CHEMSTAR

A Report on the Year 1992-93

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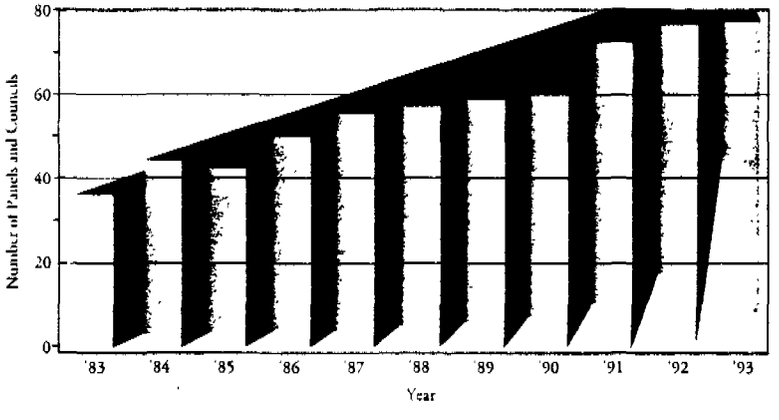
Panel and Council Growth



On CHEMSTAR . . .

"CHEMSTAR Panels and Councils this year continued to provide our companies with significant technical, strategic and administrative advantages for working together. The accomplishments of these groups, as highlighted in this Annual Report, give tangible proof of these advantages. Panel and Council achievements are the results of hard work by hundreds of people from our industry supported by the proven CHEMSTAR framework. As they go about the business of advancing our specialized interests, the members of these groups are assisted by a full array of CMA resources that add value to their outputs and foster the achievements of their objectives. On behalf of the CHEMSTAR Policy Committee I have asked the CMA Board of Directors to encourage their personnel to use the CHEMSTAR framework whenever their companies participate in consortia. I strongly recommend this course also for all CMA member companies."

Seymour S. Preston, III
Elf Atochem North America
Chairman, CHEMSTAR Policy Committee

Frederick L. Webber
President
Chemical Manufacturers Association

"My first impression of CHEMSTAR is that Panels and Councils provide efficient mechanisms for concentrating the financial and personnel resources of our members on targeted issues. They are assisted by a highly qualified staff that provides maximum use of resources. CHEMSTAR establishes forums for spreading the message of Responsible Care® throughout our industry. In fact, several Panels and Councils were formed to help companies develop highly specialized implementation aids for various Codes. Also, Panels and Councils contribute high quality technical input to CMA's development of risk-based policies. I believe that CHEMSTAR serves as a model in CMA's efforts to prioritize issues and provide valuable services to the chemical industry."

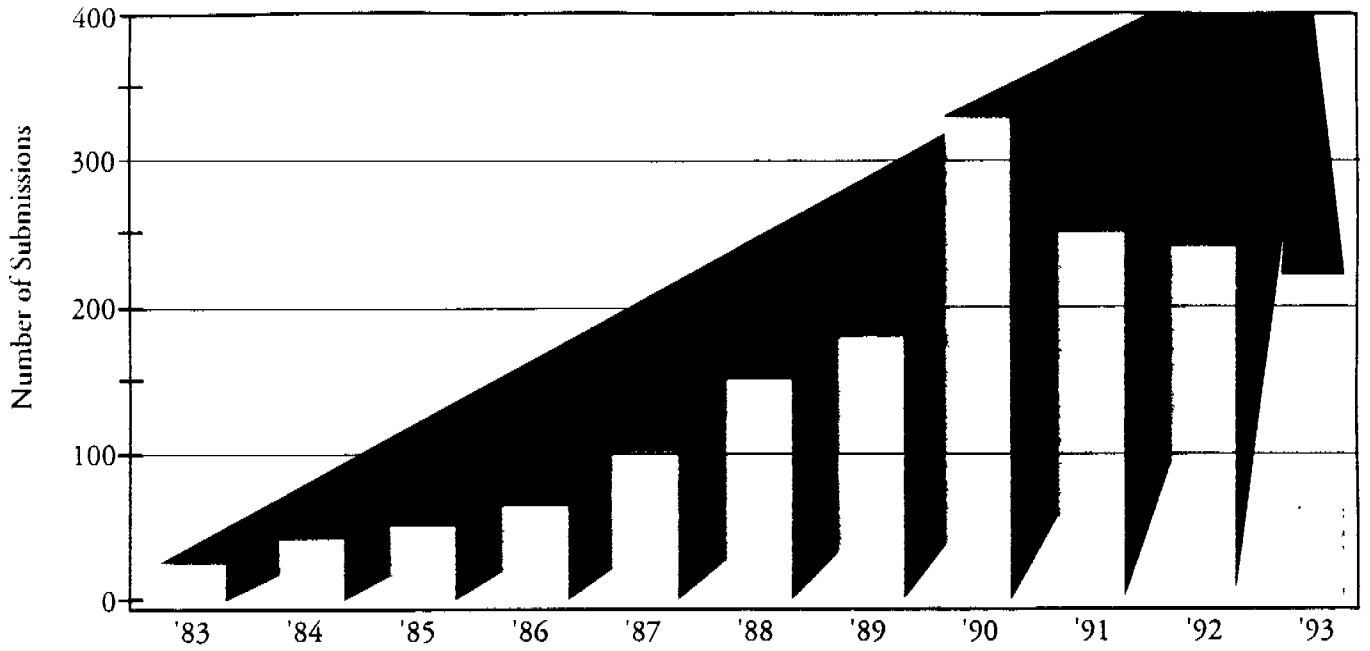
"CHEMSTAR plays an important part in CMA's commitment to understand and reflect the changing needs and interests of its member companies. Through advocacy, research, and education activities, CHEMSTAR helps the chemical industry to manage and resolve its problems with one-stop shopping. Over the last few years there has been an evolution in the way CHEMSTAR and CMA interact, beyond coordination and cooperation on common issues. The Chlorine Chemistry Council reflects the possible future of issue management at CMA — total integration of effort on a specific issue. By increasing its flexibility and resilience, avoiding unnecessary bureaucracy and retaining a highly customer-focused service orientation, CHEMSTAR is uniquely poised to meet the changing needs of the chemical industry."

Robert A. Roland
Former President
Chemical Manufacturers Association

Figure 1

CHEMSTAR Panels & Councils

Submissions to Government Agencies



Advocacy Issues

Technical & Financial Burden Averted

The Olefins Panel worked with the CMA Air Toxics Work Group and the EPA Air Office to develop a separate source category for olefins plants under the Clean Air Act. Because olefins plants differ substantially in operation from traditional processes covered by the synthetic organic chemical manufacturing industry, regulation of olefins plants under the SOCMI hazardous organic NESHAP would place enormous technical and financial burdens on the industry. Regulations structured to take into consideration specific operations covered by olefins plants will save companies several million dollars per year in engineering controls and compliance costs.

Potential $3 Million Saved

The Oxo Process Panel volunteered to prepare OECD SIDS dossiers on butanol and isobutanol. As a result, both chemicals were removed from the 32nd ITC Report list of designated chemicals. Because EPA had originally recommended testing that would have totaled more than $3 million, potential savings to producers and importers are substantial.

Engineering Controls Savings

The Butadiene Panel worked with the TLV Subcommittee of ACGIH, submitting toxicological, metabolic and mechanistic data. Based upon this data, ACGIH proposed a level which is expected to be established by OSHA as a permissible exposure limit. Because the two levels are the same, substantial funds will be saved in engineering controls. Equally important, OSHA regulations are now matched with levels used by most European and other non-U.S. companies. This ensures similar compliance costs.

Advocacy –

During the year, 52 CHEMSTAR Panels and Councils focused their efforts on regulatory advocacy. Groups submitted comments on pending regulations, and research data, to many federal, state and international agencies. Overall, advocacy increased significantly as a proportion of Panel and Council activities.

Of all federal agencies, EPA received the greatest attention from CHEMSTAR groups. TSCA Section 4 is the chief concern of 30 panels. Environmental regulation of individual chemicals continued to be significant. FIFRA concerns continued to accelerate as an area of panel activity. Among other federal agencies, the Department of Commerce, Department of Transportation, the Agency for Toxic Substances and Disease Registry, and the Occupational Safety and Health Administration caused Panel and Council actions.

State activities increased significantly. This attention is primarily due to activities in California and Michigan. Of the international agencies, the Organization for Economic Cooperation and Development, United Nations Environment Programme, and the World Health Organization were again significant CHEMSTAR focuses.

Figure 2

CHEMSTAR Division

Staff Time Allocations

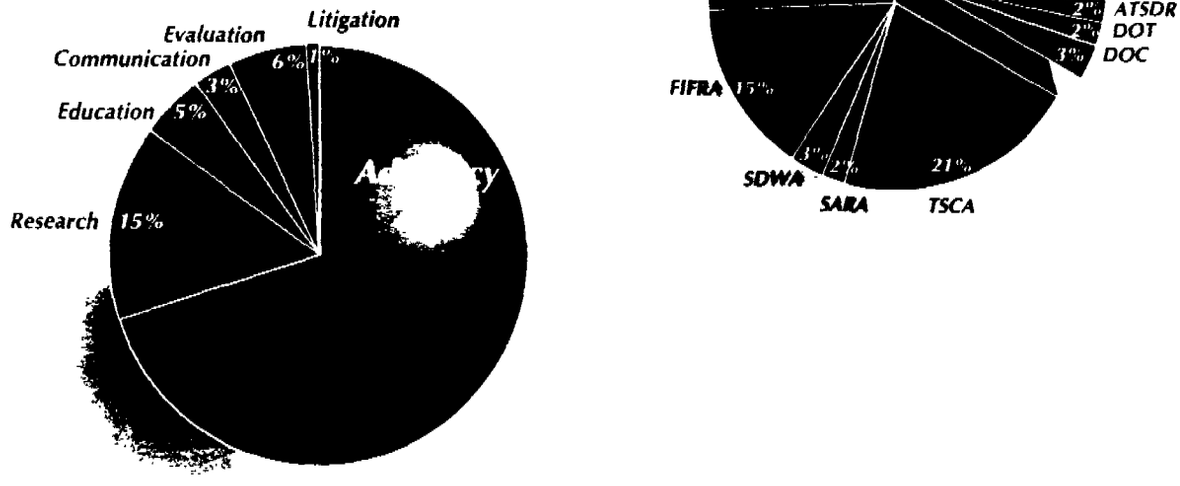
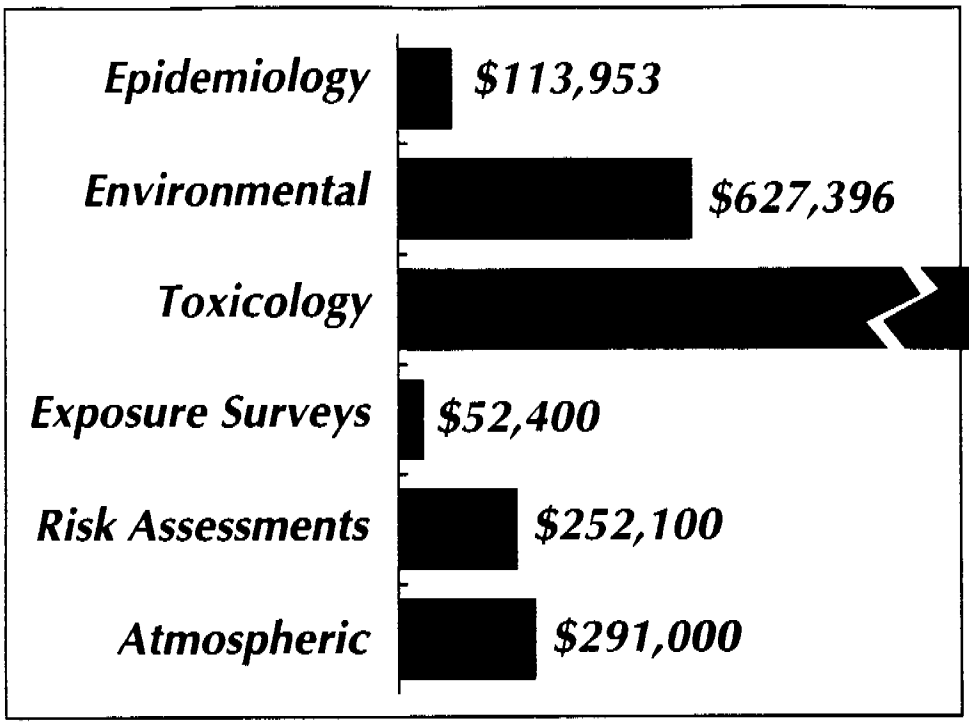


Figure 3

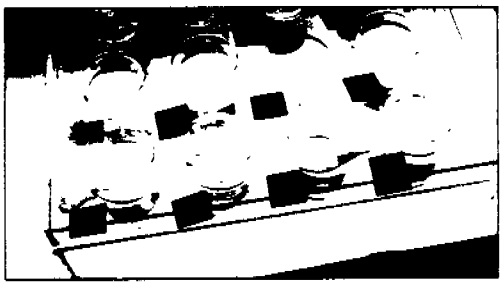
CHEMSTAR Panels and Councils

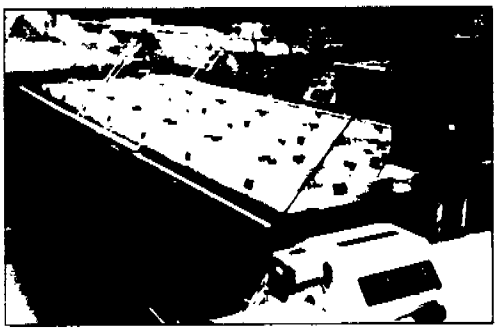
Summary of Research Expenditures



Dr. Michael Byrd, Chairman of the Butadiene Panel's Toxicology Research Task Group, leads the review of researchers on the Research Grants Program.

Right and below: Standard laboratory set-up for aquatic toxicity testing.





Right: Modified test vessel for methyl bromide.

Research

Thirty-nine CHEMSTAR Panels and Councils sponsored some form of research. The CHEMSTAR Division currently manages 154 research contracts for the Panels and Councils. The combined commitment of these contracts is $17 million. This year, $8.2 million of that commitment was spent.

Expenditures for toxicological studies increased substantially. Toxicological research involved subchronic/chronic, mutagenicity, reproductive and developmental effects, oncogenicity, and pharmacokinetic studies. Direct effects on humans were investigated by several panels through epidemiology. Expenditures on risk assessments also increased dramatically. Atmospheric and environmental studies continued at levels similar to previous years.

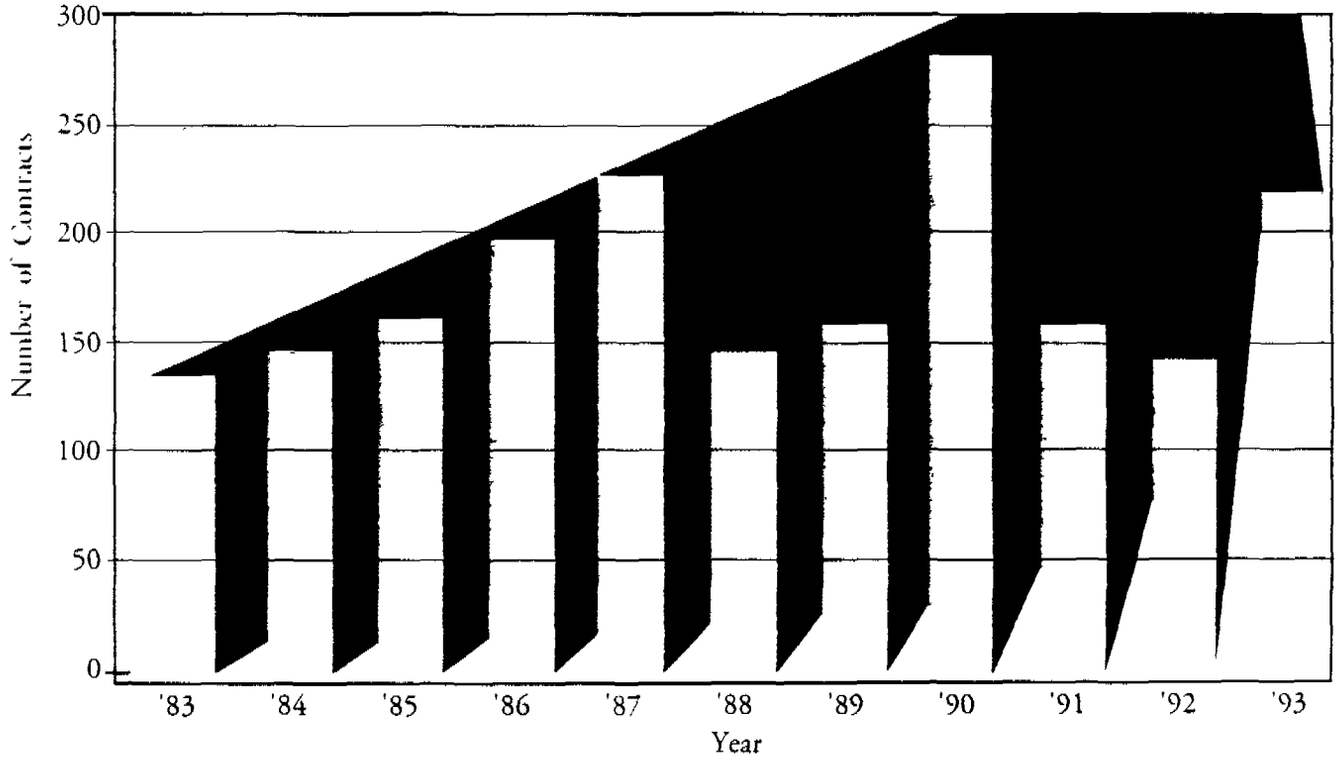
Testing required under TSCA Section 4 continued for 30 CHEMSTAR Panels. Mainly, the tests are large-scale efforts lasting several years. The testing schemes include many decision points where EPA and industry scientists must interpret data and decide on next steps.

