EPA response, the Panel commented to the Agency on proposed rules under TSCA Sections 4 and 8. Final rulemakings on the two sections require analyses of chemicals for the presence of dibenzofurans and dibenzodioxins as impurities and the reporting of production, processing, use, exposure, and disposal data.

The Panel is awaiting the outcome of the appeal. With conclusion of the lawsuit drawing near, the Panel will monitor the dioxin issue and consider new activities.

Diisocyanates

DATE CHARTERED
1988

CURRENT TASK GROUPS:
Industrial Hygiene
Health Effects

CHAIRMAN
James Chapman
Mobay Corporation

PANEL MANAGER:
Robert Romano

The Panel participated in the EPA open meeting on the Health Assessment Document for toluene diisocyanate. Panel presentations were well received by the Agency. The Panel monitored the State of California's listing of toluene diisocyanate as a potential carcinogen under Proposition 65 regulations. The Panel worked closely with the Society of the Plastic Industry to inform the hundreds of users of TDI in California of their reporting and labelling requirements under Proposition 65. The Panel also worked closely with several other states on their upcoming Air Toxics Regulations. A draft model using Industrial Hygiene data to predict fugitive emissions has been prepared by the Panel. This model has significant generic applications for predicting fugitive emissions for many chemicals.

The Panel formed to develop and disseminate information on the safe handling of diisocyanates, including: toluene diisocyanate, methylenebisdiphenyl diisocyanate, hexamethylene diisocyanate, and methylene bis-dicyclohexyl diisocyanate. Monitoring impending regulations affecting the production or use of diisocyanates and developing responses as needed are also key Panel activities.

The Panel will continue to work with the EPA Office of Air Quality Planning and Standards on the TDI Health Assessment Document, and with the State of California on implementation of Proposition 65. Work will continue between the Panel and several states as state Air Toxic Regulations are being developed. The Panel also will address some of the 43 isocyanates listed by the ITC in the intent to designate category of its 26th list to the EPA Administrator. Negotiating between the Panel and the EPA Test Rules Development Branch to develop appropriate responses under TSCA Section 4 will continue. The Panel also will continue to interact and coordinate activities with SPI and the International Institute on Isocyanates.

Dinitrotoluenes

DATE CHARTERED:
1989

CHAIRMAN:
Thomas Marriot
Air Products and Chemicals, Inc.

CURRENT TASK GROUP:
Toxicology

PANEL MANAGER:
Barbara Francis

As part of a voluntary agreement with the EPA and agencies of the Federal Republic of Germany, the Panel is conducting a pharmacokinetics study. The results of this study will be submitted to the government agencies in 1991. In addition, the US member companies provided environmental release information on 2,6- and 2,4-dinitrotoluene to the EPA.

The Panel formed to permit US manufacturers to work with Bayer AG on a voluntary testing program. Representatives of the U S EPA and FRG agencies identified DNT as a possible subject for cooperative testing by companies in both countries. The agencies' stated objectives were to promote sharing of the cost of research and to ensure the availability of adequate hazard data in both countries. The Panel member companies and Bayer AG agreed to undertake a pilot pharmacokinetics project in response to the agencies' request.

The Panel will complete the pharmacokinetics study and will continue to interact with EPA and the FRG agencies in assessment of results.

Ethylene Dibromide

DATE CHARTERED:
1982

CURRENT TASK GROUPS:
None

CHAIRMAN:
Vernon White
Great Lakes Chemical Corporation

PANEL MANAGER
Robert Romano

OSHA has not yet issued a final rule revising the federal Occupational Standard for ethylene dibromide. The Panel therefore had no need to meet this year.

The Panel formed to address the OSHA Standard with the goal of ensuring that reasonable regulations are adopted. Once the rule is issued, the Panel will review the requirements and evaluate the effects on the industry.

Ethylene Dichloride

DATE CHARTERED:
1974

CURRENT TASK GROUPS:
None

CHAIRMAN:
Vacant

PANEL MANAGER
Has Shah

No new activities were undertaken by the Panel this year.

The Panel formed to address federal and state agencies in all safety and health issues arising out of the production, distribution, and use of EDC. Initially, the panel focused on evaluating scientific literature, identifying data gaps, and undertaking additional toxicological studies to improve the research data base. The Panel voluntarily sponsored studies of chronic inhalation, metabolism, and teratogenicity.

The Panel will monitor agency activities and take action as appropriate.

Ethylene Glycol

DATE CHARTERED:
1986

CURRENT TASK GROUP:
Toxicology Research

CHAIRMAN
Dennis Macauley
Union Carbide Corporation

PANEL MANAGER:
Carol Stack

The Panel is in the last phase of a voluntary research program to supplement the toxicological data base on ethylene glycol. The Panel completed an oral developmental toxicity study in rats and established a no-observed effect level. A comparative pharmacokinetics study in female mice also has been completed and the final report is being prepared.

The Panel formed to augment the toxicological data base on ethylene glycol. In particular, the Panel has focused on investigating the potential for developmental toxicity and pharmacokinetics research in mice and rats.

The Panel will meet this fall to consider future activities. Focus will be on further research needs, the impact of completed work on ethylene glycol risk assessment, and communication of the research findings to customers and within member companies.

Ethylene Oxide

CHAIRMAN:
Ronald Van Mynen
Union Carbide
Corporation

DATE CHARTERED:
1981

CURRENT TASK GROUPS
Scientific
Industrial Hygiene
Environmental
Toxicology
Economic
Risk Assessment

PANEL MANAGER:
Robert Romano

The Ethylene Oxide Industry Council and Chemical Industry Institute of Toxicology cofunded an EO pharmacokinetics physiological modeling study being conducted at CIIT. The EOIC also tracked the reauthorization of the Clean Air Act, which could affect EO production facilities. The results of the EOIC screening study for fugitive emissions were accepted by EPA and will be used by the Agency in its Fugitive Emissions Regulation. In addition, EOIC worked with ATSDR to determine the fate of the SARA Section 110 EO toxicological profile report. The Panel feels that ATSDR development of the profile is inappropriate since EO is not found at waste sites. The Panel also sponsored a very successful "EO Information Exchange" workshop on environmental and safety issues related to EO production.

The Panel formed to evaluate the results of an animal study that may affect OSHA and EPA regulatory proceedings on EO. The EOIC addresses many regulatory and scientific activities in an effort to provide both agencies with enough information to make reasonable and scientifically sound decisions on regulatory controls.

The CIIT pharmacokinetics physiological modeling study will continue, as well as a broad review of all EO epidemiology data. To better aid EPA, the EOIC has decided to sponsor an EO industry-wide fugitive emissions bagging study to further quantify EO emissions for SARA Section 313 reporting and risk assessment. The EOIC plans to meet with ATSDR to discuss additional concerns with the EO toxicological profile. A second "Information Exchange" workshop focusing on transportation of EO is planned by the Panel.

2-Ethylhexanol

CHAIRMAN:
Richard Wise
Union Carbide
Corporation

CHARTER DATE:
1986

CURRENT TASK GROUPS:
Toxicology Research
Butyraldehyde
Butyraldehyde
Environmental
Butyraldehyde Toxicology

PANEL MANAGER:
Has Shah

In October, the Panel along with the Isopropanol and Phthalate Esters Panels filed joint comments on the EPA Interim Final Rule on Procedures Governing Testing Consent Agreements and Test Rules. The Final Rule was published by the Agency in May 1989.

The Toxicology Research Task Group continued to monitor the progress of the oncogenicity studies at BASF in Germany. The in-life portion of the mouse oncogenicity study was completed in May, and the rat oncogenicity study will be completed in September 1990. The Panel initiated dermal and oral pharmacokinetic studies in November. The data will be used in toxicity studies to determine the potential health risks associated with human exposure. The study is expected to be complete by December 1990.

The Butyraldehyde Task Group developed and conducted a survey to gather information concerning the production and use of butyraldehyde in the United States and worker, general population, and environmental exposure levels. The survey included all producers and several major users of the chemical.

The survey was submitted to EPA in September because the ITC had recommended health and ecological effects testing of butyraldehyde under TSCA Section 4 if significant worker and general population exposure to the chemical were demonstrated. Based on very low workplace, general population, and environmental exposure levels found, the Panel concluded that health and environmental effects studies are not warranted. The Agency's independent assessment of the exposure levels was similar to that of the Task Group. The EPA Exposure Assessment Branch has transmitted these conclusions to the Test Rule Development Branch which will make the decision on the TSCA Section 4 rule. The Task Group will respond when EPA publishes its recommendation.

The Panel formed to address the TSCA Section 4 test rule issued by EPA at the request of the National Toxicology Program. NTP requested this testing when budget cuts forced the cancellation of its two-year rat and mouse bioassay. The final rule was published in August.

The Panel will continue to monitor the progress of the oncogenicity and pharmacokinetic studies.

Fluoroalkenes

CHAIRMAN
Roland Stahl
E. I. du Pont de Nemours & Co.

DATE CHARTERED:
1987

CURRENT TASK GROUPS:
Specific Chemicals Producers
Specific Chemicals Toxicology

PANEL MANAGER:
Jonathon Busch

The Panel complied with a TSCA Section 4 rule requiring testing of four fluoroalkene monomers for mutagenicity, subchronic toxicity, and oncogenicity. The monomers are vinyl fluoride, vinylidene fluoride, hexafluoropropene, and tetrafluoroethene. The Panel submitted final reports to EPA for review on all completed studies. Oncogenicity testing of vinylidene fluoride and vinyl fluoride is still in progress.

The Panel presented comments at an EPA TSCA Section 4 Public Program Review on fluoroalkenes. At the review, industry and Agency scientists discussed the results of lower tier testing conducted under the fluoroalkenes test rule. On the basis of the Panel's comments, the Agency rescinded the heritable translocation assay requirement for hexafluoropropene and vinyl fluoride.