As in the past, some Panels undertook studies because of questions raised by research findings rather than direct regulatory concerns. This "proactive" research continues to be a significant part of CHEMSTAR Panels' and Councils' scientific efforts.

Figure 4

CHEMSTAR Division

Summary of Contracts Managed



Educational Forums

Atmospheric Research Council:
"Understanding Global Climate Concerns Within the Chemical Industry Workshop"

Butadiene Panel:
"Research Review Symposium"

Crystalline Silica Panel:
"Issues & Controversy: The Measurement of Crystalline Silica International Symposium"

Petroleum Additives Panel:
"Auditor Training Workshop"

Phthalate Esters Panel/CEFIC '92:
"Fourth Annual Phthalate Esters Panel and European Council for Plastics & Intermediates Symposium"

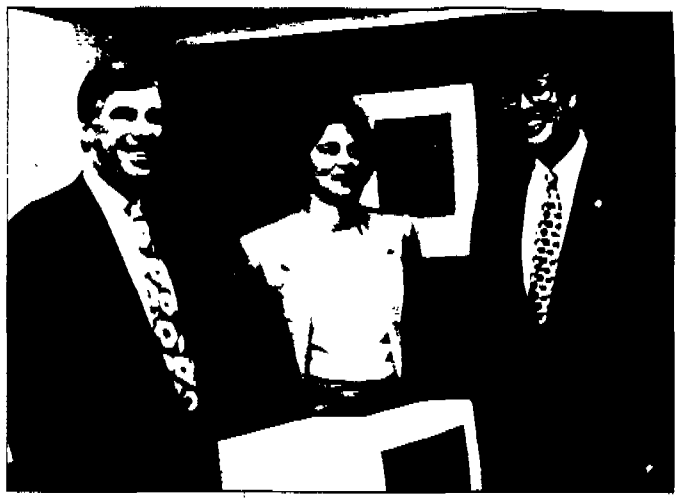
Education, Communication, Evaluation & Litigation

During the year, five Panels and Councils sponsored a variety of workshops and symposia (previous page). The groups held these forums to educate member company personnel, government regulators and the scientific and technical community about a variety of health, safety and environmental issues.

Fifteen Panels and Councils produced communications materials. These materials included press releases, white papers, scientific and technical journal articles and book chapters all aimed at promoting better understanding of issues important to member companies.

Eleven Panels and Councils engaged in evaluation-related activities. These efforts included facilitating data collection by individual companies and non-proprietary information sharing on company practices in safety and operations areas.

Only two panels were involved in litigation efforts this year. Over the years, Panel involvement ranged from status as principals in law suits to filing of amicus briefs in suits involving other principals.



Atmospheric Research Council Chairman Ross Stevens of DuPont, Vice Chairman Terry Wharton of Air Products, and Chairman of the Science Task Group Sarah Peirce-Sandner of Eastman Kodak.

Atmospheric Research Council Member Mack McFarland of DuPont (left) discusses computer model with speakers at the Workshop: Daniel Albritton of NOAA (center) and Richard Goody of Harvard (right).

Daniel Albritton and Sarah Peirce-Sandner (center) discuss "Chemicals in the Global Atmosphere" Primer and "The Environmental Assessment Workbook" with the authors, Nien Dak Sze (far left) and David Chang (far right) of AER, Inc.

Business Councils

CMA has six approved CHEMSTAR Business Councils. These Councils address data-gathering, research, program and advocacy activities in those designated business sectors or business function areas that are part of, or significant to, chemical manufacturing interests. During 1992-93, one new Council was organized — the Chlorine Chemistry Council. Another Council, Laboratory and Research Chemicals, elected to become a Panel in order to expand its membership beyond CMA member companies. The other five Councils — the Total Quality, Chemical Distributors, Carrier Assessment, Atmospheric Research, and American Plastics (formerly Partnership for Plastics Progress) Councils — have continued operations successfully. Several of these Councils have completed or made significant progress on major projects for the industry.

American Plastics

Chartered: 1991

Board Committees
- Program
- Finance and Membership

Coordinating Groups
- Outreach Task Force
- Advocacy Task Force
- Product Stewardship Task Force
- Plastics Mobilization Committee

Board Staff
Executive: Charles W. Van Vlack

The mission of the Council is to develop and advocate technically and economically sound programs for the responsible use, recovery and conservation of plastics and their component raw materials in a way that addresses public interests and concerns.

Chairman
Earnest W. Deavenport, Jr.
Eastman Chemical Company

Among the goals for the APC, the following stand out:

To develop environmentally, economically, and technically proven programs based on sound integrated solid waste management principles including

- Source Reduction
- Mechanical & Advanced Technology Recycling
- Energy Recovery
- Landfilling (when no better alternative exists)

To gain public acceptance for long-term integrated solutions that serve the public and the industry.

To meet these goals, 25 of the nation's leading plastics resin monomer producers and representatives of the broader plastics processor community have come together with direct involvement by chief executive officers, presidents and senior executives through a joint initiative with The Society of the Plastics Industry, Inc. The purpose is to encourage efficient resource management throughout the life-cycle of plastics products. Council members have made a substantial commitment and pledged significant resources to achieve this goal.

These top executives have joined forces in this effort because industry believes it has the responsibility not only to respond to public needs with its products but also to respond to public values through its actions.

The APC has an integrated organization, directed by the APC Board of Directors and managed by its Coordinating Group, focusing efforts on Product Stewardship, Outreach, Advocacy and Industry Mobilization to provide industry-wide solutions to integrated resource management issues.

The Product Stewardship Task Force's function is to research and develop economically sound integrated resource management technologies and implement these solutions in a timely manner. Some of those efforts include: continuing to develop technology to determine the optimum level for mechanical recycling of plastics; furthering the development of advanced recycling

technology systems; conducting life-cycle analyses of plastic products; and compiling and/or developing energy recovery data.

The Outreach Task Force dialogues with and communicates to the public, policy makers, educators and other target audiences to convey the resource management benefits that demonstrate plastics' positive role in society and the environment. This communication will help build public support for industry-sponsored solutions and position plastics as an efficient use of natural resources.

The Advocacy Task Force works with legislators and regulators in advocating responsible integrated resource management programs. The Task Force will focus on local, state and federal government officials to broaden the current public policy debate to include an economic mix of effective solutions such as recycling, advanced recycling and energy recovery.

The Plastics Mobilization Committee develops a core group of motivated downstream industry representatives committed to speak as a credible voice on critical resource management public policy issues. The committee targets key local management personnel with a concerned community viewpoint and focuses their efforts at the local, state and federal levels.

Atmospheric Research

Chartered: 1991
Task Group: Science
Council Manager: Elizabeth Festa Watson

In August, the Council's Science Task Group hosted a workshop entitled, "Understanding Global Climate Concerns Within the Chemical Industry." The workshop provided a broad overview of the climate change issue followed by a presentation of the techniques that companies can apply in preliminary assessments of their chemical emissions and volatile products. The latter presentation was based upon a Panel-funded research project that resulted in the highly requested primer and workbook, "Chemicals in the Atmosphere." Funding the preparation of "Chemicals in the Atmosphere" was a major step in the Council's program to increase understanding of the impact of chemical emissions and volatile products on global climate change. As a follow-up to this project, the Council decided to become a major co-funder of a project to develop a three-dimensional chemical transport assessment model.

Chairman
W. Ross Stevens
DuPont

The Council formed to address issues concerning the impact of chemical industry emissions on regional and global atmospheric change. Activities include: identifying and resolving scientific uncertainties about effects of increased concentrations of chemicals in the atmosphere; obtaining research data that will assist in developing chemical industry positions on such issues as Clean Air Act implementation and global climate change; and, providing a scientific foundation for the industry's position in the debates on a global effort to control greenhouse gases.

The Council's future efforts will include refining estimates of direct Global Warming Potential as well as sponsoring research to evaluate the potential indirect effects of emissions on climate change. The Science Task Group is planning a science workshop on three-dimensional chemical transport assessment modeling in the second half of 1993. Depending on response to "Chemicals in the Atmosphere," the Council also is considering a users' workshop. Council members will continue to seek expanded membership and secure additional research funding, in preparation for addressing an issue that may remain on scientific and regulatory agendas into the next century.

The Council spent 80% of its time on research, 10% on education, and 10% on communications activities.

Carrier Assessment

Chartered: 1991
Task Groups: Executive
Highway
Marine
Rail
Council Managers: Clyde Greenert
Jonathon Busch

Chairman
Steve Battilana
ICI Americas Inc.

The Council completed development of the Highway Carrier Assessment Protocol and began pilot field testing of the final protocol. Assessment protocol development was initiated for rail, barge and container vessel modes. Active participation of the carriers is a hallmark of all protocol development work. The Highway Protocol was referred to the CMA Distribution Committee Implementation Work Group, and Council members are working to ensure a smooth transition from development to implementation phase.

The Council formed to address carrier assessment issues of concern to the CMA membership. A major goal of the Council is to help interested CMA members meet the carrier safety provisions (3.1 and 3.2) of the *Distribution Code of Management Practices*. These provisions require that CMA members: establish a process for qualifying carriers of all modes and types; evaluate carriers for safety fitness and regulatory compliance; and provide feedback and suggestions for improvement to carriers on their safety performance. Activities to accomplish this goal include developing assessment protocols, promoting their use and working with the Distribution Committee to optimize assessment protocol value to chemical shippers and carriers.

The Council aims to complete rail, barge and container vessel assessment protocols in 1993-94.

The Council spent 100% of its time on evaluation activities.

Chemical Distributors

Chartered: 1990
Task Groups: Legal Defense
Responsible Care®
Council Manager: Langley Spurlock

The Council published the "Chemical Distributors Self-Assessment Protocol" in September. This questionnaire is an implementation aid for the Responsible Care® Distribution Code. Although primarily developed for use by distributors, the protocol has been useful in assessing manufacturers' in-house distribution operations.

Chairman
James Nicholson
PVS Chemicals

The Council formed to address issues of concern to chemical distributor members of CMA. Council activities include: collecting, evaluating and disseminating information on issues that affect chemical distribution; and advocating the interests of the chemical distributor sector. The Council maintains a strong interaction with the National Association of Chemical Distributors through that Association's formal membership in the Council.

The Council plans to focus on wider dissemination and use of the self-assessment protocol. In addition, the Council will develop an implementation aid for the Product Stewardship Code.

The Council spent 5% of its time on advocacy, 30% on education, 15% on communication, and 50% on evaluation activities.

Chlorine Chemistry

Chartered: 1992
Task Groups: Operating
Advocacy
Outreach
Science
Managing Director: Bradley Lienhart
The Dow Chemical Company
Council Manager: Clyde Greenert

The Council was formed to promote public understanding of chlorine and chlorine-related products. Council activities are aimed to contribute to the public policy debate on these chemicals; heighten public awareness of the benefits of these products; and facilitate risk-benefit analyses through collection and development of solid scientific data on health, safety and environmental issues.

Chairman
Charles Stewart
Occidental Chemical Corp.

The Council conducts advocacy, outreach, product stewardship and data development in close coordination with two related trade associations, the Chlorine Institute and the Vinyl Institute. The Council membership includes producers and users of chlorine and chlorine-related products, as well as organizations and companies in interested industries. The Council also encourages other organizations and associations, nationally and internationally, to address chlorine and chlorine-related public issues.

In its initial year, the Council refined its mission, key programs, organization and funding. A major step was definition and initiation of a staff matrix team within CMA. This team will facilitate implementation of programs which use the full strengths of CMA's advocacy, outreach and project management resources. In its first efforts, the Council was effectively involved with the International Joint Commission's consideration of chlorine chemistry, developed relationships with the public health officials and sponsored major literature review of chlorine chemistry's potential health and environmental impacts. A comprehensive economic analysis of the societal value of chlorine chemistry also was completed.

The Council aims to have 75-100 members from industry's producer and chlorine-consuming companies. Recruiting will be a significant effort in the next year. The Council will undertake an update of the public understanding surveys and planning for strategic programs while addressing ongoing public policy issues important to chlorine chemistry. A Science Advisory Board will be established and the Public Health Advisory Board's role will be expanded. The Council will publish the major scientific review for use by scientists worldwide. The Council also will work to ensure optimum coordination of the chlorine chemistry industry's worldwide effort to meet its challenges.

The Council spent 20% of its time on advocacy, 15% on education, 15% on communication, and 50% on evaluation activities.

Total Quality

Chartered: 1990
Task Groups: Education
Governmental Affairs
Membership
Publicity
Council Manager: Langley Spurlock

In October the Council released the "Criteria for Continuous Improvement," a self-assessment document designed to make supplier quality audits more efficient. The CMA Board of Directors formally encouraged use of the Criteria by all member companies. Several member companies also have successfully used the Criteria to

Chairman
Ralph Taylor
Procter & Gamble

assess their own operations and to inform their customers about their quality processes. The Council's CMA Support Study Group continued to serve as a resource during implementation of the CMA Quality Improvement Process. The Council continued to monitor the impact on U.S. competitiveness of European requirements for certification of corporate quality systems under ISO 9000 standards. Advocating a U.S. program for ISO 9000 certification and accreditation of certifiers that is acceptable outside the U.S. is a priority for the Council. The Council retained a consultant to enhance a project to illustrate the use of TQM tools to achieve Responsible Care® goals. The Process Safety Code is being used as a pilot in this project.

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

The Council is preparing materials to help CMA staff and member company representatives conduct more effective meetings. The Council will continue to promote the U.S. voluntary standards system and support development of international environmental management standards using quality concepts. In addition, the Council will intensify efforts to promote the use of total quality management methods to implement Responsible Care®. The CMA Study Group will continue to advise CMA management during the next phases of the Association's Quality Improvement Process.

The Council spent 25% of its time on advocacy, 15% on education, 10% on communication, and 50% on evaluation activities.

CHEMSTAR Business Councils
Financial Status
June 1, 1992 through May 31, 1993

	CHEMSTAR Councils	Balance 6-1-92	Contribution Receipts	Investment Revenue	Expenditures	Balance 5-31-93
1	American Plastics	$4,631,000	$51,620,600	$598,400	$44,813,100	$12,036,900
2	Atmospheric Research	236,300	12,000	6,300	154,400	100,200
3	Carrier Assessment	108,000	254,400	6,300	139,300	229,400
4	Chemical Distributors	10,300	18,000	200	18,600	9,900
5	Chlorine Chemistry	0	50,000	-100	74,300	-24,400
6	Total Quality	95,600	160,000	22,200	156,500	121,300
		$5,081,200	$52,115,000	$633,300	$45,356,200	$12,473,300

New Panels

During 1992-93, three new panels were requested and approved. Manufacturers and users of one individual chemical — propylene oxide — and two chemical categories — inorganic acid mists and propylene glycol ethers — organized. Reasons for organizing range from a need to respond to pending or existing regulations to a proactive desire to promote safety, customer education, emergency response, and better product evaluations. All three panels are now fully organized and proceeding toward their initial objectives.

Inorganic Acid Mists

Chartered: 1993
Task Groups: Scientific Review
Exposure Assessment
Epidemiology
Panel Manager: Carol Stack

Chairman
James Hathaway
Rhône-Poulenc, Inc.

Manufacturers and users of sulfuric acid formed the Panel to address the International Agency for Research on Cancer's classification of occupational exposure to strong inorganic acid mists, including sulfuric acid, as carcinogenic to humans. Occupational exposures to strong inorganic acid mists have occurred in a variety of occupational settings such as isopropanol and ethanol manufacturing, metal plating, steel pickling, soap manufacture, metal smelting, and cell houses.

The initial focus of the Panel's activities is the establishment of an independent scientific review group to evaluate the existing epidemiology data on occupational exposure to inorganic acid mists. The independent scientific review will target the human cancer studies reviewed by IARC and will include more recent studies and applicable rodent and genotoxicity data. The expert group is expected to present its findings to the Panel and provide a report suitable for publication in a scientific peer-reviewed journal.

Other objectives of the Panel are the development of data for input into the exposure and risk assessment process and participation in and/or conduct of additional feasibility and epidemiology studies.

Propylene Glycol Ethers

Chartered: 1993
Task Group: Toxicology Research
Panel Manager: Kathryn Rosica

Manufacturers of propylene-based glycol ethers organized as a Panel to share toxicology data and explore interest in a shared research program.

Chairman
William Hayes
The Dow Chemical Company

Members are reviewing the toxicological data base on about 20 members of the chemical category. The Panel also is responding to a recent Interagency Testing Committee Report requesting information on metabolism and uses for selected members of the category.

The Panel plans to complete the toxicology review and share these results and other information on uses with appropriate regulatory agencies.

Propylene Oxide

Chartered: 1993
Task Groups: Emergency Response
Marine Transportation
Panel Manager: Dee Kuhn

Manufacturers of propylene oxide organized as a Panel to improve emergency response, handling and transportation of propylene oxide and to address advocacy issues such as reevaluation of workplace exposure limits and carcinogenicity potential. The Panel is organizing the Emergency Response and Marine Transportation Task Groups to assess the emergency response needs and capabilities of the industry with emphasis on marine distribution.

Chairman
Bernard Silverstein
ARCO Chemical Company

The Panel plans to develop working relations with the European Propylene Oxide Panel through information exchange. Panel members will, as appropriate, monitor and evaluate research of interest to the industry as well as work with regulatory agencies and other concerned organizations in matters relating to propylene oxide.

Continuing Panels

Fifty-four CHEMSTAR panels are now officially approved by CMA. CHEMSTAR membership rosters during the year included 334 companies and 39 associations. Among the company members, 112 were members of CMA and 30 were non-U.S. and non-Canadian. Participating companies and associations were represented on panels and task groups by over 900 persons with professional skills ranging from physical and biological sciences, through engineering and industrial hygiene to legal and business areas.