The manufacturers of the fluoroalkene monomers originally formed an ad hoc coalition to address the ITC's 1980 designation of fluoroalkenes for priority testing consideration under TSCA Section 4. The coalition reorganized as a panel under the auspices of CMA after the test rule was final.

The Panel is awaiting the Agency's decision on whether an oncogenicity study for hexafluoropropene and a mouse-specific locus study for vinyl fluoride will be required. The Agency's decision will depend on results of lower tier testing. Lower tier testing includes a mouse micronucleus test with hexafluoropropene; and an alkaline elution study and an unscheduled DNA synthesis study with vinyl fluoride which are in progress. The mouse specific locus test requirement for vinyl fluoride will be rescinded if both the alkaline elution test and the unscheduled DNA synthesis tests are negative.

The Panel plans to sponsor required tests and will interact with EPA in the evaluation of testing requirements.

Fluorocarbons

CHAIRMAN
S. Robert Orfeo
Allied-Signal Inc.

DATE CHARTERED:
1973

CURRENT TASK GROUPS:
Scientific Review
Effects
External Affairs
Recognition

PANEL MANAGER:
Elizabeth Gormley

In keeping with a decision to end Panel activities in 1990, the Panel sought to complete the research projects in progress and prepare to terminate in an orderly fashion. The only new funding was in support of several workshops on biological and ultraviolet (UV-B) effects issues.

The Panel formed to fund research to determine the environmental fate of CFCs. To date, the Panel has supported projects totalling more than $25 million. Sponsored studies have addressed atmospheric chemistry, atmospheric measurements, modeling and trend analysis. The Panel focus has broadened in recent years to include the monitoring of developments in the climate/greenhouse and biological effects research areas.

A report listing the investigators and summarizing the results of all the projects funded by the Panel, and a brochure outlining the history of the Panel, will be published as the final tasks. Panel member companies will elsewhere pursue efforts to develop safe, efficient alternatives to CFCs.

Glycol Ethers

CHAIRMAN
Richard Wise
Union Carbide Chemicals and Plastics Company Inc.

DATE CHARTERED:
1980

CURRENT TASK GROUPS:
Toxicology Research
SARA Section 313 Delisting

PANEL MANAGER:
Carol Stack

The Panel's research and advocacy activities continued to focus on ethylene glycol butyl ether (EGBE), diethylene glycol butyl ether (DGBE) and its acetate (DGBA), and triethylene glycol ether methyl ether (TGME). A voluntary research program on EGBE is in progress. The program includes *in vitro* hemolysis studies in rat and human red blood cells, and the development of a physiologically based pharmacokinetics model for EGBE risk assessment. The Panel also contracted with a public relations firm which produced an information brochure, "Dissolving the Myths about EGBE and Health," which reviewed the health effects data base and existing regulations on EGBE.

The Panel completed studies required under a TSCA Section 4 Test Rule on DGBE/DGBA. DGBE was tested for mutagenicity, subchronic toxicity/fertility effects, and neurotoxicity. A comparative pharmacokinetics study on DGBE and DGBA also was completed. A developmental neurotoxicity study was included in the final test rule pending EPA program review of the Tier 1 testing. EPA decided not to require the study, as Tier 1 test results were uniformly negative.

The Panel successfully negotiated a consent order in lieu of a TSCA Section 4 test rule on the triethylene glycol ethers. The member of the class subject to testing is TGME. EPA and the Panel did not agree on the need for inclusion of developmental neurotoxicity testing in the consent order therefore EPA subsequently issued a test rule requiring the study. All testing requirements under the consent order have been met. Final reports on mutagenicity testing and developmental toxicity studies were submitted to EPA. Final study reports on neurotoxicity and subchronic dermal studies are in preparation and will be

submitted to EPA in October. Plans are being made for initiation of the TGME developmental neurotoxicity study later this year.

The Panel met with NIOSH to discuss an external peer review draft of a criteria document on ethylene glycol ethers. NIOSH had selected the Panel as a peer reviewer and Panel scientists provided extensive comments on the document. The Panel was successful in convincing NIOSH to issue a separate criteria document for EGBE, based on distinguishing toxicological characteristics. The Panel also argued that the NIOSH recommended exposure level for EGBE was unnecessarily low. NIOSH's schedule calls for publication of the criteria documents by the end of the year.

Panel toxicologists met with the scientific review panel of the Research Institute for Fragrance Materials to discuss the glycol ethers data base and assist RIFM in identifying research needs to ensure safe use of glycol ethers in fragrances. Panel members also provided comments on a Cosmetics Ingredients Review on EGBE. A CIR Panel is responsible for scientific determinations on the safety of cosmetic components.

The Panel sponsored evaluations of air emissions data on glycol ethers as part of an effort toward delisting members of the glycol ethers category from SARA Section 313. The Panel has explored the possibility of filing a delisting petition with EPA. The category of glycol ethers also appears on the list of toxic air pollutants in the House and Senate versions of the Clean Air Act Amendments. The Panel anticipates filing petitions for delisting members of the category when the legislation is passed.

In state activities, the Panel filed comments in response to the listing of ethylene glycol methyl ether (EGME) and ethyl glycol ethyl ether (EGEE) as reproductive toxins under California Proposition 65 implementation. The Panel also responded to a call for information on glycol ethers by the California Air Resources Board. In Louisiana, the Panel was successful in limiting inclusion of glycol ethers on a list of toxic air pollutants to only those of toxicological concern.

Panel manufacturers of EGME and EGEE and their acetates are tracking regulatory developments within OSHA. The Administration formally issued a call for information on these chemicals, but has yet to propose workplace standards.

The Panel formed to develop an adequate toxicity data base on ethylene-based glycol ethers, provide information to users and government agencies on the safety of the chemicals, and promote scientifically sound regulatory action.

The Panel will complete mandatory testing under TSCA, and then voluntary testing will once again dominate the Panel's research activities. In advocacy efforts, the Panel will pursue delisting efforts, as they relate to SARA and the CAA, and will monitor state activities.

Hexamethylene Diisocyanate

DATE CHARTERED
1988

CURRENT TASK GROUP:
Toxicology Research

PANEL MANAGER
Carol Stack

CHAIRMAN
Donald Lamb
Mobay Corporation

The Panel prepared for the publication by EPA of a TSCA Section 4 Test Rule on hexamethylene diisocyanate by identifying candidate testing laboratories and requesting proposals and bids. In addition, the Panel monitored progress on final test rule development within EPA.

The Panel formed to address the inclusion of HDI on the ITC priority list of chemicals for testing under TSCA Section 4. ITC designated the chemical for response within 12 months. EPA responded by proposing oncogenicity, mutagenicity, reproductive toxicity, developmental toxicity, neurotoxicity, comparative pharmacokinetics and hydrolysis testing.

EPA projected publication of the final test rule in summer 1990. Publication however has been delayed as the result of a Court directive requiring EPA to develop criteria to support a "substantial or significant" exposure finding under TSCA Section 4(a)(1)(B). Because EPA based testing requirements for HDI solely on this finding, the Agency currently is developing exposure standards. EPA will then judge testing needs accordingly.

Hydrogen Fluoride

DATE CHARTERED:
1988

CURRENT TASK GROUPS:
Materials of Construction
Medical & Toxicology
Mutual Aid
Personal Protective Equipment
CAER/Risk Communication
Storage Systems
Transportation

CHAIRMAN:
S. C. Watkins
Allied-Signal Inc

PANEL MANAGER:
Elizabeth Gormley

The Panel approved mission statements and long- and short-term goals for each of its newly established task groups and asked them to develop resource materials in their issue areas. In August, the Panel held its annual Safety Seminar to focus on new safety technology and techniques. In April, the Panel Chairman attended a meeting of the Comite Technique Europeen du Fluor of the Conseil Europeen des Federations de l'Industrie Chimique and gave a presentation on the goals and activities of the Panel. This was part of a Panel effort to learn more about this group and look to areas of collaboration. The Panel agreed to co-fund a toxicology study with CEFIC and the Dutch government. The Panel also monitored Congressional and state activity on issues affecting hydrogen fluoride transportation and use.

The Panel formed to provide a forum for producers and shippers to share information on safety in the manufacture and transportation of, and emergency response procedures for, hydrogen fluoride. The Panel is made up of US and Mexican members.

The Panel will decide whether to expand its efforts and membership to address pending regulatory and legislative activities at the local, state, and federal levels.

Hydroquinone

DATE CHARTERED:
1984

CURRENT TASK GROUP:
Toxicology Research

PANEL MANAGER
Jonathon Busch

CHAIRMAN:
Robert Brothers
Eastman Kodak Company

The Panel completed the required testing program for hydroquinone under TSCA Section 4. The testing program included an evaluation of pharmacokinetics and potential neurotoxicity, developmental toxicity, and reproductive toxicity. All required data and reports were submitted to EPA. The Panel prepared a Research Summary Report outlining the findings and conclusions of the studies. If EPA accepts the Panel-sponsored research, then the Panel will have achieved its research objectives. The Panel also participated in peer review of the NTP carcinogenicity bioassays of hydroquinone with rats and mice.

The Panel formed in response to a proposed TSCA Section 4 test rule published by EPA in 1984. Subsequently, the Panel submitted extensive comments to the Agency and presented data at the rulemaking hearing. In addition, the Panel voluntarily sponsored a study to assess potential developmental effects from exposure to hydroquinone.

The Panel plans to publish the findings of its research program in a scientific journal. The Panel also will cooperate with the Nonprescription Drug Manufacturers Association and the Cosmetic, Toiletry, and Fragrance Association by providing these trade groups with summaries and final reports of the Panel-sponsored research. The International Agency for Research on Cancer identified hydroquinone as a priority chemical for review in 1991. The completed Panel research will be submitted to IARC for use in its evaluation.