Acetone

Chartered: 1991
Task Group: Toxicology
Panel Manager: Kathleen Roberts

Chairman
James Santory
Aristech Chemical Corp.

The Panel developed a petition requesting EPA to reclassify acetone as a volatile organic compound (VOC) of negligible reactivity. The Panel asked that the Agency add acetone to the list of VOCs which are exempt from regulation as ozone precursors under Title I of the Clean Air Act. The Panel also submitted comments to the Agency for Toxic Substances and Disease Registry (ATSDR) on the draft Acetone Toxicology Profile, noting that many of the data gaps identified in the profile should be reassessed. At the invitation of the ACGIH, Panel representatives presented information on acetone at the March meeting of the TLV Subcommittee. The Panel also provided data to the EPA IRIS Work Group, which is scheduled to review the reference concentration for acetone in 1993. The Panel also submitted data to various Canadian regulatory agencies, which have proposed modifications to exposure limits of acetone and to the National Sanitation Foundation, which is considering the accreditation of acetone in potable water.

The Acetone Task Group formed under the Ketones Panel in 1990 to address regulatory concerns of manufacturers, processors, and users. Task Group members decided to form a separate Panel because of the complexity and diversity of acetone issues.

The Panel is developing a summary report of the acetone data generated by the University of California at Riverside research program. The report will be submitted to EPA in support of the VOC petition. The Panel will participate in upcoming IRIS Work Group and ACGIH Biological Exposure Index Subcommittee meetings. Panel members also will continue monitoring state, federal, and international regulatory issues affecting acetone.

The Panel spent 90% of its time on advocacy and 10% on research activities.

Alkanolamines

Chartered: 1982
Task Group: Toxicology Research
Panel Manager: Jonathon Busch

The Panel completed dermal developmental toxicity studies with rats on monoethanolamine (MEA) and diethanolamine (DEA). Studies were initiated to evaluate the potential dermal developmental toxicity of MEA and DEA in rabbits. The Panel also initiated studies to assess the potential *in vitro* and *in vivo* dermal absorption of MEA and DEA. The newly initiated studies will be completed in 1993.

Chairman
Ray Papciak
Texaco Chemical Company

In addition to sponsoring voluntary research, the Panel was involved in a number of scientific and regulatory activities. The Panel petitioned EPA to issue a proposed CERCLA rule that would adjust the RQs for DEA and other chemicals that are subject to a statutory one pound RQ under the Clean Air Act. As part of its petition, the Panel submitted a scientific background document providing evidence to support an RQ of 5,000 pounds for DEA. EPA responded to the Panel's comments by placing the proposed rule-making on an accelerated schedule.

The Panel submitted comments and gave a presentation to the ACGIH on the health effects of triethanolamine (TEA). The Panel was successful in convincing ACGIH to remove a proposed carcinogen notation and to raise a proposed TLV from 3.1 mg/m^3 to 5 mg/m^3. The Panel subsequently gave a presentation to the American Industrial Hygiene Conference describing the overall approach and scientific basis used in developing the alternative TLV. The Panel presented constructive ideas on how ACGIH can improve its process of reviewing the occupational safety of chemicals and how the Panel can help in that review. The Panel also submitted scientific comments on TEA to BIBRA Toxicology International; bibliographic references on TEA to NTP; and, technical data on MEA to the International Programme on Chemical Safety.

Chairman
Richard Bennett
Texaco Chemical Company

The Panel initially formed to address toxicology issues of alkanolamines in response to an initial concern raised by a limited Japanese study implicating TEA as a possible carcinogen in mice. However, results of subsequent studies with rats and mice have indicated that TEA is noncarcinogenic.

The Panel plans to: continue voluntary research activities; submit completed research studies to the National Toxicology Program; publish research results in various peer-reviewed journals; develop and publish a literature review on alkanolamines; develop a scientific position statement on the health effects of alkanolamines; monitor the testing of MEA in Europe; continue advocating an increase in the RQ threshold for DEA; and, monitor and respond to regulatory developments on these chemicals.

The Panel spent 15% of its time on advocacy and 85% on research activities.

Alkylphenols and Ethoxylates

Chartered: 1987
Task Groups: Communications
International
Toxicology
North American Issues
Strategic Research
Panel Manager: Fernando Leiva

The Panel completed all but one environmental effects test on nonylphenol ethoxylates. In April, the Panel participated in an OECD-sponsored Risk Reduction Workshop hosted by the Swedish EPA. The Panel held a facilitated planning session in which communication and research needs were identified as further priorities. The Panel continued to work with the state of North Carolina on alkylphenol ethoxylates on waste water treatability issues.

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 about the chemical fate and environmental effects of nonylphenol. The Panel maintains liaison with the Soap and Detergent Association on scientific and regulatory issues.

The Panel will continue to educate the U.S. regulatory community on the results of Panel research. A risk assessment of APEs will be performed by the Panel by early 1994. The Panel also will continue to work with the Swedish EPA and agencies of other interested countries. Biodegradation and treatability studies will be investigated by the Panel to assist North Carolina and other states in assessing potential risks of these chemicals to the environment. The Panel will continue to identify research and communication needs. In addition, the Panel will develop an information package for distribution at three upcoming workshops.

The Panel spent 99% of its time on advocacy and 1% on evaluation activities.

Aryl Phosphates

Chartered: 1991
Task Group: Toxicology Research
Panel Manager: Kathleen Roberts

In July, the Panel submitted comments on the proposed TSCA Section 4 rulemaking for aryl phosphate base stocks. Based on comments submitted on the test rule, the Panel developed a testing proposal under EPA's open season program. Based on the proposal, the Agency accepted aryl phosphates as Tier 1 candidates for negotiations.

Chairman
Roy Roseberry
FMC Corporation

Before coming to CMA, the manufacturers were part of an *ad hoc* committee which formed to respond to inclusion of the chemical category in the Second Report of the Interagency Testing Committee in 1978. When EPA announced its intention to initiate rulemaking under TSCA Section 4, the members disbanded the Committee and reformed as a CHEMSTAR panel.

The Panel soon will begin consent order negotiations with EPA. Other Panel activities will include sponsoring the negotiated testing program and responding to other regulatory concerns.

The Panel spent 100% of its time on advocacy activities.

Benzene (Completed)

Chartered: 1976
Task Group: Toxicology Research
Panel Manager: Carol Stack

The Panel completed its work in Fall 1992 after 16 years of operation at CMA. Prior to termination, the Panel continued support of a research program on benzene-induced leukemogenesis in cooperation with the American Petroleum Institute.

Chairman
Roger Daniel
The Dow Chemical Company

Over the years, the Panel 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. Advocacy efforts were directed at the proposed lowering of the benzene workplace permissible exposure limit by OSHA, intent by ACGIH to lower the benzene threshold limit value, and EPA rulemakings related to the regulation of benzene as a hazardous air pollutant under the Clean Air Act. The Panel can look back with pride at its many accomplishments.

Biocides

Chartered: 1986
Task Groups: Antimicrobial Exposure Assessment
Arsenic Acid
Formaldehyde
Education
Executive
Legislative
Membership
Regulatory
Scientific
Panel Manager: Has Shah

In legislative activities, Panel representatives met with EPA and other pesticide-registrant groups to discuss EPA proposals to fund the FIFRA reregistration program through additional fees from registrants. The Panel and other industry groups opposed EPA's requests to Congress for authority to impose additional fees for each chemical case in reregistration and to institute fees for each product registered in Phase 5. In addition, the Panel and other groups successfully opposed a proposal in the Administration's budget that would have authorized EPA to collect $15 million annually in registration fees.

Chairman
Lori Lickly
The Dow Chemical Company

The Panel worked with other industry trade associations to pursue legislation distinguishing antimicrobials from other pesticides and to streamline the pesticide registration process. A draft Congressional bill has resulted from these efforts and the participating associations will seek an amendment to FIFRA for antimicrobials.

In regulatory activities, Panel representatives met with EPA officials to discuss problem areas in the FIFRA registration and reregistration processes. The Panel and EPA are cooperatively seeking solutions to recurrent problems in these processes.

EPA and industry working groups formed to identify the reasons for high rejection rates for studies submitted during reregistration and to develop methods to reduce these rejection rates. Technical representatives of several Panel member companies are involved in this process.

The Panel commented on several EPA policies including a safer pesticide policy; an adverse effects policy; and, an EPA request to OMB for authority to issue data call-ins for 1,200 List 3 inert ingredients. While the safer pesticides policy is expected to be issued despite Panel objections, the Panel convinced OMB to deny EPA's request to issue DCIs on inerts. The adverse effects policy is pending at the Agency.

Many states are pursuing increased registration fees and other forms of revenue collection based on pesticides sales volume to generate funds to remediate contaminated groundwater. Some of these activities have imposed unreasonable burdens on biocides manufacturers. The Panel therefore is monitoring legislative activities in sixteen states and will add other states as the need arises. Through this monitoring process, the Panel targeted Michigan, New York, North Carolina, West Virginia, and Wisconsin for advocacy activities.

The Antimicrobial Exposure Assessment Task Group in December submitted to EPA an amended final Antimicrobial Exposure Assessment Study Report. The amended report addressed errors and deficiencies discovered in the original final report. The conclusion of the amended report, however, was similar to the original report and will enable federal and state regulatory agencies to conduct more accurate risk-assessments for individual biocide application methods and end-uses. The amended report also was submitted to California EPA and to Agriculture Canada.

The Arsenic Acid Task Group conducted a critical review of four recent epidemiologic studies on the association between ingested arsenic and human cancer. The review was undertaken to respond to EPA's Draft Drinking Water Criteria Document for Arsenic. The Task Group review was submitted to the EPA Science Advisory Board Drinking Water Com-

mittee before its review of the draft criteria document. The Task Group continued its efforts with EPA to resolve scientific issues on studies conducted by the arsenical wood preservative industry and obtained acceptance of several previously rejected arsenic acid and chromic acid avian, teratology, and glove and protective clothing permeability studies. The Task Group is awaiting resolution of technical issues before proceeding with EPA-required product chemistry testing. The Task Group also began a study to assess the degree to which arsenical wood preservative components can be released from treated wood into aqueous media. The analytical method validation phase of the study began in May and is expected to be completed by Spring 1994.

The Formaldehyde Task Group was formed in October to ensure compliance with the OSHA rule that established specific labeling requirements for all products that are composed of 0.1% or greater of formaldehyde or have the potential to off-gas greater than 0.1 ppm of formaldehyde. The Task Group initiated a testing program to determine: free formaldehyde levels in paint containing various formaldehyde donor biocides; formaldehyde levels in the headspaces of paint cans; half-life of formaldehyde in paint; and, worker/consumer exposure to formaldehyde off-gasing from paint using typical paint application techniques. The program is anticipated to be completed by March 1994. Paint manufacturers will be able to use the program information to determine if warnings are required for their products.

The Panel was 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 DCIs 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 participate in the legislative debate on reregistration and maintenance fees in FIFRA Reauthorization. The Panel also will monitor legislation on the production and use of biocides and work to prevent legislation that would unduly restrict uses of selected biocides.

The Panel will continue to monitor state legislative and regulatory activities and seek to prevent imposition of unreasonable fees on biocides. The Panel also will work with the CMA State Affairs Department and Chemical Industry Councils in efforts to prevent inappropriately restrictive initiatives.

The Panel will hold an educational workshop for EPA personnel on industrial biocides application methods, uses, exposure patterns, effluent treatments, and other issues of importance to the biocides industry. The educational program is designed to lead the Agency to issue more appropriate data requirements for industrial biocides.

The Antimicrobial Exposure Assessment Task Group will continue to work with EPA to ensure that the Agency incorporates the results of the exposure assessment study in its reregistration review of members' products.

The Arsenic Acid Task Group will continue to work with EPA to obtain acceptance of the two remaining aquatic toxicity studies; resolve product chemistry testing issues; and, clarify issues about labeling of arsenical wood preservative products. The Task Group also will monitor EPA's activities in the drinking water area and complete the water availability studies of arsenically treated woods.

The Panel convinced OMB to deny EPA's request to receive authority to issue data call-ins for 1,200 chemicals.

The Formaldehyde Task Group will complete its ongoing research project. The study results will help paint manufacturers in identifying labeling requirements for their customers.

The Panel spent 60% of its time on advocacy, 30% on research, and 10% on education activities.

Brominated Flame Retardants

Chartered: 1990
Task Groups: Analytical Chemistry
Executive Committee
Toxicology Research
Users Group
Panel Manager: Dee Kuhn

Chairman
David McAllister
Great Lakes Chemical Corp.

Panel-sponsored testing to determine levels of polybrominated dibenzodioxins and dibenzofurans in commercial samples of eight brominated flame retardants under the TSCA Section 4 Dioxins and Furans Analytical Test Rule is near completion. The remaining testing should be completed shortly.

In 1991, EPA published a proposed test rule requiring health, environmental, and chemical fate testing on five brominated flame retardants with an estimated testing cost of $11-19 million. The Panel submitted extensive comments on the proposed rule. In 1992, EPA announced an opportunity for negotiation on all pending TSCA Section 4 test rules, and solicited test proposals on these rules from industry. In response to the EPA request, the Panel submitted a test plan with an estimated testing cost of $6 million. A decision from the EPA on the proposal is expected in the summer of 1994.

The Panel filed comments with EPA on the proposed Significant New Use Rule on 2,3,5,6-tetrachloro-2,5-cyclohexadiene-1,4-dione (chloranil). The Panel also submitted comments to the Netherlands Ministry of Housing, Physical Planning and the Environment on proposed legislation to ban the use of all polybrominated diphenyl oxides (PBDPOs) and polybrominated biphenyls (PBBs) in the Netherlands by 1996.

The Panel is working with the Organization for Economic Cooperation and Development (OECD) and the World

Health Organization (WHO) to compile accurate information on brominated flame retardants. Comments were submitted on the Fifth Draft of the OECD Cooperative Risk Reduction Activities for brominated flame retardants, on the OECD's Arias Report on the use and alternatives to brominated diphenyl oxide flame retardants, and on the WHO Environmental Health Criteria Documents on PBDPOs and PBBs. The Panel also organized a delegation of experts to attend the OECD workshop on PBBs and PBDPOs in Neuchatel, Switzerland in February.

The Panel discussed current issues and activities on brominated flame retardants at several workshops and conferences: the Electronics Industry Association's Safety Committee Meeting; the Environmentally Friendly Flame Retardants Conference; the Fire Retardant Chemical Association Conference; Interflam '93; and, the Business Communications Company Conference.

The Panel originally formed in 1985 under the auspices of the Fire Retardant Chemicals Association, and became a CHEMSTAR Panel in 1990. The Panel formed to address: the inclusion of brominated flame retardants in EPA's proposed analytical test rule on dioxins and furans; the publication of pyrolysis studies demonstrating that brominated dibenzodioxins and dibenzofurans may form from brominated diphenyl oxides; and, the Interagency Testing Committee's recommendations for health and environmental effects testing of certain brominated flame retardants.

The Panel will monitor EPA activities in response to the TSCA Section 4 testing proposal, and will continue to work with OECD and WHO in their projects to compile information on brominated flame retardants. The Panel will cooperate with the European Brominated Flame Retardant Industry Panel through meetings and information exchange.

The Panel will hold a workshop in Fall 1993, and will make presentations at the Fire Retardant Chemical Association's semi-annual meeting in October 1993. The Panel will evaluate the need for additional research and undertake projects as appropriate.

The Panel spent 50% of its time on advocacy, 30% on research, 10% on education, and 10% on communications activities.

Chairman
Kim Pohlman
PMC Specialties Group

Butylated Hydroxytoluene

Chartered: 1977
Task Groups: None
Panel Manager: Dee Kuhn

The Panel continued cooperative efforts with the FDA and the European BHT Manufacturers Association (EBMA) through information exchange.

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. In 1991, the Panel submitted additional information that contained a review of studies previously submitted and information regarding the EBMA's Chronic Toxicity Study of BHT. *The Role of Hepatocellular Injury in the Chronic Toxicity of BHT*, and again requested that FDA issue a regulation acknowledging the prior sanction status of BHT. To date, the FDA has made no decisions regarding the Petition.

The Panel will continue to cooperate with the FDA in its evaluation of BHT and will maintain working relations with EBMA through information exchange. The Panel plans to support an updated literature search of BHT and, when appropriate, will sponsor research on food and food packaging uses of BHT.

The Panel spent 90% of its time on advocacy, and 10% on evaluation activities.

Butadiene

Chartered: 1984
Task Groups: Toxicology Research
Panel Manager: Elizabeth Moran

The Panel commented on the EPA draft report, "Mobile-Sources Air Toxics Study." This report identified butadiene as the "most toxic component of emissions" from motor vehicles. Because of the Panel's comments, which focused on EPA's inconsistent approach to assessing risk of the various components, EPA revised its draft. The Final Report provides a range of risk assessments for each component of vehicle exhausts, and does not highlight butadiene as the most toxic component.

Chairman
Norman Morrow
Exxon Chemical Company

The Panel also submitted substantial data on species differences in butadiene metabolism and toxicity to ACGIH, in response to its activities in reevaluating the TLV for butadiene. Because of the Panel's comments, the new proposed TLV for butadiene is 2 ppm — the same as the proposed OSHA PEL.

The Panel commented on a California Air Resources Board proposal to list butadiene as a toxic air contaminant. The focus of the Panel's comments was to convince the state of California to use the substantial data on species differences in metabolism and effects of butadiene in its risk assessment.

To provide further information on the potential risk to humans of butadiene exposure, the Panel completed year two of its four-year, $1.5 million research program aimed at understanding the species differences in response to butadiene exposure. The program also will provide data that will support alternative risk assessment methodologies. The Panel is in the process of a

comprehensive review of the research program to ensure that it still meets the regulatory needs.

The Panel continued its testing of 4-vinylcyclohexene under a TSCA Section 4 consent order.

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 await the final rule for the OSHA workplace standard on butadiene which is expected in late 1994. The Panel will continue its butadiene research activities and consent order testing of 4-VCH. The Panel will complete the comprehensive review of its research program in late 1993. Following this review, the risk assessment activities will begin. The Panel will begin discussions with EPA on the appropriate cancer and non-cancer risk assessment approaches for butadiene, and will continue to monitor and comment on the Clean Air Act Mobile Sources Rulemaking.

The Panel spent 40% of its time on advocacy, 59% on research, and 1% on evaluation activities.

Chairman
John Stewart
Courtaulds Fibers, Inc.

Carbon Disulfide

Chartered: 1991

Task Groups: Risk Assessment
Toxicology Research
TSCA Testing

Panel Manager: Elizabeth Moran

The Panel was active in three major areas — TSCA Section 4 test rule development at EPA, Clean Air Act implementation, and OSHA activities. The Panel completed a study on the reproductive and developmental effects of carbon disulfide on female rats and submitted it to EPA under Section 4. In addition, the Panel filed comments that there is no further need for a test rule on carbon disulfide. The Panel monitored developments under the Clean Air Act Amendments including the listing of carbon disulfide as a high risk pollutant, and began a dialogue with EPA on an appropriate reference concentration for the chemical. As part of the latter activity, the Panel completed a comprehensive review of data and finalized the report identifying safe levels of exposure. The Panel also commented on OSHA regulations affecting carbon disulfide, including the proposed rule to amend the PEL for the construction, maritime and agricultural industries.

Companies manufacturing carbon disulfide and using it to produce rayon and cellulose fibers by the viscose process joined together in 1976 as the Inter-Industry Committee on Carbon Disulfide. In 1991, this group became a CHEMSTAR Panel. The Panel's mission is to interact with regulatory agencies and other appropriate organizations on safety, health and environmental issues involving carbon disulfide.

The Panel will continue to have dialogue with EPA and NTP on testing of carbon disulfide and on development of an appropriate reference concentration. In addition, the Panel hopes to expand its membership to include all producers and users of carbon disulfide. The Panel will follow OSHA reform legislation closely, especially any provisions to re-institute the 1989 Air Contaminants Standards. The Panel will interact with OSHA to ensure that the provisions of the settlement agreement on the 1989 regulations are incorporated into any new legislation. Also, the Panel will continue to monitor EPA's activities in developing TSCA test rules on carbon disulfide.

The Panel spent 95% of its time on advocacy, and 5% on research activities.

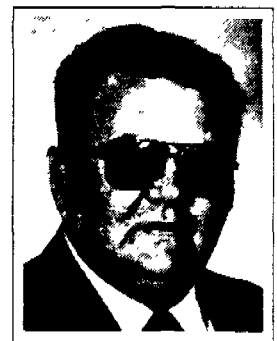
Chlorinated Pool Chemicals

Chartered: 1989

Task Groups: Transportation
Hazard Assessment
Research
Research
DCCA Dihydrate
Reclassification

Panel Manager: Kathleen Roberts

The Panel completed a research project to measure chloroform releases from swimming pools and is awaiting the final report, which will be submitted to the California Air Resources Board. The Transportation Task Group completed its bulletin on the transportation of calcium hypochlorite and chlorinated isocyanurates. The bulletin will be distributed to shippers of pool chemicals and personnel responsible for in-transit storage. In response to concerns regarding the "self-reactive" classification recommended by the U.N. Expert Committee on the Transport of Dangerous Goods, the Panel is working with DOT to further clarify and respond to the U.N. recommendations on the transportation of hazardous materials.



Chairman
Bruce Jacobsen
Olin Corporation

The Panel formed to promote safety prac-

tices worldwide in the processing, packaging, warehousing, transportation, and use of chlorinated pool chemicals. Panel members include producers of calcium hypochlorite and chlorinated isocyanurates worldwide.

The Panel will continue distribution of its training videotapes for fire and emergency response personnel and guidelines for safe handling and storage of pool chemicals. In addition, the Panel will monitor various fire and building code regulations and other requirements affecting chlorinated pool chemicals.

The Panel spent 40% of its time on advocacy, 30% on research and 30% on education activities.

Chlorine Dioxide

Chartered: 1988
Task Groups: Communication
FIFRA
Office of Drinking Water
Panel Manager: Robert Romano

The Panel completed all Phase I requirements for EPA's FIFRA data call-in. The Panel also completed all testing required for FIFRA Phase III Reregistration. The Panel continued to work closely with the EPA Office of Drinking Water on the upcoming Disinfection By-Product Rule standards for chlorine dioxide and sodium chlorite. The proceedings of the Panel's Second International Symposium on Chlorine Dioxide were published in March. The Panel has executed the Data Ownership Contract for Toxicology Studies generated by the Panel, and all studies have been distributed to each participating member. The data is confidential under FIFRA, and all parties must abide by the provisions of the signed agreement.

Chairman
Richard Higby
Rio Linda Chemical Co., Inc.

The Panel formed in anticipation of an EPA proposal to regulate chlorine dioxide under the Safe Drinking Water Act by 1993. 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.

Panel representatives will continue to interact with EPA on the FIFRA data call-in and reregistration. The Panel will undertake additional testing which EPA may require under FIFRA. The Panel will review and comment on EPA's Chlorine Dioxide Health Advisory Report which is the basis for the upcoming Drinking Water Standard. Interaction with EPA on its negotiated test rule approach for the Disinfection By-Product Rule, which includes chlorine dioxide and sodium chlorite, will be a major Panel focus through 1994.

The Panel spent 65% of its time on advocacy, 22% on research, 9% on education and 4% on evaluation activities.

Chlorobenzenes

Chartered: 1974
Task Groups: Toxicology Research
FIFRA Data Call-In
1,2,4-Trichlorobenzene
Panel Manager: Carol Stack

The Panel continued to sponsor research to meet 1,2,4-trichlorobenzene (TCB) oncogenicity testing requirements under TSCA Section 4. The Panel also sponsored research to address a FIFRA data call-in on p-dichlorobenzene (PDCB).

Chairman
James Bryant
Standard Chlorine Chemical Co., Inc.

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 until June 1994, when the final reports on the TCB oncogenicity studies are submitted to EPA. The Panel will initiate acute and subchronic neurotoxicity studies on PDCB required under the FIFRA data call-in. Completion of PDCB testing requirements under FIFRA is anticipated at the end of 1994. The Panel is also investigating health effects data requirements for PDCB under the California Birth Defect Prevention Act.

The Panel spent 100% of its time on research activities.

Cobalt

Chartered: 1989
Task Group: Toxicology Research
Panel Manager: Dee Kuhn

The Panel submitted comments and presented oral testimony to ACGIH on the proposal to lower the TLV for cobalt from 0.05 mg/m^3 to 0.02 mg/m^3. ACGIH postponed the decision to lower the TLV until next year so that its TLV Committee may further consider information presented by the Panel. The Panel addressed environmental issues related to cobalt compounds, and has continued to cooperate with the Cobalt Development Institute through meetings and information exchange.

Chairman
Ted Potter
The Shepherd Chemical Co.

The Panel formed to interact with regulatory agencies and other appropriate organizations on cobalt safety, health, and environmental issues. The Panel first focused on the 1990 IARC review of cobalt and cobalt compounds. Panel interaction with the CDI provided valuable information for use in the IARC review.

The Panel plans to submit comments on the addition of cobalt to the list of chemicals under California Proposition 65 implementation. The Panel will continue to interact with ACGIH, and will maintain working relations with CDI.

The Panel spent 100% of its time on advocacy activities.

Cresols

Chartered: 1984
Task Group: Advocacy
Panel Manager: Barbara Francis

The Panel recently submitted comments to IRIS regarding the reference concentration and reference dose calculations for the three cresol isomers and will provide information to the Carcinogen Risk Assessment Verification Endeavor Work Group to address classification of the isomers.

Chairman
Kirby Boston
Merichem Company

The Panel formed in 1984 in response to the TSCA Section 4 test rule. Testing required under the rule was completed in 1990, and after evaluation of the test data in its RM1 (Risk Management) process, EPA decided to take no further action, but referred the three cresol isomers to OSHA and NIOSH for their consideration. The Panel has worked with the EPA Chemical Testing Branch, Office of Solid Waste, and the National Toxicology Program to ensure that logical and scientifically sound testing programs are conducted on cresols.

The Panel will continue to monitor cresols regulatory issues and interact with the agencies, as appropriate.

The Panel spent 100% of its time on advocacy activities.

Crystalline Silica

Chartered: 1989
Task Groups: Administrative
Analytical Methods (closed)
Health Effects
Regulatory and Legal
Science and Technical Advisory
Panel Manager: Elizabeth Festa Watson

The Panel includes over 40 members. In August, the Analytical Methods Task Group brought its activities to a close by hosting a well-attended international symposium on methods for detecting and analyzing crystalline silica content. This workshop previewed four Panel sponsored, state-of-the-art reviews of analytical methods used to detect and quantify crystalline silica in bulk samples. The focus of the symposium was expanded to include measurement of respirable crystalline silica. The AMTG also arranged to have the reviews and the proceedings published in peer-reviewed journals. In AMTG's place, the Panel formed a Science and Technical Advisory Group with a broad mission to provide science and technical support to the Panel. STAG's first activity is to design a simple protocol for an ambient air project that uses readily available equipment and offers some level of consistent application in practice. The project is intended to be a voluntary program for Panel members to sample the ambient air for crystalline silica content.

Chairman
Joseph Shapiro
Unimin Corporation

The Panel, along with the American Mining Congress, the International Diatomite Producers Association and the California Mining Association, co-funded a focused review of crystalline silica literature and risk assessments. Working with CMA's Federal Government Relations Department, the Panel began a dialogue with members of the Senate Committee on Environment and Public Works on the need for using the best scientific evidence and setting appropriate regulatory priorities. The Panel also provided suggestions to EPA on how to improve the IRIS data base and expressed concern about adding crystalline silica to the Toxic Release Inventory.

The Panel formed to address the 1987 International Agency for Research on Cancer listing of crystalline silica as a "probable" carcinogen. Classification as a probable carcinogen automatically requires firms to comply with OSHA Hazard Communication Standard cancer labelling requirements. 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 classification.

The Panel will focus on bringing the literature review project to completion. In addition, the Panel is working with Johns Hopkins University to promote a major international conference on crystalline silica health effects, in Baltimore, MD, in April 1994. Panel members will continue to express concern to Congress, agencies and the administration on the use of automatic triggers for labelling decisions. The Panel will follow closely efforts in California, and within EPA, to increase reporting and regulations based upon the IARC or NTP classifications and require risk assessments of crystalline silica. The Panel will continue efforts to expand the membership and increase financial resources to respond to arising issues.

The Panel spent 50% of its time on advocacy, 13% on research, 25% on education, and 12% on communication activities.

Cumene

Chartered: 1985
Task Groups: Health Effects
Environmental Effects
Panel Manager: Barbara Francis

The Panel submitted a report to EPA on the spontaneous background incidence of cataracts in control animals exposed to cumene, as well as a supplementary report on metabolism of cumene. At its June Risk Management I meeting, the Agency concluded that cumene does not cause cataracts in rats and is not a developmental toxicant. The latter conclusion, a reversal of opinion by the Agency, was reached after the Panel submitted additional historical data on the incidence of ecchymosis.

Chairman
Kenneth Darmer
Shell Oil Company

In 1990, through the legal challenge of a test rule, the Panel sought definition of "substantial" exposure limits by which the Agency can require testing under TSCA Section 4(a)(1)(B). In 1990, 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 Agency published the "B" Policy in May 1993.

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 of cumene.

The Panel will continue to interact with EPA and other agencies on hazard and risk assessment issues. Panel members are drafting manuscripts of the testing data for publication in peer-reviewed journals.

The Panel spent 95% of its time on advocacy and 5% on research activities.

Cyclohexane

Chartered: 1985
Task Group: Toxicology Research
Panel Manager: Jonathon Busch

In July, EPA launched an "open-season" initiative that solicited from industry testing proposals for chemicals with a pending test rule under TSCA Section 4. In response to the Agency's initiative, the Panel submitted a written proposal to conduct an extensive testing program for cyclohexane. The Panel volunteered to conduct all of the studies in EPA's 1987 proposed test rule, with the exception of the oncogenicity studies. The Panel's proposed testing program included evaluation of cyclohexane for potential subchronic toxicity, neurotoxicity, developmental toxicity, reproductive toxicity, dermal absorption, and dermal sensitization. The Panel's proposed testing program also included numerous protocol enhancements beyond the testing guidelines required by EPA. As a result of the Panel's proposed program, EPA placed cyclohexane into the first round (Tier I) of the open-season program. Instead of a final TSCA test rule, EPA announced it would negotiate with the Panel for an enforceable consent agreement under the open-season process. The Panel and its Toxicology Research Task Group are preparing for the open-season negotiations.

Chairman
Fred Marashi
Phillips Petroleum Company

The Panel submitted comments to EPA on the proposed TSCA 4(a)(1)(B) policy. EPA plans to use the new "B" policy to support testing requirements for cyclohexane and other chemicals. The Panel commented that EPA has not justified the Agency's finding that cyclohexane enters the environment in substantial quantities, or that there is substantial human exposure to cyclohexane.

Cyclohexane manufacturers initially formed the Panel to address the Interagency Testing Committee's "intent-to-designate" cyclohexane for priority testing under TSCA Section 4. A proposed test rule on cyclohexane was published by EPA in 1987. Since 1987, issuance of a final TSCA test rule has been postponed by EPA.

The Panel and its Toxicology Research Task Group will continue preparing for "open-season" negotiations with EPA and sponsoring a sound, scientific testing program. The Panel will develop scientific materials supporting the proposed testing program and review scientific capabilities and bids from various research laboratories. Depending on EPA's response to the Panel's regulatory comments and the outcome of the "open-season" negotiations, the Panel will consider a legal challenge to the TSCA "B" policy

The Panel spent 100% of its time on advocacy activities.

Dibenzofurans/ Dibenzodioxins

Chartered: 1984
Task Groups: None
Panel Manager: Elizabeth Festa Watson

The Panel focused its efforts on the EPA scientific reassessment of the toxicity of dioxins. The Panel also funded a preliminary assessment of the original data used to prepare the NIOSH epidemiology study of workers exposed to 2,3,7,8-TCDD (dioxin).

Chairman
Robert Kaley
Monsanto Company

In September, the Panel again filed comments expressing serious concern over EPA's promotion of Toxicity Equivalency Factors and the impact of these factors if applied in regulatory frameworks. In May, the Panel filed comments with

ATSDR on the Draft Toxicological Profile for Chlorodibenzofurans.

The Panel formed when the Environmental Defense Fund and National Wildlife Federation filed a 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.

Assuming the preliminary review of the NIOSH study data indicates that a reanalysis is appropriate, the Panel will oversee the completion of this project. Results will be presented to EPA as part of the reassessment process and will be made available to the wider scientific community.

The Panel spent 50% of its time on advocacy and 50% on research activities.

Diisocyanates

Chartered: 1988

Task Groups: Isocyanates TSCA Testing
Maximum Achievable Control Technology
Toxicology Research
Transportation
TSCA Nomenclature

Panel Manager: Cecilia Spearing

The Panel continued to work with EPA to ensure that all necessary data are available to make informed decisions during implementation of Clean Air Act Title III. The Maximum Achievable Control Technology Task Group continued to explore the effect of the proposed Hazardous Organic National Emissions Standards for Hazardous Air Pollutants (HON) on member companies' operating procedures. The Panel also commented on the proposed HON Rule. Following the issuance of the Early Reduction Rule, the Panel filed a judicial challenge to remove methylenediphenyl diisocyanate (MDI) from the high pollutant risk list. The Panel's efforts to have EPA alter the SARA Section 313 listing for MDI were successful — EPA made the requested technical correction. The Panel submitted a petition to EPA to raise the Reportable Quantity for MDI and awaits a response from the Agency. The Emergency Response Preparedness Guideline for MDI was completed under the Panel's sponsorship. The Panel also renewed efforts to complete an Emergency Response Preparedness Guideline for toluene diisocyanate (TDI). The TSCA Nomenclature Task Group continued to address optimum definition of the dominant nomenclature for MDI and TDI products on inventory lists world-wide. Panel comments were submitted to the state of Michigan on its proposed Occupational Health Standard for Isocyanates.

Chairman
James Chapman
Miles, Inc.

The Panel formed to develop and disseminate information on the safe handling of diisocyanates, including TDI, MDI, hexamethylene diisocyanate, and methylenebis-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 states on various initiatives, such as California's Proposition 65 implementation, the Michigan Occupational Health Standard for Isocyanates, and various state air toxic regulations as they develop. Emergency Response Preparedness Guidelines for TDI will be completed under the sponsorship of the Panel. The Panel's Transportation Task Group will address requirements for MDI in the Department of Transportation's HM-181 regulations and will petition DOT to remove MDI from the list of hazardous substances. Efforts to delist MDI from EPA's high pollutant risk list under the Early Reduction Rule will continue. The Panel will continue to interact with EPA on implementation of the Nomenclature Task Group's recommendations for MDI and TDI products for inclusion in the TSCA Inventory. Conversations between the Panel and the Interagency Testing Committee on appropriate research information for the isocyanates will continue. The Panel will become an active participant in EPA's Risk Management-2 process for isocyanates. The Panel therefore is sponsoring the development of a position paper on diisocyanate pulmonary effects. As a volunteer in Phase 4 of the OECD High Production Volume Existing Chemicals Voluntary Testing Program, the Panel will complete a Screening Information Data Set dossier on MDI. The Panel also will continue to interact and coordinate activities with the Society of the Plastics Industry, the Polyurethane Foam Association, the International Isocyanate Institute, and the European Isocyanates Producers Association.

The Panel spent 99% of its time on advocacy and 1% on litigation activities.

Chairman
Thomas Marriot
Air Products and Chemicals, Inc.