Isopropanol

DATE CHARTERED:
1987

CURRENT TASK GROUP:
Toxicology Research

PANEL MANAGER:
Barbara Francis

CHAIRMAN:
James Quance
Exxon Chemical Company

In compliance with a TSCA Section 4 Test Rule issued in December, the Panel initiated testing for health effects. Testing requirements include: subchronic toxicity, reproductive toxicity, developmental toxicity and neurotoxicity, mutagenicity, oncogenicity and pharmacokinetics.

The Panel formed to address health effects concerns about isopropanol raised by the ITC in its 19th Report to the EPA Administrator. The Panel's objective is to collect information that will aid in the assessment of health effects arising from production, storage, transportation and use of isopropanol.

The Panel will monitor studies required under the TSCA Section 4 test rule and will continue to interact with EPA regarding interpretation and evaluation of the test results.

Ketones

CHAIRMAN
James Quance
Exxon Chemical Company

DATE CHARTERED
1980

CURRENT TASK GROUPS:
Toxicology Research
Acetone Task Group

PANEL MANAGER
Barbara Francis

In an effort to resolve the TSCA Section 4 testing issue, the Panel submitted information to EPA from a survey of current worker exposure to mesityl oxide. The survey results demonstrated that significant reductions in worker exposure have occurred.

In January, the Panel formed the Acetone Task Group to address US and foreign regulatory issues. The Task Group submitted comments and successfully petitioned the State of Louisiana's Air Quality Office to remove acetone from its list of one hundred toxic air pollutants.

The Panel submitted comments to ATSDR on isophorone in response to the Agency's identification of priority data needs for isophorone and three other chemicals. Based on the negligible potential for human exposure to isophorone at National Priority List sites, and because many of the research needs have been filled through voluntary studies, the Panel is advocating that isophorone be given a low priority for further ATSDR action.

The Panel formed to address EPA activities on methyl isobutyl ketone, methyl ethyl ketone, isophorone, and mesityl oxide under TSCA Section 4. The Panel negotiated testing programs with the Agency to augment the data base on these chemicals. In addition, the Panel was actively involved in discussions with the Agency on testing needs for MO and filed a petition for review of the final test rule.

The Panel will continue to negotiate with EPA in an attempt to resolve the mesityl oxide testing issue through a consent agreement. The Panel will also continue to interact with ATSDR regarding isophorone, and will conduct advocacy on acetone, methyl ethyl ketone and methyl isobutyl ketone, as appropriate.

Lubricant Additives

CHAIRMAN,
Charles Keller
Exxon Chemical Company

DATE CHARTERED:
1985

CURRENT TASK GROUP:
Environmental Research

PANEL MANAGER:
Carol Stack

The Panel continued to monitor activities related to marine transport of lubricant additives. In addition, the Panel considered forthcoming implementation of MARPOL Annex III, as well as data requirements under proposed EEC existing chemicals regulations, additives handling procedures, and sulfonates sensitization testing.

The Panel organized to address anticipated international marine pollution control regulations. An immediate concern was the need to generate marine aquatic toxicity data to support proper pollution categories for bulk shipments and to investigate the efficient stripping of unloaded tankers.

The Panel was largely successful in meeting its original goals, and is in the process of deciding where to focus resources in the future.

Metal Catalysts

CHAIRMAN,
William Deering
Gulf Chemical and Metallurgical Company

DATE CHARTERED:
1984

CURRENT TASK GROUPS:
Environmental Regulations
Industrial Hygiene
RCRA

PANEL MANAGER:
Susan Howe

The Panel held a joint meeting with the Japan Catalyst Manufacturers Association. Each group gave a short presentation of its activities and future courses of action. In a roundtable discussion, the groups exchanged specific concerns of the catalysts industries. The Task Groups developed advocacy positions in response to several proposed regulations which impact the metal catalysts industry. The RCRA Task Group successfully commented to EPA on the proposed third-third land ban of certain hazardous wastes.

The Panel formed to collect and evaluate information necessary to assess safety, environmental, and health issues arising from the production, storage, transportation, use and disposal of metal-containing catalysts in industrial processes. The Panel has focused on a research program to characterize the toxicity profiles of metal catalysts, with particular emphasis on nickel-containing materials.

The Panel is continuing liaison with the Nickel Producers Environmental Research Association and the European Catalysts Manufacturers Association. The Industrial Hygiene Task Group is working with NiPERA to prepare a response to the American Conference of Governmental Industrial Hygienists proposal to lower the Threshold Limit Values for all nickel compounds. The Environmental Regulations Task Group is addressing pending regulations concerning the export of wastes and hazardous wastes, especially spent metal catalysts which are frequently exported for recycle.

Methylenedianiline

DATE CHARTERED:
1982

CURRENT TASK GROUPS:
Risk Assessment,
Medical & Toxicology
Analytical and Industrial
Hygiene

CHAIRMAN:
Roger Daniel
Dow Chemical
USA

PANEL MANAGER:
Elizabeth Moran

The Panel submitted comments and testified at the OSHA hearing on the proposed workplace standard for MDA. The testimony addressed two major issues: the need for a level of MDA in liquid and solid mixtures below which the labeling and other provisions do not apply, and the need for physician judgment in decisions involving medical removal following abnormal clinical findings in mandated tests.

The Panel formed in response to the ITC recommendation that 4,4'-methylenedianiline be considered for priority testing under TSCA Section 4. In 1983, EPA decided that no additional testing was necessary, but designated MDA as the first "significant risk" chemical under TSCA Section 4(f). Ultimately, in 1985, the Agency referred the chemical to OSHA under the authority of TSCA Section 9. The Panel participated in the first negotiation of a workplace standard for MDA under the Occupational Safety and Health Act.

The Panel is awaiting the final rule for a workplace standard on MDA, which is expected to be published in 1990.

Naphthenates

DATE CHARTERED:
1983

CURRENT TASK GROUPS:
None

CHAIRMAN:
Michael Scott
Mooney
Chemicals, Inc.

PANEL MANAGER
Has Shah

No new activities were undertaken by the Panel this year.

The Panel formed as a result of an ITC recommendation to EPA that calcium, cobalt, and lead naphthenates be considered for priority testing under TSCA Section 4. Subsequently, the Panel expanded its scope to address EPA concerns in the pesticides area.

The Panel will decide on a course of action when it receives the EPA evaluation of its dermal absorption study. The study was part of a voluntary testing program developed by the Panel and the Agency in lieu of a TSCA Section 4 test rule.

Oleylamine

DATE CHARTERED:
1984

CURRENT TASK GROUPS
None

CHAIRMAN:
Lincoln Metcalfe
Akzo Chemicals Inc.

PANEL MANAGER:
Susan Howe

The Panel completed the first tier of the required testing program for the TSCA Section 4 test rule. The results of the mutagenicity studies in either the detection of gene mutations in somatic cells in culture assay, or in the *in vivo* mammalian bone marrow cytogenetics assay, indicated that oleylamine is not mutagenic. The developmental toxicity studies showed that oleylamine is not embryotoxic, fetotoxic or teratogenic in rats or rabbits.

The Panel formed in response to the proposed test rule under TSCA Section 4 requiring pharmacokinetics, genetic effects, subchronic toxicity (including neurotoxi-city and reproductive tract effects), and teratogenicity data.

Due to the test data and the Panel's successful cooperation with EPA in shaping the final test rule, the Panel will not need to conduct additional mutagenicity studies under the second tier requirements. Additionally, the Panel will not have to conduct third tier studies or an oncogenicity study. The original research objectives of the Panel have now been achieved, so future activities of the Panel will depend on EPA's further evaluation of the research findings.

Phenol

CHAIRMAN:
Edwin Fraini
Dow Chemical USA

DATE CHARTERED:
1988

CURRENT TASK GROUPS
Regulatory
Toxicology Research

PANEL MANAGER
Susan Howe

Panel members shared information on safe handling procedures and safety in transportation, exposure treatments, sampling systems, safety incidents, and transportation emergency response. In addition, the Panel completed development of the criteria for the Pro-Active Safety Index — a standard company survey methodology for assessing worker safety at manufacturing facilities. The Regulatory Task Group greatly expanded in scope after ATSDR identified priority data needs for phenol in its pilot test program under SARA Section 110 for chemicals found at National Priority List waste sites.

The Panel formed to promote greater safety in the production, transportation and use of phenol. Member companies exchange nonproprietary safety information on topics such as transportation training, tank car handling, exposure treatment, sampling systems, emergency response procedures, and waste disposal. Health and environmental concerns about phenol are addressed by the Regulatory Task Group.

The Panel plans to use the Pro-Active Safety Index in self-assessments by member companies. The results of company surveys will be compared by a third party and the Panel will present awards to the most successful members, in recognition of worker safety excellence at phenol-producing plants. The first annual awards ceremony will be held in September 1990. The Regulatory Task Group will continue to monitor regulatory activities that may specifically impact phenol production, and will comment when appropriate.

Phosgene

CHAIRMAN
W E Irby
Mobay Corporation

DATE CHARTERED:
1972

CURRENT TASK GROUPS
Engineering and Safety Practices
Regulatory
Industrial Hygiene
Medical and Toxicology

PANEL MANAGER:
Robert Romano

The Panel's fugitive emissions field study convinced EPA that the Agency's SOCMI fugitive emissions predictors are inappropriate for estimating emissions from phosgene manufacturing sites and possibly from other chemical processes. The Panel continued its sponsorship of research at New York Medical College on treatment methods for accidental exposure to phosgene. The research has moved on to canine in-life studies and has identified several medications that are effective in treatment of phosgene exposure.

The Panel formed to improve industry's ability to safely manufacture, handle, and use phosgene. Predicting and controlling ambient concentrations of phosgene from accidental releases has become an important Panel objective.