Dinitrotoluenes

Chartered: 1989

Task Group: Toxicology

Panel Manager: Barbara Francis

As part of a voluntary agreement with EPA and German regulatory agencies, the Panel conducted a pharmacokinetics study. The results of this study were submitted to the various agencies in late 1991 and Panel member companies are awaiting the outcome of EPA's evaluation of the data.

The Panel formed to permit U.S. manufacturers to work with Bayer AG on a voluntary testing program. Representatives of the U.S. EPA and German agencies identified

DNTs as possible subjects for 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. The Panel member companies and Bayer AG agreed to undertake a pilot pharmacokinetics project in response to the agencies' request.

The Panel intends to interact with the German and U.S. agencies as results of the voluntary testing are assessed.

Ethylenebis(stearamide)

Chartered: 1992
Task Groups: None
Panel Manager: Cecilia Spearing

One of the sixty-two chemicals assigned to Phase 3 of the OECD High Production Volume Existing Chemicals Voluntary Testing Program is N,N'-1,2-ethanediylbisoctadecanamide, also known as N,N'-ethylenebis (stearamide) (EBS). The Panel has developed a Screening Information Data Set dossier for EBS and has worked with EPA to ensure that all available data and data gaps are identified for consideration in the OECD process.

Chairman
Allan Kushins
Lonza, Inc.

Manufacturers of EBS formed the Panel to voluntarily collect, generate and evaluate information required to complete a Screening Information Data Set (SIDS) dossier for evaluating environmental and health toxicity potentials of this chemical.

Following the Phase 3 OECD SIDS Review Meeting in Paris, scheduled for September 1993, the Panel will consider the OECD recommendations concerning EBS and then take appropriate action.

The Panel spent 100% of its time on research activities.

Ethylene Dibromide (Completed)

Chartered: 1982
Task Groups: None
Panel Manager: Robert Romano

The Panel worked with OSHA on the draft Occupational Standard for ethylene dibromide. The Panel formed to address the OSHA standard with the goal of ensuring that reasonable regulations were adopted. The Panel was successful in educating OSHA on the safe uses of ethylene dibromide, as evidenced in the draft OSHA standard. The Panel terminated operations because the final standard will not be issued in the near future.

Chairman
Vernon White
Great Lakes Chemical Corp.

Ethylene Dichloride

Chartered: 1974
Task Groups: None
Chairman: Vacant
Panel Manager: Kathleen Roberts

The Panel began exploring the inclusion of ethylene dichloride in EPA's Risk Management process.

The Panel formed to address federal and state agencies in all safety and health issues arising from 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 completed a voluntary testing program which included chronic inhalation, metabolism, and teratogenicity studies.

The Panel will continue to monitor EPA's assessment of ethylene dichloride in the RM process, as well as other agency activities, and provide input as needed.

The Panel spent 100% of its time on advocacy activities.

Ethylene Glycol

Chartered: 1986
Task Groups: Toxicology Research
Panel Manager: Kathleen Roberts

The Panel continued its communications with EPA on the need for a CERCLA Reportable Quantity adjustment rulemaking. The Panel also tracked the development of the ATSDR technical report on ethylene glycol. Through communications with ATSDR, the Panel determined that the report request originated from Department of Defense concerns at Griffis AFB in New York. The Panel contacted Griffis AFB and the New York Health Department, providing both groups with biodegradation information. The Panel also investigated national databases listing environmental fate studies to determine if a complete EG database is available for public use. In addition, the Panel addressed errors noted in several newspaper articles and an aquatic toxicity database. The Toxicology Research Task Group completed a compilation of ethylene glycol studies, contracted for the development of a developmental toxicity perspective, and drafted manuscripts describing CMA-sponsored studies. The Task Group also monitored the Developmental and Reproductive Toxicity evaluation process, including participating in the ethylene glycol review during the DART conference in January.

Chairman
William Snellings
Union Carbide Corporation

The Panel formed in 1986 to augment the ethylene glycol toxicological data base. The Panel then completed a voluntary testing program, focusing on developmental toxicity and pharmacokinetics research in mice and rats.

The Panel will respond to the EPA-proposed rulemaking for CERCLA RQs, and

to the ATSDR technical report, both of which are expected in Summer 1993. The Toxicology Research Task Group will continue toward publication of the CMA-sponsored studies and the developmental toxicity perspective, as well as address errors noted in several databases. The Task Group also will proceed with research work to support a model of the ethylene glycol developmental toxicity mechanism.

The Panel spent 60% of its time on advocacy and 40% on research activities.

Ethylene Glycol Ethers

Chartered: 1980
Task Groups: Toxicology Research
Process Safety
Clean Air
Panel Manager: Kathryn Rosica

The Panel's research and advocacy activities will continue to focus exclusively on ethylene-based glycol ethers. The Panel changed its name from Glycol Ethers Panel to avoid confusion with the newly formed Panel on propylene-based glycol ethers. A voluntary research program on ethylene glycol butyl ether (EGBE) was completed and publications are pending. The program included *in vitro* hemolysis studies in rat and human red blood cells, and development of a physiologically-based pharmacokinetics model for risk assessment. The Panel presented these results to EPA's Office of Research and Development responsible for risk assessment activities and the Integrated Risk Information System (IRIS) database. In addition, a human sensitization study on EGBE was completed and the results submitted to the Cosmetic Ingredient Review Board for evaluation in August 1993. The Panel continues to participate in Phase 3 of the OECD Voluntary Testing Program, and submitted Screening Information Data Set dossiers on the methyl and ethyl ethers of triethylene glycol to EPA. The Panel also undertook and completed a major manuscript on derivatives of glycol ethers to be published in the fourth edition of *Patty's Industrial Hygiene & Toxicology*. A customer-focused information brochure entitled, "Dissolving the Myths About EGBE and Health" was also updated.

Chairman
Richard Wise
Union Carbide Chemicals and Plastics Company Inc.

In January, EPA denied the Panel's petition to delist five ethers from the category of glycol ethers listed as toxic air pollutants in the 1990 Clean Air Act amendments. The five are diethylene glycol monobutyl ether and its acetate, and three triethylene glycol ethers. EPA cited insufficient information on exposure as the reason. The Panel is now investigating a source category delisting action in conjunction with user groups.

The Panel continues to wait for EPA's response to a petition for adjusting the CERCLA Reportable Quantity for certain glycol ethers. The petition gives justification for raising the RQs from one pound to 5,000 pounds following EPA's established guidelines. The Panel urged an expeditious review of the petition and establishment of the appropriate RQs for these glycol ethers to relieve the regulatory burden of reporting under a one pound RQ.

Panel manufacturers of EGME and EGEE and their acetates are participating in regulatory activities at both OSHA and EPA. In March, OSHA published a Notice of Proposed Rulemaking to establish new workplace standards. The Panel submitted comments and will be testifying at the hearings in July 1993. EPA initiated a special review of these materials in December after preliminary epidemiology reports of semiconductor industry workers indicated an increased risk of spontaneous abortions. The Panel commissioned an independent study of these results with a focus on clarifying exposure of the workers to these materials. This study was unable to verify exposure to these specific chemicals or conclude specific causative agents. Panel members met with EPA and shared the results of this review. They also prepared several background information papers on the epidemiology results and have tried to clarify distinctions between the chemicals used in the semiconductor industry and other members of the ethylene glycol ether class.

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's voluntary testing will continue. Further development of the physiologically-based pharmacokinetic and *in vitro* hemolysis models on EGBE will be pursued. The Panel will meet with NTP scientists and monitor NTP's testing program on glycol ethers, including an EGBE chronic bioassay. A focus on international activities and liaisons with European manufacturers will be pursued. The Panel will continue sponsoring an active member of the ECETOC Technical Committee on EGBE, and will participate in an international meeting in 1994.

The Panel spent 80% of its time on advocacy and 10% on research activities.

Ethylene Oxide

Chartered: 1981
Task Groups: Industrial Hygiene
Environmental
Toxicology/
Epidemiology
Safety
Panel Manager: Robert Romano

The Ethylene Oxide Industry Council and Chemical Industry Institute of Toxicology continued cofunding a pharmacokinetics physiological modeling study being conducted at CIIT. EOIC completed an epidemiology meta-analysis in the spring. The epidemiology studies of ethylene oxide did not agree with the results of the animal studies, and the recent meta-analysis further illustrates this point. The EOIC industry-wide fugitive emissions bagging study was completed and results were made available to all members to aid in further quantifying ethylene oxide emissions for SARA Section 313 reporting and risk assessment. In September, the Panel sponsored a workshop which highlighted the results of the Butadiene and Ethylene Oxide Fugitive Emissions Field Study. The Panel commented on EPA's proposed Hazardous Organic National Emission Standards (HON). The Toxicology Task Group continued quantifying the potential risk assessment for ethylene oxide. A discussion of the risk assessment was initiated with the EPA last fall.

Chairman
Ronald Van Mynen
Union Carbide Corporation

The Panel formed to evaluate the results of an animal study that may affect OSHA and EPA regulatory proceedings on ethylene oxide. 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 into its third year. "Information Exchange" workshops focusing on safety and handling of ethylene oxide and on toxicology issues are planned for 1994. The Panel will focus on EPA's HON as it applies to ethylene oxide. An International Mutagenicity Risk Assessment Symposium jointly sponsored with the EPA is planned for May 1994. Because IARC will review ethylene oxide in February 1994, the EOIC will sponsor an observer to discuss relevant data with IARC reviewers.

The Panel spent 43% of its time on advocacy, 43% on research, 11% on education, and 3% on evaluation activities.

Fluoroalkenes

Chartered: 1987
Task Groups: Specific Chemical
Producers
Specific Chemical
Toxicology
Panel Manager: Kathleen Roberts

Based on comments and data generated by the Panel, EPA determined that a mouse specific locus assay would not be required for vinyl fluoride under the TSCA Section 4 Test Rule on fluoroalkenes. In July, the Panel submitted results of the vinyl fluoride oncogenicity study, which was the final study in the test rule. The rule required mutagenicity, subchronic toxicity, and oncogenicity studies on four fluoroalkene monomers — vinyl fluoride, vinylidene fluoride, hexafluoropropene, and tetrafluoroethene.

Chairman
Sharron Laas
DuPont

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

The Panel intends to continue its dialogue with EPA on the results of the TSCA testing program, as well as other Agency activities.

The Panel spent 100% of its time on advocacy activities.

Hexamethylene Diisocyanate

Chartered: 1988
Task Group: Toxicology Research
Panel Manager: Kathleen Roberts

The Panel continued to wait for the final TSCA Section 4 test rule for HDI, which has been delayed by the court directive to EPA to develop criteria for exposure findings under TSCA Section 4(a)(1)(B). The Panel also submitted comments to EPA supporting a consolidated trade group effort for the adjustment of CERCLA reportable quantities for substances listed under the 1990 Clean Air Act Amendments.

Chairman
Donald Lamb
Miles, Inc.

The Panel formed to address the inclusion of HDI on the ITC priority list of chemicals for testing under TSCA Section 4. In the proposed TSCA Section 4 test rule, EPA identified oncogenicity, mutagenicity, reproductive toxicity, developmental toxicity, neurotoxicity, comparative pharmacokinetics, and hydrolysis testing.

The Panel will proceed with the required testing program when EPA issues the final test rule. In addition, the Panel will continue to track the diisocyanate Risk Management process at EPA as well as other regulatory issues affecting HDI.

The Panel spent 100% of its time on advocacy activities.

Hydrazine

Chartered: 1991
Task Group: Toxicology Research
Panel Manager: Dee Kuhn

The Panel continues to participate in a joint research program with the Air Force, Navy, and NASA. The research will aid further understanding of the mechanism of hydrazine carcinogenesis and will be used in evaluating the potential effects on humans from exposure to the chemical. The Panel also completed an acute inhalation study in rats.

Chairman
David Hackathorn
Miles, Inc.

The Panel submitted comments to ACGIH on the proposal to lower the TLV for hydrazine from 0.1 ppm to 0.01 ppm. In response, ACGIH has postponed the decision for another year so that the TLV Committee may review results of research in progress under the joint research program.

The Panel addressed regulatory issues related to hydrazine both domestically and internationally. In the U.S., the Panel monitored the Risk Management activities of the EPA, prepared ecotoxicity data for submission to the Interagency Testing Committee, and supported a petition for a new classification by DOT for "less than 37% hydrazine."

Internationally, the Panel monitored British regulatory issues, and collected information to submit to the Japanese Ministry of Health and Welfare in response to a proposal to add hydrazine to the list of Poisonous and Corrosive Substances.

The Panel formed to support hydrazine-related product stewardship activities. Panel members have reviewed and evaluated published and unpublished literature on the health effects of hydrazine in order to maintain a current, accurate point of reference for discussion of the safe use of hydrazine products.

The Panel will continue its research program, and will work with regulatory agencies and other concerned organizations in matters relating to safety and health issues for hydrazine.

The Panel spent 50% of its time on advocacy and 50% on research activities.

Hydrogen Fluoride

Chartered: 1988
Task Groups: Advocacy/Communications
Management
Materials of Construction
Medical & Toxicology
Mutual Aid
Personal Protective Equipment
Storage Systems
Transportation
Panel Manager: Fernando Leiva

The Panel expanded to include users and suppliers of raw materials as members and broadened its focus to include advocacy activities. The Management Group and Advocacy/Communications Task Group led the Panel's participation in EPA's Congressionally mandated program to prepare a study of the industry. The Panel also submitted to EPA an independent study of transportation incidents involving anhydrous HF. The Panel commented extensively on ATSDR's Draft Toxicology Profile on HF. Members of the Medical & Toxicology Task Group also worked with the CMA Health and Safety Committee to develop comments on ATSDR's draft protocols for emergency medical treatment of HF exposure victims.

Chairman
Carolyn Seringer
DuPont

The Panel formed to provide a forum for U.S. and Mexican producers and shippers to share information on safety in the manufacture, handling and transportation of, and emergency response procedures for, anhydrous hydrogen fluoride and hydrofluoric acid.

The Panel will continue to track and participate in EPA's preparation of a final study of the industry. The Panel also will track a lawsuit filed against the California South Coast Air Quality Management District that banned specific uses of HF. The technical task groups will work toward completion of their initial recommended guidelines for industry safety practices. Members of the Panel will continue to host the Annual Meeting and Safety Seminar

The Panel spent 90% of its time on advocacy, 5% on research, and 5% on communication activities.

Hydroquinone

Chartered: 1984
Task Group: Toxicology Research
Panel Manager: Jonathon Busch

The Panel completed a testing program for hydroquinone under TSCA Section 4. All required data and reports were submitted to EPA. The Panel prepared a Research Summary Report outlining the findings and conclusions of the studies. The Panel is waiting for a response from EPA. If EPA accepts the results, the Panel will have achieved its required research objectives.

Chairman
David Lawrence
Eastman Chemical Company

The Toxicology Research Task Group published abstracts of Panel-sponsored research, and gave poster presentations on the scientific results at both the Society of Toxicology and Teratology Society meetings. The Panel also cooperated with the Nonprescription Drug Manufacturers Association, the Cosmetic Ingredient Review, and the Cosmetic, Toiletry, and Fragrance Association by providing these trade groups with summaries and final reports of the studies.

The Panel formed in response to a pro-

posed FSCA Section 4 test rule published by EPA in 1984. Subsequently, the Panel submitted extensive comments to the Agency and presented data at a rulemaking hearing. The Panel voluntarily sponsored a study to assess potential developmental effects from exposure to hydroquinone. The Panel also participated in the peer review of NTP's carcinogenicity studies on hydroquinone.

The Panel plans to publish the findings of its completed TSCA research program in appropriate scientific journals. The Panel will ensure that its published research findings are available to various regulatory organizations. Plans are being considered to voluntarily sponsor new research in the areas of epidemiology, protein binding dosimetry, PB/PK modeling, *in vitro* metabolism, and comparative enzymology. The Panel also plans to monitor hydroquinone issues being considered by the European Community, OECD, Japan, EPA, NTP, IARC, FDA, and the Nonprescription Drug Manufacturers Association.

The Panel spent 50% of its time on education and 50% on communication activities.

Isopropanol

Chartered: 1987
Task Group: Toxicology Research
Panel Manager: Cecilia Spearing

In compliance with a TSCA Section 4 test rule issued in 1989, the Panel is testing isopropanol for health effects. Testing requirements include subchronic toxicity, reproductive toxicity, developmental toxicity and neurotoxicity, mutagenicity, pharmacokinetics, and oncogenicity. The developmental toxicity, mutagenicity, pharmacokinetics, subchronic neurotoxicity and developmental neurotoxicity studies are completed and submitted to EPA. The two-year oncogenicity study is nearing completion and the laboratory's submission of the draft final reports to the Panel is imminent. Manuscripts of all completed studies have been submitted to peer-reviewed journals for publication. Panel representatives gave a poster presentation on the reproductive research study at the Annual Meeting of the Society of Toxicology in March. In addition to the studies required under the test rule, the Panel is sponsoring the following: a 90-day vapor inhalation neurotoxicity study in female Fischer 344 Rats; an alpha$_{2u}$-globulin study; and, an *in vitro* skin penetration study as a human exposure paradigm for risk assessment using PB/PK modeling. The Panel has also addressed the following issues: IRIS Database; Significant New Alternatives Policy; Design for the Environment; Michigan Air Toxics Regulations; and, Canadian National Pollutant Release Inventory. Work with EPA to correct the TRI database for isopropanol is continuing.

Chairman
James Quance
Exxon Chemical Company

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 risks arising from production, storage, transportation, and use of isopropanol.

The Panel will continue to conduct studies required under the TSCA test rule as well as interact with EPA on interpretation and evaluation of the test results. Sponsorship of one additional study, an *in vivo* dermal absorption study in rats, is anticipated. The Panel plans a comprehensive risk assessment of isopropanol using the test data obtained with state-of-the-art PB/PK modeling techniques. Results of all completed studies will be published in peer-reviewed journals.

The Panel spent 2% of its time on advocacy and 98% on research activities.