The proceedings of the Panel-sponsored international symposium, "Remote Monitoring: Current Technology and Future Developments Applicable to Air Toxics, Including Phosgene," will be published in 1990. The Panel will continue information exchange among member companies on safety techniques, and cooperation with EPA. In particular, the Panel will monitor increasing regulatory interest in phosgene. The Panel also plans to develop a phosgene mitigation data base and a field testing program to assess mitigation devices.

Phthalate Esters

CHAIRMAN:
James Santory
Aristech Chemical Corporation

DATE CHARTERED:
1973

CURRENT TASK GROUPS:
Toxicology Research
Environmental Research
Food and Drug Applications
Phthalic Anhydride
California Issues
FDA Toxicology Research

PANEL MANAGERS:
Elizabeth Moran
Marian Stanley

This year, the Panel was very active in commenting on a number of regulations affecting phthalate esters. In most cases, the comments resulted in changes to the proposals.

Under SARA Section 110, ATSDR published a proposed Decision Guide which will be used to determine testing needed on di-2-ethylhexyl phthalate (DEHP) and other listed chemicals. DEHP was used as an example in the proposed rule. The Panel commented on the DEHP information, emphasizing that the chemical has been extensively tested and animal test results plus low levels of environmental exposure lead to the conclusion that no further testing should be required. Furthermore, many studies identified by ATSDR as needed are not feasible to conduct. The Panel also commented on the draft dibenzyl phthalate toxicological profile, and the tentative testing needs included in the profile.

DEHP was listed under CERCLA Section 102 with a Reportable Quantity of one pound. The Panel submitted comments in support of an Agency proposal to raise this value and succeeded in raising the RQ to 100 pounds.

The Panel commented on a California Proposed Maximum Contaminant Level for DEHP in drinking water. Although DEHP is not expected to be present in drinking water above the proposed PMCL, the Panel's comments were aimed at making the PMCL consistent with the no significant risk level set under Proposition 65.

In continuation of the Panel's cooperative program of information exchange with the CEFIC Plasticizers Sector Group, the Panel hosted the second joint meeting of the two groups in June 1990. The two groups plan to continue meeting annually, and will pursue some joint projects during the next year.

The Panel formed in 1972 to address environmental issues. In 1976, the Interagency Testing Committee listed the alkyl phthalate category for test rule development under TSCA Section 4. The ITC also included health effects testing in its concerns following the release by NTP of bioassay results on DEHP and di-2-ethylhexyl adipate. In 1980-81, the Panel worked with EPA to develop the first Negotiated Testing Agreement in lieu of a TSCA Section 4 test rule. The testing was completed in 1984 and the results were submitted to the Agency along with a proposal for further environmental testing. In 1988, the Panel and EPA agreed on an environmental testing program which is being conducted under a consent order.

The Panel is exploring alternative risk assessment strategies for DEHP. In one strategy, the Panel is exploring use of a new risk assessment modeling procedure. The procedure uses results of mode of action studies in a two stage model of Moolgavkar and Knudson, rather than the linear multistage model which uses only bioassay data.

Reproductive and developmental toxicity of phthalate esters appears to be the least well understood of all the research questions facing the Panel. To further understanding, the Panel has contracted with an expert in this area, to review and analyze the published and unpublished literature. The outcome of the review will be a published article, in a peer reviewed journal. The work in particular will be used to support the Panel's advocacy in California.

In federal advocacy, the Panel will work with ATSDR and EPA to avoid inappropriate or unnecessary testing requirements on DEHP, DBP and other phthalates under SARA 110. The Panel also will comment on revised EPA water quality criteria for DEHP and DEHA, which are expected to be proposed in late 1990. The Panel is planning to publish results of environmental effects testing to provide better data to states developing regulations (especially water regulations). Finally, the Panel will address the inclusion of phthalates in the air toxics title of CAA amendments, and develop a strategy for deleting phthalic anhydride from the air toxics list.

Polychlorinated Biphenyls

CHAIRMAN:
John Craddock
Monsanto Company

DATE CHARTERED:
1981

CURRENT TASK GROUPS:
None

PANEL MANAGER:
Elizabeth Gormley

In December, EPA issued a new notification and manifesting rule under TSCA for management of PCB wastes. The Panel, working within a consensus group of industry organizations and environmental groups, had long advocated publication of this rule as the best way to address Congressional concerns about mismanagement of PCB wastes, particularly by commercial storers and disposers. The Panel worked with the Natural Resource Defense Council, Environmental Defense Fund, National Electrical Manufacturers Association, and the Edison Electric Institute/Utility Solid Waste Activities Group. This consensus group successfully argued that a rule be issued under TSCA Section 6, alongside other PCB specific regulations rather than under RCRA as Congress had contemplated. The group convinced Congress that a RCRA rule would be costly and potentially confusing without the benefit of significant improvement in addressing the stated concerns.

The Panel formed to represent the interests of the industry during implementation of the TSCA Section 6 regulations for the control of PCBs, mitigation of transformer fires, and retention of electrical equipment containing PCBs.

The Panel will continue to monitor new and existing PCB issues relating to SARA, EPA drinking water criteria issues, and the cleanup of accidental and old spills, including RCRA and Superfund proposals. Panel actions to address individual state PCB regulatory activities are expected to increase in the coming year.

Rubber Additives

CHAIRMAN:
Bernard Hill
Monsanto Company

DATE CHARTERED:
1979

CURRENT TASK GROUPS:
Toxicology Research
MBT
MBT Joint Test Sponsors/
Importers of Rubber Articles

PANEL MANAGER:
Susan Howe

The Panel completed most of the studies on 2-mercaptobenzothiazole required under the TSCA Section 4 Test Rule. The reproductive effects studies will be completed by fall 1990. The Panel is now preparing a layman's summary of each of the studies performed under the Test Rule. This will be used to disseminate the test results to the joint test sponsors/importers of rubber articles containing MBT.

The Panel formed to support research that would expand the rubber additives safety and health issues data base. To date, the Panel has collected information on approximately 65 chemicals classified as rubber additives, and has sponsored more than $800,000 in research.

The Panel will continue to collaborate with the German consortium, WTR, in efforts to monitor, review, and sponsor health and safety studies on rubber additives. Panel members are working to establish a dialogue between the ITC and industry in developing a sufficient database for rubber additives listed as priority chemicals by ITC.

Specialty Acrylates/ Methacrylates

DATE CHARTERED:
1987

CURRENT TASK GROUPS
Scientific Issues
Membership
Regulatory Issues

CHAIRMAN:
Georjean Adams
Minnesota Mining and Manufacturing Company

PANEL MANAGER:
Marian Stanley

The Panel reached agreement with EPA on revisions in some of the more restrictive provisions of the TSCA Section 5 consent orders for new acrylates. Prior to the agreement, manufacturers were required to label all new acrylates and methacrylates as potential carcinogens based upon structure-activity relationships to existing chemicals. This and other provisions of the orders restricted distribution and impeded successful marketing. In addition, the Panel was successful in reaching an agreement with the Agency concerning existing consent orders. Member companies were able to replace the restrictive language in their existing consent orders with the new negotiated language.

The Panel formed to address EPA concerns about new and existing specialty acrylates and methacrylates. The Panel's major emphasis is on working with the Agency to remove restrictions on the development and marketing of new products. Current Panel membership consists of producers, importers, formulators, and users of these chemicals.

The Panel has begun to conduct the first tier of toxicological tests in the three-stage research program agreed upon with the EPA. The Panel will continue working with EPA to remove distribution restrictions on these important new chemical products.

Titanium Dioxide

DATE CHARTERED:
1977

CURRENT TASK GROUPS:
None

CHAIRMAN:
Jerry Blacker
SCM Corporation

PANEL MANAGER:
Jonathon Busch

In January 1989, EPA published a Notice of Proposed Rulemaking setting the Reportable Quantity for $TiCl_4$ at 1 lb. In August, the Agency published another NPR raising the RQ for $TiCl_4$ to 100 lbs. The Panel submitted comments to the Agency in both instances requesting that EPA set the RQ at 1000 lbs. in the Agency's final rule under CERCLA designating $TiCl_4$ as a hazardous substance. The EPA response to the Panel's comments is expected in November 1990.

The Panel submitted an epidemiology study on $TiCl_4$ workers to the National Cancer Institute. The Panel also submitted scientific comments to the publisher Van Nostrand Reinhold and as a result was successful in having the hazard rating for titanium dioxide lowered in *Dangerous Properties of Industrial Materials*, Sax and Lewis (eds.).

The Panel continued information-sharing sessions in which member company representatives discuss case histories of accidental releases and safety problems encountered with $TiCl_4$. The companies hope to enhance worker and community safety by sharing key experiences and improvements made to control releases.

The Panel formed to address concerns about the potential hazards confronting workers in complex atmospheres created during formulation operations with titanium dioxide.

The Panel plans to monitor proposed regulations on mining wastes and to assess the impact of those regulations on the titanium dioxide industry. The Panel has tentative plans to submit a SARA Section 313 delisting petition to EPA for carbonyl sulfide, and will address other issues such as SARA Section 110 actions and $TiCl_4$ airborne release modeling. The Panel also will track regulations in states that have added, or plan to add, titanium dioxide to their hazardous substances lists and will petition for delisting where necessary.

Trimellitate Esters

DATE CHARTERED:
1983

CURRENT TASK GROUP
Toxicology Research

PANEL MANAGER
Elizabeth Moran

CHAIRMAN:
Dean Finney
Eastman Chemical Company

The Panel completed a battery of environmental and health effects tests on tri-2-ethylhexyl trimellitate as part of a Negotiated Testing Agreement under TSCA Section 4. In 1990, the Panel added terephthalic acid to the scope of its activities. The Panel submitted comments in support of the proposed delisting of terephthalic acid from SARA 313. In its proposal, EPA indicated that delisting would await additional testing under TSCA Section 4. The Panel opposed linking delisting to a TSCA Section 4 testing requirement.

The ITC designated the trimellitate ester for priority testing under TSCA Section 4 in 1982. The recommended testing included metabolism, subchronic, mutagenicity, and environmental effects testing. The producers immediately formed a special task group under the Phthalate Esters Panel and subsequently formed the Panel to pursue a negotiated testing agreement. The Panel reached an agreement with EPA in 1984.

When EPA completes its review, the Panel will work with Agency scientists to interpret the test data and to determine the need for additional testing.

Vinylidene Chloride

DATE CHARTERED:
1974

CURRENT TASK GROUPS:
None

PANEL MANAGER
Jonathon Busch

CHAIRMAN:
Zeb Bell
PPG Industries, Inc

The Panel continued its efforts to have EPA withdraw the proposed TSCA Section 4 test rule. The Office of Air Quality Planning and Standards has stated that further testing of VDC is unnecessary. Nonetheless, the EPA Test Rules Development Branch will not withdraw the rule until ATSDR has evaluated and published the final Toxicological Profile on VDC under SARA Section 110. The Panel submitted comments to ATSDR on VDC as part of its continuing effort to assist the Agency in evaluating the chemical. The Panel also submitted comments to ATSDR on 1,2-dichloroethene, a by-product of VDC production.

The Panel formed to sponsor research on the potential toxicologic effects and pharmacokinetics of VDC. The objective was to develop data for ensuring the safety of workers involved in the manufacture, handling, and use of the chemical, as well as the safety of communities surrounding production facilities.

The Panel will continue to work with ATSDR and EPA to achieve reasonable regulations based on sound scientific information.

Water Additives

DATE CHARTERED:
1985

CURRENT TASK GROUPS:
Specific Chemicals
Exposure
Toxicology

PANEL MANAGER
Robert Romano

CHAIRMAN:
Paul Carlson
Calgon Corporation

The Panel has focused on filling data gaps for ultimate certification under the consensus Water Additives Standards. The Panel began addressing data needs for the following chemicals: polydiallyldimethylammonium chloride (PDADMAC), copolymers of epichlorohydrin and dimethylamine (EPI/DMA), and polyacrylamide (PAM). The Panel formed a task group for each of these chemicals which will perform an exposure assessment and sponsor tests. The toxicological tests to be performed will include Ames, rat micronucleus, rat teratology, and 90-day subchronic.

The Panel formed to address regulations of direct and indirect potable water additives. The objectives are to monitor regulatory policies, improve communication, review toxicology data, develop advocacy positions, ensure that any water additives program is designed and administered in a cost-effective manner, and ensure that water additives are used in a manner that does not compromise public health, safety, or the environment.

The Panel will continue to work with all organizations that are developing water additive certification programs. The Panel also will participate in American Water Works Association activities where these programs will be discussed further and defined. The Panel will officially meet with each of the three certification agents and their toxicology staffs in 1990. Certification packages for the three chemicals will be developed for use by each member company, with ultimate certification by the agent of their choice.

COMPLETED PANELS

The manufacturers of aromatic diamines, 2-ethylhexanoic acid, and vinyl chloride disbanded their groups this year. The aromatic diamines manufacturers discovered that they have diverse product lines and diverging research goals; 2-ethylhexanoic acid manufacturers reconstituted the group to include chemicals involved in the oxo process; and the vinyl chloride group completed its research goals.

Aromatic Diamines

DATE CHARTERED:
1987

CURRENT TASK GROUP:
Toxicology Research

CHAIRMAN:
Robert Smith
Ethyl Corporation

PANEL MANAGER:
Carol Stack

No new activities were undertaken by the Panel this year. Previous activity included the investigation of research to identify differences in biological activity of substituted aromatic diamines.

The Panel formed to develop a strategy acceptable to EPA for achieving PMN approvals without a long-term bioassay on each new product. Currently, very limited structure-activity data exist to refute the Agency's assumption that all substituted aromatic diamines are potentially carcinogenic.

The Panel decided to terminate in March. Diversity in the aromatic diamines product lines among Panel members and consequent divergences in research interests did not permit development of a program that could adequately address all Panel members' needs.

2-Ethylhexanoic Acid

DATE CHARTERED:
1984

CURRENT TASK GROUP:
Toxicology Research

CHAIRMAN:
Roderick Gerwe
Eastman Kodak Company

PANEL MANAGER:
Has Shah

The Panel decided to merge with the 2-Ethylhexanol Panel and its Butyraldehyde Task Group to form a panel including chemicals involved in the oxo process. The merger will enable the reconstituted panel to address issues on a broader range of chemicals that are starting materials, intermediates, or the end products of the oxo process.

The Panel formed following the Interagency Testing Committee's designation of 2-ethylhexanoic acid for priority testing under TSCA Section 4. The Panel submitted data to EPA documenting the uses and manufacturing processes associated with the chemical. Since EHA is used solely as a chemical intermediate and is manufactured and processed in a closed system, the Panel focused on demonstrating that there is no significant human exposure. EPA published a final test rule for EHA in 1986. The required testing was completed by the Panel in 1988 and final reports were submitted to the Agency for review.

Future activities involving EHA will be conducted under the reconstituted panel and will depend upon the EPA response to data submitted under the test rule.

Vinyl Chloride

DATE CHARTERED:
1973

CURRENT TASK GROUP:
Research Coordinator

PANEL MANAGER:
Susan Howe

CHAIRMAN:
William Gaffey
Monsanto Company

Panel activities included the update of the 1974 Panel-sponsored epidemiologic study on vinyl chloride workers. Activities also included the unsuccessful attempts to determine what proportion of the non-angiosarcomas and biliary tract tumors were really misdiagnosed angiosarcomas.

The Panel formed to accumulate and assess health and safety data on vinyl chloride monomer. After funding several animal studies, emphasis on research shifted from toxicological investigations to early diagnosis and clinical management of injuries. Subsequently, the Panel has focused on epidemiologic studies of workers. The Panel completed its research goals and decided to terminate activities in 1990.

Table 1

CHEMSTAR PANELS FINANCIAL STATUS

For the Twelve Months Ended May 31, 1990

Panels	Balance June 1, 1989	Contribution Receipts	Interest Revenue	Expenditures	Balance May 31,1990
Acrylates/Methacrylates	$284,900	$570,000	$47,000	$107,800	$794,100
Alkanolamines	39,100	0	3,000	19,600	22,500
Alkylphenols/Ethoxylates	372,500	376,300	29,000	289,800	487,900
Aromatic Diamines	1,100	0	100	1,200	0
Arsenic	3,300	0	100	2,800	600
Benzene	447,300	0	37,100	85,700	398,700
Biocides	781,800	774,900	68,600	789,500	835,800
Brominated Flame Retardants	0	41,100	100	19,300	21,900
Butadiene	114,900	393,900	11,000	367,900	151,900
Butylated Hydroxytoluene	36,700	20,000	2,600	27,000	32,300
Chlorinated Pool Chemicals	0	100,000	1,400	80,600	20,800
Chlorine Dioxide	(13,100)	163,000	1,200	119,800	31,300
Chlorobenzenes	466,200	454,800	39,900	277,700	683,200
Cobalt	0	40,000	900	19,300	21,600
Cresols	330,600	68,900	14,100	369,300	44,300
Crystalline Silica	19,800	154,000	4,900	110,100	68,600
Cumene	434,000	696,600	36,700	814,100	353,200
Cyclohexane	4,100	80,000	2,500	67,100	19,500
Dibenzofurans/Dibenzodioxins	13,700	37,500	1,300	42,300	10,200
Dinitroluenes	0	251,600	9,600	106,100	155,100
Epoxy Resins	400	0	0	400	0
Ethylene Dibromide	0	0	0	0	0
Ethylene Dichloride	(3,800)	10,800	300	2,400	4,900
Ethylene Glycol	203,900	44,700	14,900	158,600	104,900
Ethylene Oxide	235,100	30,900	15,700	170,800	110,900
Ethylhexanol	562,500	1,072,400	97,900	381,300	1,351,500
Ethylhexanoic Acid	38,900	3,700	3,500	4,000	42,100
Fluoroalkenes	422,500	352,600	33,600	469,100	339,600
Fluorocarbons	2,358,400	150,000	150,100	1,587,900	1,070,600
Glycol Ethers	728,700	620,200	46,900	804,300	591,500
Hexamethylene Diisocyanate	11,800	0	400	11,800	400
Hydrofluoric Acid	7,200	32,800	600	18,200	22,400
Hydroquinone/Quinone	86,600	0	4,900	71,300	20,200
Isocyanates	88,600	90,000	4,000	127,200	55,400
Isopropanol	221,400	844,600	38,700	426,000	678,700
Ketones	(54,800)	415,000	11,100	164,300	207,000
Lubricant Additives	37,100	5,100	3,200	11,900	33,500
Metal-Containing Catalysts	66,200	67,000	3,300	107,000	29,500
Methylenedianiline	50,600	52,000	5,700	55,000	53,300
Naphthenates	100	0	0	100	0
Oleylamine	100,000	26,000	4,900	118,500	12,400
Phenol	30,000	56,500	2,300	56,900	31,900
Phosgene	221,100	71,200	18,600	118,300	192,600
Phthalate Esters	859,100	1,010,900	98,700	609,100	1,359,600
Polychlorinated Biphenyls	109,700	13,000	8,500	72,500	58,700
Potable Water Additives	6,600	442,000	7,600	29,800	426,400
Rubber Additives	111,400	486,600	19,600	394,900	222,700
Titanium Dioxide	24,300	31,000	1,000	46,500	9,800
Trimellitate Esters	18,800	30,000	1,700	8,400	42,100
Vinyl Chloride	31,100	0	2,500	7,600	26,000
Vinylidene Chloride	(21,900)	85,000	2,700	22,000	43,800
	$9,888,500	$10,266,600	$914,000	$9,773,200	$11,295,900

FINANCIAL RESOURCES

Each panel is required to maintain a CASH COMPENSATING BALANCE which recognizes that CMA signs all contracts on behalf of the panels and assumes the financial liability for panels meeting their contractual commitments. The balance permits timely honoring of financial commitments. The combined compensating balance for all CHEMSTAR Panels at the beginning of Fiscal Year '89-90 was about $10 million. Compensating balances on May 31, 1990 totalled about $11 million. On this date, CMA had financial liabilities totalling about $10 million under 215 executed contracts on behalf of the various panels.