Ketones

Chartered: 1980
Task Group: Toxicology Research
Panel Manager: Barbara Francis

IRIS established an oral reference dose (RfD) of 0.6 mg/kg/day for methyl ethyl ketone (MEK) in May 1993, culminating a three year Panel effort. EPA accepted the Panel's argument that a more appropriate study was available to calculate a scientifically sound RfD value.

Chairman
James Quance
Exxon Chemical Company

The Panel submitted OECD SIDS dossiers on MEK, methyl isobutyl ketone (MIBK) and mesityl oxide (MO), and presented the information at EPA Phase 2 and Phase 3 meetings. The Panel completed the testing on MO required under the negotiated consent agreement and submitted final reports to the Agency.

Comments were submitted on EPA's proposed RCRA Hazardous Waste Identification Rule, which was subsequently withdrawn. The Ketones Panel, Acetone Panel, Oxo Process Panel and Isopropanol Panel recently submitted comments on EPA's program for evaluating substitutes for ozone depleting chemicals, the Significant New Alternatives Policy (SNAP) Program. Ketones Panel members participated in the Ad Hoc Neurotoxicity Endpoint Rule Group which developed an alternative neurotoxicity screening testing program. Cooperating with Canadian producers and users of MEK, the Panel submitted toxicity information to be used by the Ontario Joint Steering Committee on Hazardous Substances to develop an Occupational Exposure Limit for MEK.

The Panel formed to address EPA activities on MEK, MIBK, MO, and isophorone and has recently decided to include issues relating to secondary butanol. The Panel has negotiated testing programs with the

EPA to supplement the data base on MO, MEK, MIBK and isophorone.

The Panel will continue to address a variety of voluntary and regulatory initiatives regarding ketones. Included in the issues of interest is the EPA OPPT Printing Industry Design for the Environment, a project to provide chemical risk information to printers. In addition, the Panel will interact in two regulatory negotiations which could impact the ketones' industry: the Architectural and Industrial Maintenance Coatings (AIM) regulatory negotiations to reduce VOC emissions from consumer and commercial products; and, the Wood Furniture regulatory negotiations which will establish a national emission standard for hazardous air pollutants and a control technique guideline to assist states in achieving VOC reductions. The Panel is currently determining how to respond to EPA's request for information for their evaluation of volatile and non-volatile components of aerosol spray paints.

The Panel spent 90% of its time on advocacy and 10% on research activities.

Laboratory and Research Chemicals

Chartered: 1991
Task Groups: None
Panel Manager: Clyde Greenert

This former Business Council elected to become a Panel in order to expand its membership beyond CMA member companies. The Panel then participated in the CMA-sponsored American National Standards Institute (ANSI) labelling standards process to ensure that needs of small packagers were appropriately addressed. The ANSI labelling standards revisions are nearing completion and for the first time the standards recognize small package considerations.

Chairman
Harris Lehrer
Spectrum Chemical Manufacturing Corporation

The Panel formed to address issues unique to the laboratory and research chemicals industry. Panel focuses are: commenting on regulatory and legislative proposals affecting the industry; advocating the interests of the industry before domestic and international organizations and government agencies; developing protocols and contracting for research; and, developing and sponsoring educational programs to implement objectives of the Panel.

The Panel will continue evaluating cost-effective ways that it can help the laboratory and research chemicals industry implement Responsible Care®, with particular focus on the Product Stewardship and Distribution Codes. Projects to develop input into other standards setting organizations and regulatory agencies on packaging and transportation issues are being initiated. Also, the Panel aims to provide a forum for ensuring that CMA standing committees develop positions and work products that reflect the special considerations of small chemical packagers.

The Panel spent 100% of its time on advocacy activities.

Metal Catalysts

Chartered: 1984
Task Group: MCPP
Panel Manager: Dee Kuhn

The Panel submitted comments and presented oral testimony to ACGIH on the proposal to lower the TLVs for all nickel compounds to 0.05 mg/m3. Industry commenters were successful in persuading ACGIH to keep nickel in the "intend to change" category until June 1994. The Panel is involved jointly with NiPERA, the Nickel Development Institute, the National Association of Metal Finishers, Inco United States, Inc., and the International Metals Reclamation Company, Inc., in litigation challenging EPA's National Primary Drinking Water Regulation for Nickel.

Chairman
James Enters
Akzo Chemicals, Inc.

The Panel formed to collect and evaluate information necessary to assess safety, environmental, and health issues concerning metal-containing catalysts used in industrial processes. The Panel originally focused on a research program to characterize the toxicity profiles of metal catalysts, with particular emphasis on nickel-containing materials. Over the last several years, Panel focus has changed with an increase in advocacy activities in the areas of industrial and environmental regulatory concerns.

The Panel will continue liaison with NiPERA, NiDI, ISRI, NAMF, the Chrome Coalition, and the European Catalysts Manufacturers Association. Issues that will be of prime importance to the Panel are the nickel litigation, the EPA proposal on solid waste, and various actions under the Clean Air Act Amendments. The Panel will complete a survey of information relating to the economic impact of the proposal by ACGIH to lower the TLV for nickel, and will continue to track ACGIH activities in this area.

The Panel spent 80% of its time on advocacy, 10% on communication, and 10% on litigation activities.

Methyl Bromide

Chartered: 1990
Task Groups: None
Panel Manager: Kathryn Rosica

The Panel continues to conduct testing to satisfy pesticide reregistration and other data call-in requirements. Testing is ongoing in numerous areas including product chemistry, ecological effects, environmental fate, toxicology, and residue analyses. In the latter area of residue studies, the Panel is working with almost a dozen organizations to fulfill these requirements.

Chairman
Gary Ter Haar
Ethyl Corporation

The consortium of producers was formed as an *ad hoc* group in 1982 to respond to an EPA data call-in. The group became a CHEMSTAR Panel in 1990.

The Panel will continue to fulfill pesticide data call-in requirements and hopes to complete the majority of this work in 1993-1994.

The Panel spent 20% of its time on advocacy, and 80% on research activities.

Methylenedianiline (Completed)

Chartered: 1982
Task Groups: Risk Assessment
Medical & Toxicology
Analytical & Industrial Hygiene
Panel Manager: Elizabeth Moran

In August, OSHA published the final rule establishing a workplace standard for MDA. The Permissible Exposure Limit was set at 10 ppb with a Short-Term Exposure Limit of 100 ppb. The rule incorporated most of the provisions advocated by the Panel during the rulemaking period.

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 MDA standard was the first standard not subject to litigation.

Chairman
Roger Daniel
The Dow Chemical Company

The Panel terminated operations since it had reached its objective of negotiating a reasonable workplace standard.

Naphthenates (Completed)

Chartered: 1983
Task Groups: None
Panel Manager: Has Shah

The Panel conducted a dermal absorption study in rats on lead and cobalt naphthenates and submitted this study to EPA in 1985. 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.

Chairman
Michael Scott
Mooney Chemicals, Inc.

The Panel formed as a result of an Interagency Testing Committee recommendation to EPA that calcium, cobalt, and lead naphthenates be considered for priority testing under TSCA Section 4. The Panel remained active for seven years to respond to any research or regulatory issues that arose from the dermal absorption study. Once all study issues were addressed, the Panel disbanded.

Nitrosamines

Chartered: 1990
Task Groups: Risk Assessment
Analytical Assessment
Formulation
Panel Manager: Dee Kuhn

The Panel completed a chapter on N-nitrosamines in *Patty's Industrial Hygiene & Toxicology*. The Panel met with OSHA, NIOSH, EPA, and the National Safety Council (NSC) to discuss concerns about potential exposures in the workplace. The Panel commented on NSC's proposed policy statement urging OSHA to develop a workplace standard modeled after a German standard; EPA's proposed rule to add 68 chemicals and two chemical categories under Section 313 of EPCRA; and, the EPA's Risk Management Level 1 Screening Document, "N-Nitrosamine Formation in Industrial Settings, with Focus on the Rubber and Leather Tanning Industries." The Risk Assessment Task Group evaluated proposals to develop risk assessments for specific N-nitrosamine-containing compounds.

Chairman
Charles Green
Witco Corporation

The Panel formed to identify and address impending federal and international regulatory actions that potentially impact nitrosamines. Products of interest to member companies include: rubber additives, secondary amines, cosmetics components, soaps, detergents, and surfactants.

The Panel will continue interactions with regulatory agencies. Panel members will participate in the EPA "stakeholders" meeting as a part of the EPA Risk Management Review process, and will further consider supporting a risk assessment project.

The Panel spent 60% of its time on advocacy, 20% on research and 20% on education activities.

Olefins

Chartered: 1992
Task Groups: IARC Issues
Toxicology Research
Manager: Elizabeth Moran

The Panel worked with EPA to develop a separate source category for olefins plants under the Clean Air Act. These plants are therefore not included in the Hazardous Organic NESHAP, proposed in December. The Panel conducted a comprehensive fugitive emissions benchmarking survey of the industry. The Panel began a joint advocacy and research program with the Society of the Plastics Industry to address the review of ethylene and propylene by IARC. If IARC reclassifies either chemical as a carcinogen, olefins producers and users will be subject to additional regulations.

The producers of ethylene and propylene formed the Panel in 1992 to conduct advocacy on environmental regulations from an engineering viewpoint. Regulations on benzene and butadiene, which are inadvertently generated in the production of C_2-C_4 olefins, were a major focus. Of particular concern was regulation of olefins plants under the Clean Air Act Amendments. Because olefins plants are intermediate between petroleum refining and traditional chemical synthesis facilities in their operations, they require specifically focused regulations.

Chairman
Norman Morrow
Exxon Chemical Americas

The Panel will continue to address air issues, including state regulations, on volatile organic substances and NO_x. In addition, a major effort is underway to conduct research on ethylene in response to the IARC review. The Panel will provide information to IARC in support of not reclassifying ethylene and propylene as carcinogens.

The Panel spent 80% of its time on advocacy and 20% on research activities.

α-Olefins

Chartered: 1991
Task Group: Toxicology Research
Panel Manager: Cecilia Spearing

The Panel developed Screening Information Data Set (SIDS) dossiers for 1-hexene, 1-octene, 1-decene, 1-dodecene, and 1-tetradecene. The Panel also framed structure activity relationship based-testing recommendations to fill data gaps for review at an OECD meeting in Paris in March. These chemicals are included in the second phase of the OECD High Production Volume Existing Chemicals Voluntary Testing Program.

Chairman
Frank Orlandi
Ethyl Corporation

Manufacturing companies formed the Panel to collect, generate and evaluate information required to complete Screening Information Data Sets for several alpha-olefins. The SIDS information will be used for evaluating environmental and health toxicity potentials of these chemicals. The Panel will conduct other testing when appropriate.

The OECD has accepted the U.S. testing recommendations for the series. Therefore, the Panel will initiate a reproductive/developmental toxicity screening test for 1-hexene following OECD Guideline 421 and a combined repeat dose toxicity study with reproductive/developmental screening for 1-tetradecene following OECD Guideline 422. The Panel also will support an aquatic screening testing package for 1-tetradecene.

The Panel spent 100% of its time on research activities.

Oleylamine

Chartered: 1984
Task Groups: None
Panel Manager: Fernando Leiva

In June, the Panel received information about the EPA Risk Management I meeting to evaluate the results of studies conducted by the Panel in fulfilling the requirements of the TSCA Section 4 Test Rule for oleylamine. The Agency's decision was to drop oleylamine from further review, based on a low level of concern for health and environmental effects. Additionally, requirements for third-tier mutagenicity and oncogenicity testing were not implemented because of the Agency staff's conclusions on mutagenicity tests.

Chairman
Edwin Bisinger
Akzo Chemicals, Inc.

In September, the Panel agreed to participate in the OECD Existing Chemicals Voluntary Testing Program to investigate the potential human health and environmental effects of oleylamine. The Panel has prepared and submitted a Screening Information Data Set dossier which includes the evaluation of existing data, and the identification of any data gaps.

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

The Panel plans to complete a toxicokinetic research project in late 1993. At the completion of this study, members will assess the data and determine the Panel's future status.

Oxo Process

Chartered: 1990
Task Groups: 2-Ethylhexanol
2-Ethylhexanoic Acid
Butyraldehyde
Butanol/Isobutanol
Butyl Acetate
Panel Manager: Barbara Francis

In response to the EPA "open-season" initiative that solicited testing proposals from industry for chemicals subject to a pending test rule under TSCA Section 4, the Panel volunteered to prepare OECD SIDS dossiers on butanol and isobutanol. As a result of this voluntary effort, EPA requested that the Interagency Testing Committee remove these chemicals from its list of priority chemicals designated for testing. The ITC complied in its 32nd Report to the EPA Administrator.

Chairman
Richard Wise
Union Carbide Corporation

After meeting with Panel members, the North Carolina Department of Environmental Quality decided to postpone establishment of an Acceptable Ambient Level for butanol.

Due to information presented by Panel toxicologists on butyl acetate, the ACGIH TLV Subcommittee agreed to postpone establishment of a TLV for at least a year, while the Panel tries to resolve some inconsistent testing results by conducting additional studies.

Also, the Panel published the results of developmental toxicity testing on 2-ethylhexanoic acid in the peer-reviewed journal, *Fundamental and Applied Toxicology.*

The Panel completed a $2.3 million testing program on 2-ethylhexanol and submitted the data to EPA. In its RM I process, EPA ruled the toxicological data complete and removed 2-EH from the multisubstance endpoint rule for developmental and reproductive toxicity, thereby saving the Panel more than $100,000. The Panel is currently drafting manuscripts for publication of the toxicological information in peer-reviewed journals.

Panel members initiated formation of an industry *ad hoc* group of producers of all the chemicals on the proposed TSCA Section 4 multisubstance test rule for the neurotoxicity endpoint. The *ad hoc* group developed a position and submitted a proposal to EPA on an appropriate neurotoxicity screening program. This group, in cooperation with AIHC, drafted a proposal for the use of funds generated in the Compliance Audit Program to address neurotoxicity issues related to TSCA Section 8(e).

To further its proactive approach, the Panel is participating in the OECD Existing Chemicals Testing Program. Besides the dossiers on butanol and isobutanol, the Panel volunteered to prepare SIDS dossiers on EHA and butyraldehyde, and is sharing credit for the 2-EH dossier with Sweden. In addition, the Panel submitted comments on the proposed RCRA Hazardous Waste Identification Rule, which was subsequently withdrawn, and on the Texas Water Control Board proposed rule for on-site cleanups, which became final.

The Panel formed from a merger of the Ethylhexanoic Acid Panel, and the 2-Ethylhexanol Panel along with its Butyraldehyde Task Group. In addition to these three chemicals, the Panel addresses issues pertaining to ethyl and butyl acetate, amyl alcohol, butyl alcohol and isobutyl alcohol. This consolidated approach enables members to address issues on a broad range of chemicals that are starting materials, intermediates, or end products of the same industrial process.

The Panel is developing a broad-based advocacy program to address several proposed regulations and voluntary agreements to reduce VOC emissions. These include two regulatory negotiations (reg negs) on Architectural and Industrial Maintenance Coatings (AIM) and Wood Furniture. The AIM reg neg is being undertaken by EPA under the CAA to regulate VOC emissions from consumer and commercial products. The Wood Furniture reg neg would estab-

lish a National Emission Standard for Hazardous Air Pollutants and a Control Technique Guideline to assist states in achieving VOC reductions from this industry. The Panel is also reviewing the toxicity data cited in the EPA review of aerosol spray paints, as part of the Agency's risk reduction initiative on paints and coatings.

To formulate an international, cooperative approach to oxygenated solvents issues, the Panel will continue to meet with members of the CEFIC Oxygenated Solvents Producers Association and will attempt to broaden this liaison in the future. Issues of common interest include EC proposed regulations to reduce VOC emissions and toxicity profiles of oxygenated solvents.

The Panel spent 80% of its time on advocacy, and 20% on research activities.

Petroleum Additives

Chartered: 1990

Task Groups: Fuels Detergent Performance
Health, Environmental and Regulatory
Product Approval Protocol

Panel Manager: Carol Stack

The Fuels Detergent Performance Task Group continued to wait for EPA to issue a proposed rulemaking for the Clean Air Act Section 211(e). In response to EPA requests, Task Group members have provided the Agency with input on additive chemistry and technical concerns on fuel detergency.

Chairman
John Sanders
Oronite-Chevron
Chemical Company

The Health, Environmental and Regulatory Task Group, in conjunction with the European Additives Technical Committee, is conducting an aquatic toxicity research program on several classes of lubricant additives. The data will be used to support European environmental labeling requirements and anticipated U.S. environmental hazard communication regulations. The Task Group also is participating in Phase 2 of the OECD HPV existing chemicals voluntary testing program, specifically addressing data needs on zinc dialkyldithiophosphates. Additionally, the Task Group is awaiting an EPA final rule on fuels and fuel additives registration which is expected to require health effects testing of combustion emissions.

Through the efforts of the Product Approval Protocol Task Group (PAPTG), the Panel established a CMA Product Approval Code of Practice for engine oil testing. The Panel developed the Code to help ensure that a particular engine lubricant meets its intended performance levels. The Code became operational in March, 1992. Sixteen companies have filed a "Letter of Intent" to comply with the practices defined by the Code.

The Panel established the CMA Monitoring Agency, Registration Systems, Inc., to provide oversight, administrative and advisory services related to candidate engine testing in accordance with the Code. RSI maintains communications and data management systems for registering and recording engine tests on candidate formulations. In the first year of Code operation, approximately 3,000 engine tests were registered.

The PAPTG and RSI have been assisted and supported by advisory and work groups. Currently they are the: Ad Hoc Technical AG; Monitoring Agency AG; Compliance WG; Test Laboratory Compliance WG; and Minor Formulation Modifications WG. Liaison also has been established with U.S. and international stakeholders in the engine oil testing process.

The Panel formed as the result of expanded interests among manufacturers and marketers of lubricant and fuel additives. Expansion of the scope of activities resulted in closure of the Lubricant Additives Panel, and the formation of the Petroleum Additives Panel and its three task groups.

The Panel and its task groups will continue to monitor EPA regulatory initiatives on fuels and fuel additives under the CAA. Direct interaction with EPA and other interested parties is anticipated prior to publication of the final rules. The voluntary research programs in progress will continue into 1994 and beyond. The PAPTG and its work groups and advisory groups will continue to be involved in activities related to the Code of Practice operation. Work in progress includes: 1) development of a template for acceptance of new engine tests into the Code; 2) practice monitoring of the industry candidate database to flag problems with engine tests; 3) benchmarking of the first year of Code operation; 4) extension of the Code compliance audit requirements to engine testing laboratories; and 5) third-party auditing of company compliance with the Code during the first year.

The Panel spent 8% of its time on advocacy, 20% on research, 5% on education, and 67% on evaluation activities.

Phenol

Chartered: 1988

Task Groups: Regulatory
Toxicology Research
Video

Panel Manager: Kathryn Rosica
Jonathon Busch

The Panel completed the third annual member company self-assessment of worker safety in phenol-producing plants. The Pro-Active Safety Index was the tool used to complete the self-assessment. At the awards ceremony in October, Georgia Gulf Corporation demonstrated its commitment to the program and was recognized as the Industry Leader in Safety Performance. Georgia Gulf was recognized for the Most Improvement in Safety Performance in 1990. Aristech Chemical Corporation was recognized this year for the Most Improvement in Safety

Chairman
Edward Fraini
Dow Chemical USA

Performance. The Panel plans to expand the Proactive Safety Index in 1993 to include a measure of performance in the environmental area. Data on SARA Title III emissions associated with phenol production will be used as one of seven factors in the scoring system.

The Regulatory Task Group submitted several sets of comments to EPA and other agencies. The Task Group submitted a proposed testing program to EPA under the Agency's TSCA "open-season" initiative. The Task Group's proposal included a tiered testing approach that will address EPA's request for toxicological data. Following review of the testing proposal, EPA listed phenol in the group of chemicals for consent order negotiation under "open-season." The Task Group is waiting to hear from EPA on a negotiation date.

The Task Group submitted comments to EPA on the Agency's proposed Water Quality Guidance for the Great Lakes System. The Task Group noted that EPA incorrectly identified phenol as a bioaccumulative chemical of concern, and provided data indicating that phenol is not persistent in the environment and has negligible propensity to bioaccumulate. The Task Group is waiting for a response from EPA as to whether or not the Agency plans to reclassify phenol as a chemical that does not bioaccumulate.

The Task Group submitted comments to the Ontario Ministry of Labour in response to the Ministry's proposal to lower the Canadian occupational exposure limit for phenol from 5 ppm to 1 ppm. Comments submitted by the Task Group supported maintaining the exposure limit at 5 ppm, which is consistent with occupational exposure limits established throughout much of Europe and in the U.S. by ACGIH, OSHA and NIOSH. The Task Group is waiting for a response to its comments from the Canadian government.

The Task Group also initiated development of an OECD Screening Information Data Set dossier on phenol. The dossier will be submitted to the U.S. EPA for use in Europe's OECD program. The Task Group plans to continue monitoring and responding to regulatory and scientific issues concerning phenol.

Comments submitted to ATSDR by the Regulatory Task Group were successful in persuading the Agency that phenol should not be carried forward in ATSDR's testing program. The Toxicology Research Task Group completed the first two stages of its voluntary pharmacokinetic research program, designed to evaluate the comparative profiles of phenol disposition by oral bolus, drinking water and inhalation routes. The Task Group plans to use the data generated from the studies to convince EPA that many of the studies that could be proposed in a TSCA Section 4 test rule are unwarranted. The Video Task Group drafted a script for a video on safety, handling and transportation of phenol.

The Panel formed to promote greater safety in the production, transportation and use of phenol. Member companies exchange non-proprietary safety information on transportation and handling issues. Education issues are the focus of the Video Task Group, which is targeting worker and customer safety. Health and environmental issues concerning phenol are addressed by the Regulatory Task Group. The research program is monitored by the Toxicology Research Task Group.

The Panel was successful in persuading the Agency that phenol should not be carried forward in ATSDR's testing program.

The Panel will complete production of a customer training video in October 1993. The Panel will investigate sponsoring a seminar on safety in loading and handling. The Regulatory Task Group will continue to monitor and address the TSCA Section 4 test rule, the Clean Air Act, hazardous waste regulations, and other regulations affecting phenol.

The Panel spent 45% of its time on advocacy, 15% on research, and 40% on educational activities.

Phosgene

Chartered: 1972

Task Groups: Engineering, Safety, & Environmental
Industrial Hygiene
Medical & Toxicology

Panel Manager: Robert Romano

Chairman
W. E. Irby
Miles, Inc.

Treatment options for phosgene exposures have been developed from research sponsored by the Panel at the New York Medical College. The Panel continued to evaluate and discuss countermeasures to phosgene exposure. The Panel sponsored studies in phosgene air dispersion modeling and mitigation. The Panel also continued its industrial hygiene surveys and information exchanges on phosgene stewardship.

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

The Panel will continue its regular program of non-proprietary information exchanges among member companies on safety techniques. In addition, the Panel will continue monitoring increasing regulatory interest in phosgene. The Panel will complete Phase 2 of its modelling and mitigation study by the end of 1993. Additional modelling and mitigation work may continue into 1994. The Panel will continue to identify and explore additional health research projects on phosgene.

The Panel spent 71% of its time on advocacy, and 29% on research activities.

Phthalate Esters

Chartered: 1973

Task Groups: Toxicology Research
Environmental Research
Food and Drug Applications
Phthalic Anhydride
California Issues
FDA Toxicology Research

Panel Manager: Marian Stanley

As a response to the EPA "open-season" initiative that solicited testing proposals from industry for chemicals subject to a pending TSCA Section 4 test rule, the Panel met with EPA and volunteered to prepare an OECD Screening Information Data Set dossier on di-2-ethlhexyl adipate. The Panel also agreed to conduct any testing needed to complete the data set. As a result, EPA requested that the ITC remove DEHA from its list of chemicals designated for testing. The ITC complied in its 32nd Report to the EPA Administrator. Since the required testing would have cost in excess of $1 million, the savings to the producers of DEHA were considerable. The outcome was positive for European manufacturers of plasticizers because any EPA test rule may have had adverse effects on the European market for DEHA.

Chairman
James Quance
Exxon Chemical Company

EPA reviewed the final reports for Panel-sponsored sediment adsorption isotherm studies and the rainbow trout early life-stage studies required under the TSCA Section 4 phthalate esters environmental effects consent order. In September, the Panel received a letter from EPA stating that the data were adequate and sufficient to characterize these endpoints for phthalates as a class. As a result, the criteria for triggering additional testing were not met, and Phase II testing and beyond will not be necessary. Before the consent order, the Panel faced at least $6,500,000 of environmental testing. The consent order reduced the testing cost to $640,000 because representative phthalate esters were selected to characterize the class. Since these test results were adequate to characterize this class of compounds, and $500,000 in Phase II testing were not required, the Panel saved member companies $5,860,000 in direct testing costs.

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 under a consent order.

The main focus of the Panel now will be to publish and distribute the results of the extensive testing it conducted during the last 20 years. Publications which focus on the customer, regulatory and technical communities are being planned. The Panel will continue to work with ATSDR and EPA to avoid inappropriate or unnecessary testing requirements for DEHP. The Panel also is planning to publish results of the environmental effects testing to provide better data to states developing regulations, particularly in the water area. Also, the Panel is planning to pursue several joint research projects with the CEFIC European Council for Plasticizers and Intermediates.

The Panel spent 50% of its time on advocacy, 20% on research, 10% on education, and 20% on communication activities.

Polychlorinated Biphenyls

Chartered: 1981

Task Groups: None

Panel Manager: Elizabeth Festa Watson

Chairman
Gary Mappes
Monsanto Company

With renewed financial assistance from the CMA Environmental Management Committee, the Panel was able to sustain its collaboration with the National Electrical Manufacturers Association and the Edison Electric Institute's Utility Solid Waste Activities Group as part of the PCB Industry Consensus Group (ICG). The ICG continued to work toward expediting EPA's proposed rulemaking on remaining PCB disposal issues. The ICG had several meetings with EPA officials in the TSCA, RCRA and Superfund offices and submitted additional information as requested. The ICG continues to advocate presumptive numbers for the cleanup of old spills and withdrawal of the PCB anti-dilution provisions of TSCA. The ICG also filed comments with: EPA on the IRIS data base information on PCBs; ATSDR on a revised draft toxicological profile; and, Massachusetts Department of Environmental Protection on PCB limits based upon immunotoxicity endpoints. The ICG also supported publication, and a presentation, of its funded study of declining temporal trends of PCBs in the environment.

The Panel continued to work with the Dibenzofurans/Dibenzodioxins Panel to express concerns to EPA about Toxicity Equivalency Factors (TEFs). TEFs, originally suggested as a screening tool, are being applied to PCBs and other chemicals in a regulatory framework, at both the state and federal levels.

Internally, the Panel faced successfully the additional challenge of new leadership. In March, there was a smooth transition from the ten-year chairmanship of Dr. John

Craddock to Dr Gary Mappes.

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 and the other members of the ICG will continue to focus on the progress of EPA's proposed rulemaking on disposal issues. The ICG also will set up additional meetings with Pollution Prevention and Toxics, Superfund, and RCRA officials to coordinate approaches to new EPA PCB cleanup rules. The ICG will continue to track the proposed RCRA Hazardous Waste Identification Rule so that PCB disposal continues to be governed by TSCA. The ICG also will consider comments on EPA's proposed water quality guidance for the Great Lakes.

The Panel spent 90% of its time on advocacy, and 10% on research activities.

Rubber Additives

Chartered: 1979
Task Groups: Toxicology Research
MBT
Panel Manager: Dee Kuhn

In February, the EPA Risk Analysis Branch held a Risk Management 1 meeting to evaluate the results of the studies conducted by the Panel to fulfill the requirements of the TSCA Section 4 Test Rule for 2-mercaptobenzothiazole (MBT). EPA staff concluded that the most apparent risk due to MBT appears to be downstream from cooling towers releasing MBT that is used as a corrosion inhibitor. EPA has not yet initiated the Risk Management Level 2 process for MBT.

Chairman
Michael Smith
The Goodyear Tire & Rubber Company

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.

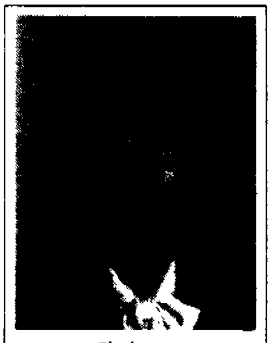
Although the primary use of MBT is as an intermediate for rubber accelerators and does not result in water releases, the Panel will address the Agency's concerns about MBT use in cooling towers. The Panel will address other environmental issues and undertake additional projects as appropriate.

The Panel spent 100% of its time on advocacy activities.

Sodium Bromide

Chartered: 1990
Task Groups: None
Panel Manager: Jonathon Busch

The Panel undertook no new activities this year. The Panel initiated a voluntary study to evaluate the relative toxicities of bromine chloride and chlorine on various freshwater and saltwater species. The final study report was completed and submitted to EPA in July 1991. Results of the aquatic toxicity research are being used by EPA to develop water quality criteria for controlling discharges to water from facilities using activated sodium bromide or bromine chloride as treatment chemicals.



Chairman
Louise Wen
Ethyl Corporation

The Panel formed to address health, safety, environmental, and regulatory issues relating to sodium bromide. Research has been the primary focus of the Panel.

The Panel will monitor pertinent research conducted by organizations outside of CMA, sponsor new research, and develop advocacy positions. The Panel also will interact closely on sodium bromide issues with interested organizations and agencies, such as the Utility Water Act Group and the EPA Office of Water.

Specialty Acrylates/ Methacrylates

Chartered: 1987
Task Groups: Scientific Issues
Membership
Regulatory Issues
Panel Manager: Marian Stanley

The Panel completed the range-finding and the subchronic studies in its research program. Meetings were held with EPA to review the data and reach agreement on dose levels for the chronic study. A dermal bioassay is underway and has been proceeding satisfactorily. Panel representatives met with EPA to discuss modifications to the testing program. A reply is expected in the fall. EPA has begun work on a generic Significant New Use Rule for acrylates as a class. At the Panel's request, the methacrylates will not be included.

Chairman
Georjean Adams
Minnesota Mining and Manufacturing Company

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 will continue the research program and consultation with EPA to ensure that the program is satisfactory to industry and the Agency. The Panel also will continue efforts with EPA to remove distribution restrictions on important new chemical products in this category.

The Panel spent 20% of its time on advocacy and 80% on research activities.

Terephthalates

Chartered: 1990
Task Groups: None
Panel Manager: Elizabeth Moran

The Panel proposed, under EPA's TSCA "open season" rulemaking, that dimethyl terephthalate (DMT) be deleted from the ITC list for test rule development under TSCA Section 4, since it is covered by the OECD Voluntary Testing Program. EPA agreed with the proposal and deleted DMT from the ITC list.

Chairman
Edward Miller
Eastman Chemical Company

In 1990, EPA published a proposal to delist terephthalic acid (TPA) from the Emergency Planning Community Right-to-Know Act, but made the delisting contingent on results of testing that would be required under TSCA Section 4. TPA producers formed a task group under the Trimellitate Esters Panel and convinced EPA to delist TPA immediately. However, EPA included TPA in the proposed TSCA Section 4 reproductive and developmental effects endpoint test rule. Subsequently, in 1991, the ITC designated DMT for test rule development under Section 4. The Task Group decided to form a Panel to address TSCA issues on the two chemicals.

Having commented on the endpoint test rule for reproductive and development effects of TPA, the Panel is awaiting the final rule which is expected in mid 1994. DMT is assigned to Italy in the OECD process, so the Panel will await development of a SIDS dossier by Italy and monitor the review process.

The Panel spent 100% of its time on advocacy activities.

Titanium Dioxide

Chartered: 19--
Task Group: TiCl$_4$ Modelling
Panel Manager: Jonathon Busch

The Panel again submitted scientific data and will give a presentation to NIOSH regarding the lack of carcinogenicity of titanium dioxide (TiO_2). These efforts were in response to NIOSH classifying the chemical as a potential occupational carcinogen. The Panel noted that its own position was consistent with determinations made by ACGIH, EPA, FDA, and IARC. This is the second round of negotiations with NIOSH. The Panel continued developing a new air dispersion model for titanium tetrachloride ($TiCl_4$). Current $TiCl_4$ air dispersion models are inadequate; however, the Panel's new model will more adequately predict downwind dispersion and concentrations of $TiCl_4$ following accidental releases. In addition to $TiCl_4$, the new model will track dispersion of secondary reaction products.

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 Panel hopes to enhance worker and community safety by sharing experiences and non-confidential information on equipment improvements.

Chairman
Terry Casey
Kronos, Inc.-Rheox, Inc.

The Panel formed in 1977 to address toxicological and occupational issues associated with TiO_2 and its manufacture.

The Panel's plans include: continuing development of the $TiCl_4$ air dispersion model; providing scientific data to NIOSH, OSHA, ACGIH and other interested organizations; participating in symposia on lung clearance mechanisms; voluntarily sponsoring and publishing studies on the potential health effects of TiO_2; advocating an upward adjustment in the RQ for $TiCl_4$; encouraging publication of independent pathology reviews of long-term TiO_2 studies in peer-reviewed journals; monitoring CEFIC's TiO_2 Sector Group; and, developing advocacy positions on proposed regulations.

The Panel spent 50% of its time on advocacy, and 50% on research activities.

Toluenediamines

Chartered: 1991
Task Group: Toxicology Research
Chairman: Vacant
Panel Manager: Cecilia Spearing

During 1991, the Panel developed chemical-specific comments which were transmitted to EPA in response to the proposed end-point rule under TSCA Section 4 requiring testing for developmental and reproductive toxicity. Additionally, the Panel participated in the EPA public meeting on the proposed rule; however, the Panel has since remained dormant pending issuance of the final rule.

A Toluenediamines Panel was formed under CMA in 1980 to address an EPA Advance Notice of Proposed Rulemaking on phenylenediamines, including toluenediamines. EPA recommended carcinogenicity testing for TDA, but later in the rulemaking decided that testing was not required. Ultimately, EPA, under the authority granted by TSCA Section 9, referred the matter to OSHA for possible regulation. OSHA did not initiate rulemaking on TDA and, there being no other interests, the Panel terminated in 1987. In 1991, EPA published the proposed end-point rule requiring testing for developmental and reproductive toxicity. 2,4-Toluenediamine was among the chemicals included in the proposed rule. The Panel was reactivated by manufacturers to address this rule.

As development of the test rule proceeds, the Panel will work with EPA and conduct testing as required.

The Panel spent 100% of its time on advocacy activities.

Karnack, TX. These efforts will help member companies in their implementation of several Responsible Care Codes of Management Practices.

The Panel was formed under CMA in 1974 to develop and assess health and safety data on vinyl chloride monomer. The Panel completed its research goals and terminated activity in 1990. The Panel was reactivated in 1991 by manufacturers to promote greater safety in the transportation of vinyl chloride. In 1992, the Panel formed the Vinyl Chloride Transportation Network (VCNet) to provide technical expertise and assistance by the industry and contractors to emergency responders at vinyl chloride railroad transportation incidents. Shippers of vinyl chloride are able to activate the network through CHEMTREC, CMA's hazardous materials hotline. VCNet is the first mutual-aid network to be formed under CHEMSTAR.