INTEREST on the unexpended cash balance provides supplemental revenue for each CHEMSTAR Panel. This year, panels earned a combined total of $914 thousand in interest income.

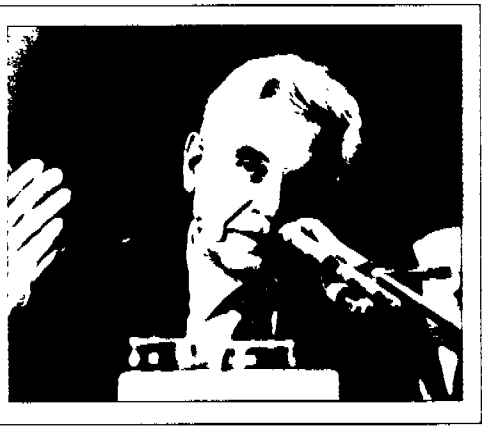
EXPENDITURES of CHEMSTAR Panels are based on budgets approved by each panel. In Fiscal Year '89-90, panels spent a collective total of $9.8 million for research, consultants, legal counsel and panel management.

Figure 1

CHEMSTAR PANELS
Financial Allocations

RESEARCH 60%

ADVOCACY 40%



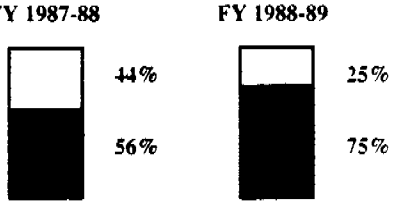
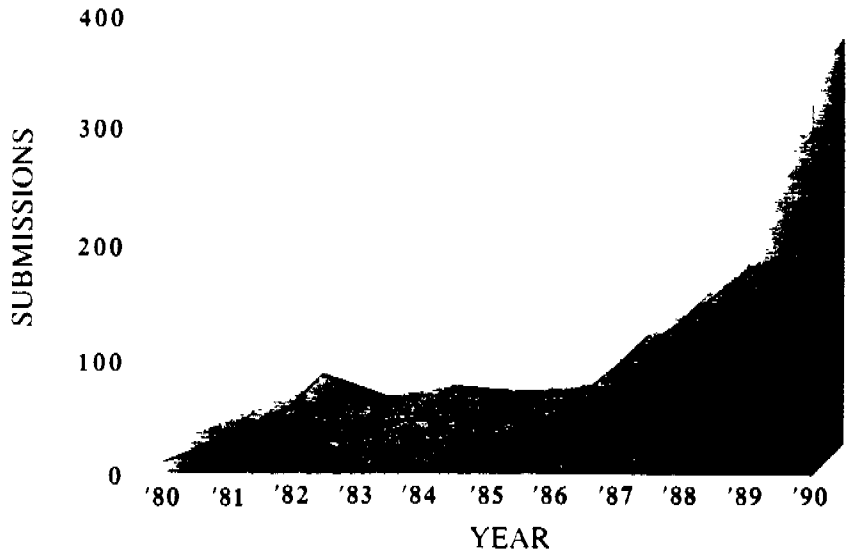


Figure 2

CHEMSTAR PANELS
Submissions to Government Agencies



Regulatory Planning Phthalate Esters Panel

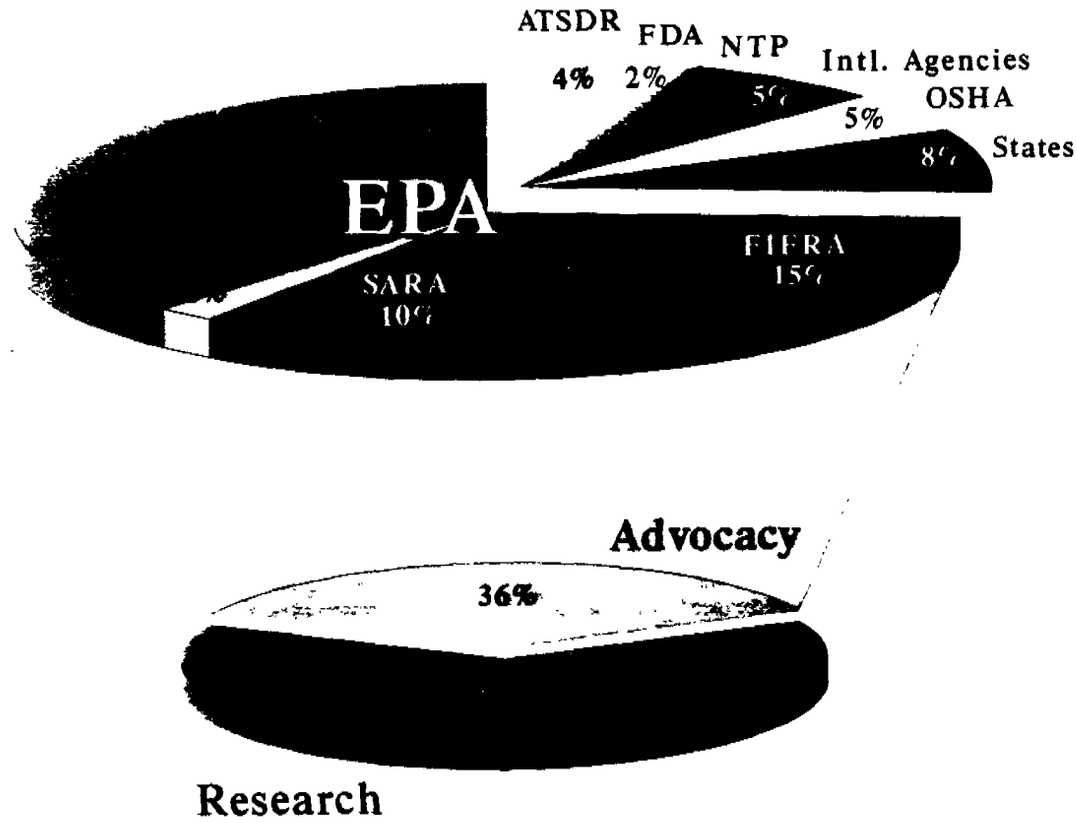
In 1989-90, 44 CHEMSTAR panels directly addressed regulatory issues. Panels as usual submitted comments on pending regulations and research data to a wide variety of federal, state and international agencies.

Greatest attention among federal agencies went to EPA. TSCA Section 4 testing is the principal concern of 21 panels. Panels ever more frequently addressed FIFRA concerns. Other federal agencies that panels interacted with during the year were the Occupational Safety and Health Administration, National Toxicology Program, and the Food and Drug Administration.

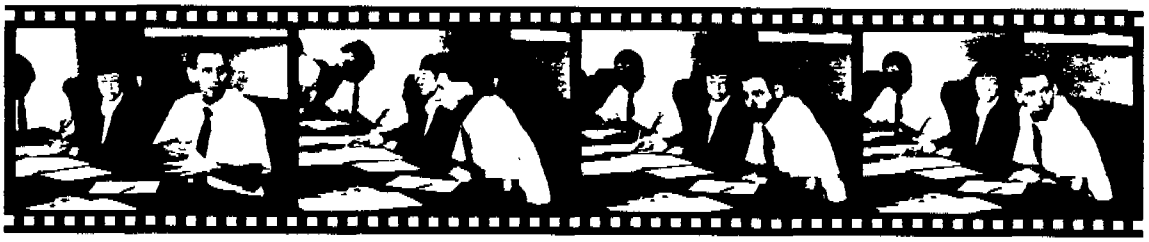
State agencies commanded much greater attention. The California Department of Food and Agriculture attracted the most activity due to Proposition 65 implementation and data call-ins on industrial chemicals. In the international area, the United Nations Environment Programme, Organization for Economic Cooperation and Development, US Department of State, and the Food and Agriculture Organization/World Health Organization were principal focuses.

Figure 3

CHEMSTAR DIVISION
Staff Time Allocations



Research Meetings:
Biocides Panel
Butadiene Panel
Chlorinated Pool Chemicals Panel



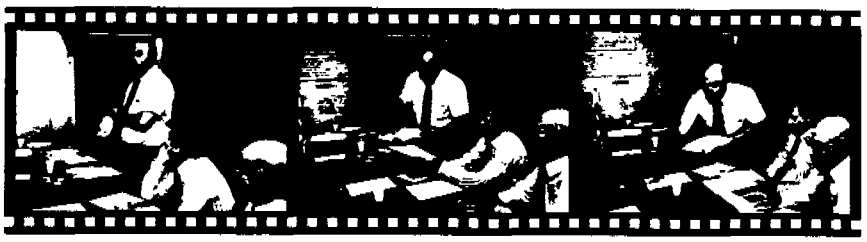
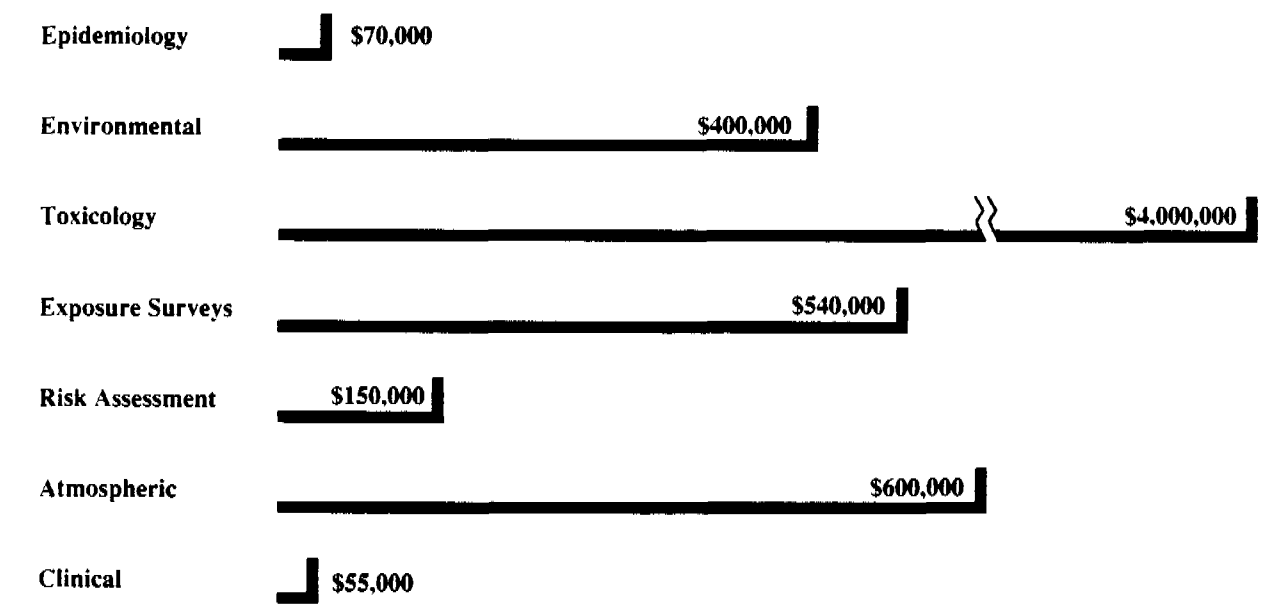


Figure 4

CHEMSTAR PANELS
Summary of Research Expenditures



Forty CHEMSTAR Panels sponsored some form of research. The trend this year was toward fewer, but larger, projects.

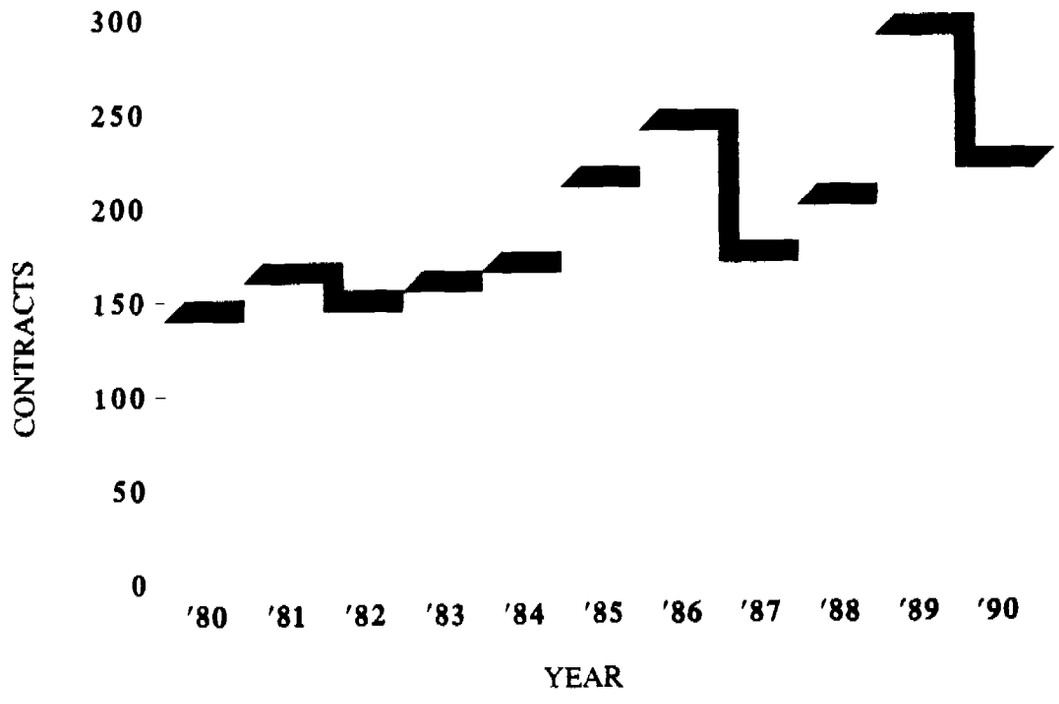
Health effects studies were a major focus. Toxicological research involved subchronic/chronic, mutagenicity, teratogenicity, oncogenicity and pharmacokinetic studies. Direct effects on humans were investigated by several panels through epidemiology and clinical research. Risk assessments and exposure surveys were other forms of research undertaken by nearly a quarter of all CHEMSTAR Panels. Environmental studies continued this year with larger budgets, reflecting greater interest in air and water regulations, in particular.

Testing required under TSCA Section 4 was initiated by several CHEMSTAR Panels. Mainly, the tests are large-scale efforts lasting several years. The testing schemes include many decision points where EPA and industry scientists must interpret data and decide on next steps.

As in the past, some Panels undertook studies simply because of research findings rather than direct regulatory concerns. "Proactive" research continues to be a significant part of CHEMSTAR Panels' scientific efforts.

Figure 5

CHEMSTAR DIVISION
Summary of Contracts Managed



GUIDANCE

CHEMSTAR Policy Committee Purpose: The Committee ensures that all CHEMSTAR Panels and Business Councils are conducted in a manner consistent with Association policy, and with the CHEMSTAR Guidelines; counsels with the panels and councils regarding new and revised operating needs; and, reviews and makes recommendations on advocacy activities when requested by a panel, council or staff.

CHEMSTAR Policy Committee

CHAIRMAN
Earnest W. Deavenport, Jr.
Eastman Kodak Company

VICE CHAIRMAN
Ernest Drew
Hoechst-Celanese Corporation

Geraldine V. Cox
Vice President-
Technical Director
CMA

Gary C. Herrman
Vice President-
Treasurer
CMA

David F. Zoll
Vice President-
General Counsel
CMA

STAFF EXECUTIVE.
Langley A. Spurlock
Director, CHEMSTAR Division
CMA

MANAGEMENT SERVICES

As issues, objectives and locations of effort grow, management of the CHEMSTAR Panels and Business Councils becomes ever more challenging for panel, council and task group chairmen. This year, as in the past, a broad array of CMA services was employed to ensure that panels and the new council receive adequate support for their operations.

Leadership Training

The annual CHEMSTAR Leadership Session was held in November, and attended by ten panel leaders. The Sessions are designed to assist chairmen in resolving the dilemmas of leading diverse and changing organizations. Sessions are invitational, one-day workshops primarily held for new panel and task group chairmen. Participation by experienced chairmen also is welcome and sought. At the Sessions, a training specialist from a CMA member company provides advice on persuasive leadership, and peers share experiences in dealing with related problems. Because participant ratings continue to be high, another Session is planned for fall 1990.

Leadership Session

Communications

Ensuring industry awareness of panel activities and other important specific chemical regulatory and research developments remained a high priority for the CHEMSTAR Division. CHEMSTAR NEWS, a quarterly publication with a circulation of 1,500, is the Division's principal means of reaching a broad industry segment. The NEWS points out upcoming regulatory impacts on specific chemicals, summarizes recent actions of various panels, lists panel reports and agency submissions, and highlights significant changes in panel membership. Through the "Spotlight" article in each issue, the accomplishments of individual panels are summarized. This year, the Chlorobenzenes, Vinylidene Chloride, Ethylhexanoic Acid, and Oleylamine Panels were featured.

The CHEMSTAR Alerts, published as needed, are the Division's means of quickly informing panel members and others in the industry when a time-sensitive response is needed on a chemical-specific issue. Subjects in Alerts vary from a pressing need to submit information to an agency, to the need for joining other companies in a response to a regulatory deadline. In 1989-90, the Division issued two Alerts — one on Reportable Quantities under SARA Title III Section 302 and CERCLA Section 102; and the other on OSHA regulation of nitrosamines.

Division Staff

The CHEMSTAR Division responded to this year's increase in panel activities by expanding the management staff and assigning new responsibilities to existing managers. Marian Stanley filled a newly created position as Panel Manager, bringing the managing staff to eleven persons, all with technical degrees.

Jonathon Busch also joined the managing staff this year as Senior Panel Manager, replacing Henry Sauer who was promoted to Director of CMA's National Chemical Response and Information Center. Bob Toro resigned in April. In recognition of her superior achievements, Elizabeth Gormley was promoted to Associate Director within the CHEMSTAR Division. Likewise, Barbara Francis was promoted to Senior Panel Manager because of her excellent accomplishments.

In further recognitions, at year's end, Langley Spurlock was promoted to CMA Deputy Technical Director and CHEMSTAR Division Director. Has Shah and Carol Stack were then promoted to the newly created positions of Director, CHEMSTAR Panels.

DIRECTOR, CHEMSTAR DIVISION

Langley A. Spurlock, Ph.D., CAE

Dr. Spurlock completed his eighth year as Director of the CHEMSTAR Division in June. He is responsible for oversight of all panels and councils, and for management of the Total Quality Council.

Dr. Spurlock is a Certified Association Executive, awarded by the American Society of Association Executives. Before joining CMA, he held an appointment in the US Government Senior Executive Service at the National Science Foundation. During his tenure at NSF he served as Senior Staff Associate for Operations, Directorate for Mathematical and Physical Sciences, Special Assistant to the Director, Office of Planning Resources Management, and as Oversight Coordinator and Special Assistant to the Director, Office of Audit and Oversight. Previously, Dr. Spurlock received an appointment as US Department of Health, Education and Welfare Fellow, and served as Special Assistant in the Immediate Office of the Secretary of HEW. Earlier, he was Assistant to the President at the American Council on Education. Before coming to Washington, Dr. Spurlock held an appointment as Associate Professor of Chemistry at Brown University and earlier was Assistant Professor of Chemistry at Temple University. Previously he served as Senior Research Chemist in the General Chemical and Agricultural Chemical Divisions of Allied Corporation. Dr. Spurlock received a Ph.D. in Organic Chemistry from Wayne State University.

DIRECTORS, CHEMSTAR PANELS

Hasmukh C. Shah, Ph.D., D.A.B.T.

Dr. Shah joined CMA and the CHEMSTAR Division in 1979. He is responsible for the management of the Biocides, Brominated Flame Retardants, Ethylene Dichloride, Ethylhexanoic Acid, 2-Ethylhexanol, and Naphthenates Panels.

Dr. Shah is a Board Certified Toxicologist. Before coming to CMA, he was the Director of the Toxicology and Biomedical Sciences Department of Equitable Environmental Health. He was also the Project Director for the National Institute for Occupational Safety and Health's criteria document project, and for the "Profiles on Occupational Hazards for Criteria Document Priorities." Earlier, at the Stanford Research Institute, Dr. Shah was a Project Coordinator, and he served as a Senior Toxicologist. Previously, he was a Visiting Fellow Scientist at the National Institute for Environmental Health Sciences. Dr. Shah received a Ph.D. in Pharmacology and Toxicology from the University of Rhode Island.

Carol R. Stack, Ph.D.

Dr. Stack joined CMA and the CHEMSTAR Division in 1980 and was promoted to Associate Director in 1985. She is currently responsible for management of the panels on benzene, chlorobenzenes, ethylene glycol, glycol ethers, lubricant additives, and hexamethylene diisocyanate.

Before joining CMA, Dr. Stack was employed in the Toxicology and Biomedical Sciences Department at Equitable Environmental Health where she served as an Assistant Project Director responsible for the preparation of NIOSH multi-chemical criteria documents. Earlier, she served as Visiting Scientist at the Neurological Institute in Bogota, Colombia, where she investigated central auditory pathways in echolocating birds. Dr. Stack received a Ph.D. in Biology from New York University.

ASSOCIATE DIRECTORS

Elizabeth Festa Gormley, B.A.

Ms. Festa Gormley joined CMA and the CHEMSTAR Division in 1983. She is responsible for the management of the Fluorocarbons, dibenzofurans/dibenzodioxins, polychlorinated biphenyls, hydrogen fluoride, and crystalline silica panels.

Prior to joining CMA, she was Section Staff Executive with the National Electrical Manufacturers Association, where she was responsible for the Nuclear Magnetic Resonance Imaging Section with the Diagnostic Imaging and Therapy Systems Division. Previously, Ms. Festa Gormley worked in the Endocrine Biochemistry section of the National Institute of Arthritis and Metabolic Disease at the National Institutes of Health, and held the position of Research Chemist at both CENTEC Corporation and Radian Corporation. She was also a recipient of a National Science Foundation Assistantship. Ms. Festa Gormley earned a B.A. in Chemistry from Albertus Magnus College.

Robert R. Romano, Ph.D.

Dr. Romano joined CMA in 1980 as a manager in the Environmental Division where he was responsible for the water and air programs. In February 1985, he joined the CHEMSTAR Division as an Associate Director. He continued this year as manager of the programs on chlorine dioxide, diisocyanates, ethylene dibromide, ethylene oxide, phosgene and water additives. Recently he also assumed management of the Alkylphenols and Ethoxylates Panel.

Dr. Romano came to CMA from the US Nuclear Regulatory Commission, where he worked as an Associate Project Director. Previously he worked on a school fluoridation project for the Indiana State Board of Health. He has also taught at Del Mar College and American University. Presently, Dr. Romano is an adjunct Environmental Engineering Professor at George Washington University and teaches courses in environmental management and program management. He received a Ph.D. in Environmental Sciences and Engineering from Purdue University.

Elizabeth J. Moran, Ph.D., D.A.B.T.

Dr. Moran joined CMA and the CHEMSTAR Division in 1981. She continued this year as manager of the panels on butadiene, methylenedianiline, phthalate esters, specialty acrylates/methacrylates, and trimellitate esters.

Dr. Moran is a biochemist and Board Certified Toxicologist. She is currently on the Editorial Board of the Journal of Toxicology and Environmental Health, and on the council of the American College of Toxicology. Before coming to CMA, she was a program manager at JRB Associates. Earlier, Dr. Moran directed the Flavor Safety Program at International Flavors and Fragrances, Inc., where she was responsible for toxicological testing on new chemicals. Previously, Dr. Moran conducted lipid nutrition research at the US Department of Agriculture and was a visiting professor at the University of Maryland. Dr. Moran received a Ph.D. in Biochemistry from the University of Maryland.

SENIOR PANEL MANAGERS

Jonathon Busch, MBA

Mr. Busch joined CMA and the CHEMSTAR Division in April 1990. He is responsible for the management of panels on alkanolamines, cyclohexane, hydroquinone, titanium dioxide, fluoroalkenes, and vinylidene chloride. He also has been involved in activities of the newly formed Methyl Bromide and Sodium Bromide Panels.

Prior to joining CMA, Mr. Busch was a Senior Associate with ICF-Clement Associates, a health and environmental sciences consulting firm. Previously, he was Senior Science Analyst with the Cosmetic Toiletry and Fragrance Association.

Mr. Busch holds an M.B.A. degree in Finance from George Mason University and a B.S. degree in Biology from Virginia Polytechnic Institute and State University.

Barbara O. Francis, MBA

Ms. Francis joined CMA and the CHEMSTAR Division staff in March 1989. She is responsible for the management of the panels on cumene, cresols, dinitrotoluenes, ketones, chlorinated pool chemicals and isopropanol.

Before joining CMA, Ms. Francis was with Interspan Inc., a management consulting firm. Previously, she held the position of product planner for Hoechst Celanese, Inc. and also served as a translator for the US Air Force in Europe. Ms. Francis holds an M.B.A. from Virginia Polytechnic Institute and State University and a B.S. in biology and chemistry from Bishop's University in Quebec, Canada.

Susan R. Howe, M.S.

Ms. Howe joined CMA and the CHEMSTAR Division staff in June 1989. She is responsible for the management of the butylated hydroxytoluene, cobalt, metal catalysts, nitrosamines, oleylamine, phenol, rubber additives and vinyl chloride panels.

Before coming to CMA, Ms. Howe was a Product Safety Representative for the Mobay Corporation. Previously, she was a Regulatory Specialist with Ruetgers-Nease Chemical Company. Ms. Howe holds an M.S. degree in Food Science and a B. A. in Science from the Pennsylvania State University.

PANEL MANAGER

Marian K. Stanley, MBA

Ms. Stanley joined CMA and the CHEMSTAR Division staff in May 1990. She is responsible for the management of the panel on Specialty Acrylates/Methacrylates. She also manages the Phthalate Esters Environmental and Toxicology Research Task Groups.

Prior to joining CMA, Ms. Stanley was a Technical Project Manager with Squibbmark. Previously, she was employed as both a development and analytical chemist at Union Carbide Corporation.

Ms. Stanley holds an MBA in Pharmaceutical Studies from Fairleigh Dickinson University, and a B.S. in Chemistry from Pratt Institute.

Legal Counsel

The panels and councils were strongly assisted by the CMA Legal Department in antitrust, contract, research and regulatory areas. Reflecting the importance and complexity of their issues, a CMA attorney is assigned full-time to the affairs of CHEMSTAR. To ensure that antitrust protection is consistently maintained, CMA attorneys counseled panel and council chairmen, as well as Division staff on proper procedures. As usual, staff attorneys reviewed all panel and council comments, contracts, reports, agendas, and minutes as part of routine protective measures. In research, the assigned CMA counsel intensively supported Division managers in drafting and negotiating the nearly 250 contracts awarded this year to laboratories and consultants. In advocacy, the CMA counsel supervised the activities of outside counsels retained by the panels and councils. The CMA counsel provided advice on regulatory activities and ensured that member company legal counsels were informed of significant developments.

ASSISTANT GENERAL COUNSEL

Marilyn D. Browning, J.D.

Ms. Browning joined the CMA Legal Department in 1987 as the staff attorney for CHEMSTAR Panels and Councils. Ms. Browning reviews and provides counsel for drafting of all substantive panel and council documents including contracts, regulatory comments, legislative correspondence and testimony, filings in litigation, and press releases. In addition, she counsels panel and council members and staff on antitrust prevention and supervises their outside attorneys. She also serves as counsel to the Chemical Control Task Group of the CMA International Affairs Committee.

Before coming to CMA, Ms. Browning was in private practice with Augustine and Kern Ltd. of Chicago, representing private and corporate clients. Prior to her legal career, Ms. Browning owned and managed a service agency specializing in fashion advertising. Earlier she was an instructor of grades K-9. Ms. Browning is a member of the Illinois and District of Columbia Bars. She holds a B.S. from the University of Illinois and a J.D. from the Illinois Institute of Technology, Chicago Kent College of Law.

DIVISION MANAGERS

From left to right:
Elizabeth Gormley,
Susan Howe,
Elizabeth Moran,
Hasmukh Shah,
Carol Stack,
Langley Spurlock,
Barbara Francis
Jonathon Busch,
Marian Stanley, and
Robert Romano