VCNet will identify additional "for-hire" contractors to provide emergency response services when the shipper cannot be contacted by CHEMTREC or when the shipper cannot reach the incident site quickly. VCNet will continue to conduct periodic mock emergency response exercises to ensure that CHEMTREC, "for-hire" contractor response teams, and company response teams are aligned and can act quickly in case of an emergency. VCNet will consider expanding its emergency response network to include marine transportation incident response. The Panel will continue its technical support for the Vinyl Chloride Safety Awareness Training Workshops to be held throughout the U.S. Four workshops are currently planned. The Panel will produce a safety video of these workshops that can be loaned for individual or small group training upon request.

The Panel spent 90% of its time on advocacy and 10% on research activities.

Vinylidene Chloride

Chartered: 1974
Task Groups: None
Panel Manager: Kathleen Roberts

Chairman
James Barter
PPG Industries, Inc.

The Panel submitted comments to the World Health Organization on the International Chemical Safety Card for vinylidene chloride. In addition, based on the Panel's 1991 comments on the uncertainty of whether VDC poses any carcinogenic risk to humans, EPA deleted vinylidene chloride from its final list of "high risk" air pollutants under provisions of the Clean Air Act Amendments.

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 respond to potential regulations affecting vinylidene chloride.

The Panel spent 100% of its time on advocacy activities.

Water Additives

Chartered: 1985
Task Group: Specific Chemicals
Panel Manager: Robert Romano

Chairman
Randy Deskin
American Cyanamid Co.

The Panel completed the consensus water additives certification packages for the following chemicals: polydiallyldimethylammonium chloride (PDADMAC), copolymers of epichlorohydrin and dimethylamine (EPI/DMA), and polyacrylamide (PAM). The Panel then submitted these packages for water additive certification to the National Sanitation Foundation (NSF). The packages continue to be reviewed by NSF. The Panel has executed the Data Ownership Contract for toxicology studies generated by the Panel and all studies have been distributed to each participating member. The data is confidential because of certification requirements, and all parties must abide by the provisions of the signed agreements.

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 participate in American Water Works Association activities where water certification programs will be further discussed. Certification packages for the three chemical groups will continue to be reviewed by NSF and will be used by each member company for NSF certifications. The Panel will continue to work with NSF during this review process.

The Panel spent 25% of its time on advocacy and 75% on research activities.

Tris(chloroalkyl)-phosphates

Chartered: 1992
Task Groups: None
Panel Manager: Cecilia Spearing

The Panel has developed a Screening Information Data Set (SIDS) dossier of available data on tris(1-chloro-2-propyl) phosphate (TCIP). Members have presented this information to the U.S. Environmental Protection Agency, the agency responsible for implementing the OECD High Production Volume Existing Chemicals Voluntary Testing Program in the U.S., and have proposed to further evaluate specific ecological and reproductive toxicity endpoints not addressed in the available studies. TCIP is among the 62 chemicals assigned to Phase 3 of the OECD Program. The chemical had been previously listed with Intent-to-Designate by the Interagency Testing Committee and is the subject of reporting under TSCA Section 8(d).

Chairman
Edwin Bisinger
Akzo Chemicals Inc.

Manufacturers of TCIP formed the Panel to collect, generate and evaluate information required to complete a SIDS dossier for assessing environmental and health toxicity potentials of the chemical, and to perform any toxicity testing required as part of this effort.

Following the review of the SIDS dossiers for Phase 3 chemicals at the OECD SIDS Review Meeting, currently scheduled for September 1993 in Paris, the Panel will initiate a screening test program to complete the SIDS in accordance with the recommendations agreed upon at the meeting. The Panel will continue to work with the U.S. EPA to ensure that all available data and data gaps are identified for consideration in voluntary and regulatory programs under OECD and TSCA.

The Panel spent 100% of its time on research activities.

Vinyl Chloride

Chartered: 1991
Task Groups: Vinyl Chloride Transportation Network (VCNet)
Education and Training
Contractor Identification
Railcar Equipment Identification
Communications
Panel Manager: Has Shah

In June, VCNet completed its first vinyl chloride transportation map. This map included information on transportation routes, and industry, "for-hire" contractor, railroad, and selected community emergency response teams. Completion of the map will enable CHEMTREC to activate VCNet in cases of transportation incidents involving vinyl chloride.

Chairman
John Coburn
Occidental Chemical Corporation

Also in June, CHEMTREC conducted a VCNet emergency response drill to test the operation of VCNet. Several deficiencies in the operation system were identified by the CHEMTREC report and corrected. A second, successful drill was conducted in October

In August, the Panel met with U.S. Department of Transportation representatives to discuss the industry's concerns about the DOT required shipping label name, "Vinyl Chloride, Inhibited," under 49 CFR 172.102. Most domestic shipments of vinyl chloride and shipments to Canada and Mexico are not chemically inhibited and, therefore, would not be in compliance with the shipping label name. The Panel provided scientific support that uninhibited vinyl chloride does not undergo a violent polymerization reaction over a short period of time. The DOT agreed with the Panel and revised its Hazardous Materials Regulations through a Federal Register notice in October.

In September, October and March, the Panel provided technical support for four Vinyl Chloride Safety Awareness Training Workshops. To date, the Panel has sponsored a total of eleven workshops. The workshops were directed at industry and community emergency response personnel. The workshops were designed to provide attendees with a better understanding of the principles and techniques involved in responding to a hazardous materials accident. The workshops also gave a more detailed view of the health and safety risks which may be encountered in responding to an incident involving vinyl chloride. As part of the training, workshop attendees participated in a simulated vinyl chloride incident.

In November, CMA, on behalf of VCNet, contracted with EmTech Environmental Services, Inc., and OHM Remediation Services Corporation to provide "for-hire" VCM emergency response services for two years. In April, VCNet developed an extensive "for-hire" Contractor Proposal Evaluation Checklist/Audit Form. VCNet members designed the form to ensure that future "for-hire" contractor proposals meet minimum qualifying criteria and that contractor response capabilities are confirmed by on-site audits.

In May, VCNet developed an Emergency Response Operation Manual to facilitate the operation of the mutual aid network among CHEMTREC, vinyl chloride manufacturers and users, "for-hire" contractors, and railroad emergency response teams. The Manual also contains information on public communication in emergency situations.

Panel members, on a periodic basis, shared non-proprietary safe-handling and distribution incident information on vinyl chloride to promote safety and to protect environmental quality during manufacturing and distribution. In October, VCNet members also collaborated on the response mode in a vinyl chloride incident in

The CHEMSTAR Mission

CHEMSTAR will provide technical and management services to facilitate chemical industry coalitions of all types within the Responsible Care® framework. We will add value to customers' efforts in:

Advocacy . . . by managing advocacy efforts so that customers can promote and defend their needs in a credible and ethical manner, integrated with CMA and other consensus industry policies and practices;

Research . . . by managing research projects to ensure the development of the highest quality information on health, safety, economics and the environment, and by serving as a technical resource; and,

Education . . . by managing the development of forums and materials in a variety of media for customer use in educating employees, government officials, academia, other industry organizations, and the public;

Communication . . . by managing the development and dissemination of messages that aid the understanding of customers' products and positions;

Evaluation . . . by managing the development and dissemination of industry benchmarking tools;

Litigation . . . by providing a last-resort mechanism for cost-effective, industry-supported resolution of contentious issues;

Responsible Care® . . . by facilitating customers' development and implementation of Responsible Care® programs.

CHEMSTAR Panels
Financial Status
June 1, 1992 through May 31, 1993

	CHEMSTAR Panels	Balance 6-1-92	Contribution Receipts	Investment Revenue	Expenditures	Balance 5-31-93
1	Acetone	$205,300	$3,000	$4,200	$200,600	$11,900
2	Alkanolamines	398,600	266,200	15,600	339,900	340,500
3	Alkylphenols and Ethoxylates	36,000	178,200	1,800	159,300	56,700
4	Arsenic	700	0	0	600	100
5	Aryl Phosphates	-11,100	144,000	700	95,600	38,000
6	Benzene	92,200	0	1,300	92,700	800
7	Biocides	703,200	869,600	23,600	674,500	921,900
8	Brominated Flame Retardants	-4,800	139,900	900	127,900	8,100
9	Butadiene	1,378,000	1,202,400	43,300	1,307,300	1,316,400
10	Butylated Hydroxytoluene	200	20,000	200	13,100	7,300
11	Carbon Disulfide	127,800	115,300	3,800	151,300	95,600
12	Chlorinated Pool Chemicals	118,200	0	3,500	45,300	76,400
13	Chlorine Dioxide	83,500	134,400	2,300	189,600	30,600
14	Chlorobenzenes	362,700	42,000	5,400	409,900	200
15	Cobalt	45,500	5,000	1,100	37,300	14,300
16	Cresols	44,100	10,000	1,600	23,200	32,500
17	Crystalline Silica	67,900	232,900	2,400	267,200	36,000
18	Cumene	13,900	51,200	200	49,900	15,400
19	Cyclohexane	800	55,000	100	48,600	7,300
20	Dibenzofurans/Dibenzodioxins	3,700	22,500	100	8,100	18,200
21	Diisocyanates	121,300	207,500	2,800	215,700	115,900
22	Dinitroluenes	109,500	0	3,800	1,400	111,900
23	Ethylene Dibromide	100	0	0	100	0
24	Ethylene Dichloride	5,600	500	100	7,100	-900
25	Ethylene Glycol	45,700	157,600	2,300	168,000	37,600
26	Ethylene Oxide	234,000	561,700	10,200	469,000	336,900
27	Ethylenebis(stearamide)	0	23,000	100	24,400	-1,300
28	Fluoroalkenes	117,600	0	4,000	7,100	114,500
29	Fluorocarbons	162,900	0	5,600	7,400	161,100
30	Glycol Ethers	165,600	240,000	7,000	382,900	29,700
31	Hexamethylene Diisocyanate	3,500	16,200	0	8,100	11,600
32	Hydrazine	122,800	30,000	3,700	59,800	96,700
33	Hydrogen Fluoride	89,700	142,600	1,700	183,300	50,700
34	Hydroquinone/Quinone	1,100	15,000	100	12,100	4,100
35	Isopropanol	603,900	890,900	18,500	554,000	959,300
36	Ketones	239,700	175,000	8,200	256,200	166,700
37	Laboratory Research Chemicals	0	17,200	100	15,000	2,300
38	Metal Catalysts	61,500	17,000	1,700	58,800	21,400
39	Methyl Bromide	189,900	769,000	13,900	543,700	429,100
40	Methylenedianiline	47,800	0	1,400	44,100	5,100
41	Nitrosamines	6,400	54,100	0	54,000	6,500
42	Olefins	46,200	126,000	1,800	59,700	114,300
43	α-Olefins	15,900	26,500	300	49,000	-6,300
44	Oleyamine	11,700	5,000	200	17,500	-600
45	Oxo Process	850,400	197,300	14,700	673,000	389,400
46	Petroleum Additives	244,800	807,100	10,400	786,400	275,900
47	Phenol	311,300	74,500	9,400	103,200	292,000
48	Phosgene	35,600	57,000	800	71,100	22,300
49	Phthalate Esters	1,007,100	329,600	34,300	448,900	922,100
50	Polychlorinated Biphenyls	46,200	125,000	1,200	119,200	53,200
51	Propylene Oxide	0	40,000	200	14,200	26,000
52	Rubber Additives	124,500	0	2,100	100,500	26,100
53	Sodium Bromide	5,800	0	200	3,300	2,700
54	Specialty Acrylates/Methacrylates	1,178,300	140,000	38,600	308,000	1,048,900
55	Titanium Dioxide	24,300	226,600	3,400	84,800	169,500
56	Toluenediamine	14,600	0	300	11,600	3,300
57	Terephthalates	32,500	12,000	500	38,200	6,800
58	Tris(chloroalkyl) Phosphates	0	18,000	0	23,200	-5,200
59	Vinyl Chloride	55,400	85,000	2,000	72,600	69,800
60	Vinylidene Chloride	5,800	0	200	4,600	1,400
61	Water Additives	152,400	0	4,600	51,800	105,200
62		$10,157,800	$9,078,500	$322,500	$10,354,900	$9,203,900
63						

Panel Financial Resources

Each panel is required to maintain a CASH DEPOSIT ACCOUNT which recognizes that CMA signs all contracts on behalf of the panels, and assumes the financial liability for 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 '92-93 was about $10 million. On this date, CMA had financial liabilities totalling about $6 million under 154 executed contracts on behalf of the various panels.

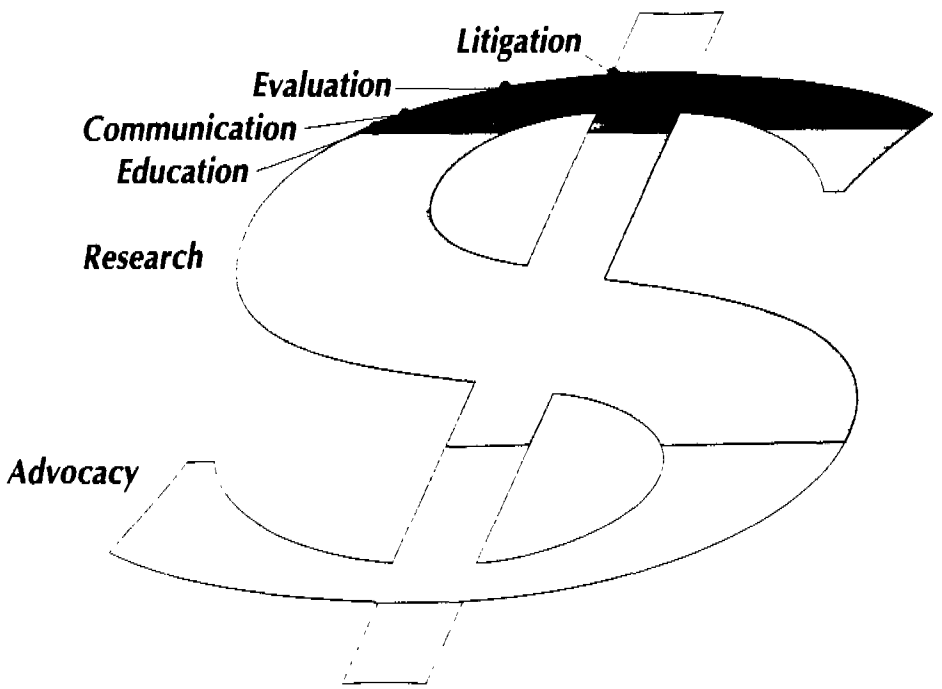
INTEREST on the unexpended cash balances provides supplemental revenue for each CHEMSTAR Panel. This year, panels earned a combined total of approximately $322,000 in interest income.

EXPENDITURES of CHEMSTAR Panels are based on budgets approved by each group. In fiscal Year '92-93, panels spent a collective total of $10.3 million for research, consultants, legal counsel and panel management.

Figure 5

CHEMSTAR Panels & Councils

Financial Allocations



Legend	
Litigation	$24,676
Evaluation	$735,833
Communication	$117,200
Education	$187,150
Research	$6,605,940
Advocacy	$3,335,810

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 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.*

Chairman Seymour S. Preston, II
Elf Atochem North America, Inc.

Vice-Chairman Darryl D. Fry
Cytec Industries, American Cyanamid Co.

David F. Zoll
Vice President, General Counsel
CMA

Gary C. Herrman
Vice President, Treasurer
CMA

Gordon D. Strickland
Vice President, Technical Services
CMA

Staff Executive Langley A. Spurlock, Ph.D.
Assistant Vice President, Technical Services
Director, CHEMSTAR Division
CMA

Management Services

Management of the CHEMSTAR Panels and Councils becomes ever more challenging for panel, council and task group chairmen as issues, objectives and locations of effort multiply. This year, as in previous years, a broad array of CMA services were employed to ensure that panels and councils received adequate support for their operations.

Leadership Training

The annual CHEMSTAR Leadership Session was held in May, and attended by twelve panel and council 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, council 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 late 1993.

Above: CHEMSTAR Leadership Session segment. Below: Dr. Jeanne Burnell of Cytec Industries, Facilitator.

Communications

The CHEMSTAR Division continues to place high priority on ensuring industry awareness of panel and council activities. CHEMSTAR NEWS, a quarterly publication with a circulation of 1,900 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 and councils, lists panel and council reports and agency submissions, and highlights significant changes in panel and council membership. The NEWS also is a means of publicizing the formation of new panels and councils for general information purposes and for soliciting a wider membership base. Through the "Spotlight" article in each issue, the accomplishments of individual panels and councils are summarized. This year, the Phosgene Panel, Vinyl Chloride Panel, Phthalate Esters Panel, Atmospheric Research Council, and Ethylene Glycol Ethers Panel were featured.

The CHEMSTAR Alerts, published as needed, are the Division's means of quickly informing panel and council members and others in the industry when a time-sensitive response is needed on a chemical-specific or a specific business interest 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. Last year, Alerts addressed the reporting of isopropyl alcohol emissions, the OECD testing program briefing, and the TSCA Inventory correction for diisocyanates.

Division Staff

The CHEMSTAR Division responded to this year's increase in panel and council activities by expanding the management staff and assigning new responsibilities to existing managers. Clyde Greenert filled the newly created position of Director, CHEMSTAR Councils, bringing the managing staff to eighteen persons.

Director, CHEMSTAR Division

Langley A. Spurlock, Ph.D., CAE

Dr. Spurlock completed his eleventh year as Director of the CHEMSTAR Division in June. He is responsible for oversight of all CHEMSTAR panels and councils. He also manages the Total Quality and Chemical Distributors Councils.

Dr. Spurlock is a Certified Association Executive, awarded by the American Society of Association Executives and a Quality Education System Trainer certified by Phillip Crosby Associates. He currently serves on the Board of Directors of the ASAE Foundation. Before joining CMA, he held an appointment in the U.S. 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 and Resources Management, and as Oversight Coordinator and Special Assistant to the Director, Office of Audit and Oversight. Previously, Dr. Spurlock received an appointment as U.S. 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 & Councils

Clyde H. Greenert, B.S., Ch.E.

Mr. Greenert came to CMA from Union Carbide Corporation in 1992 as a loaned industry executive for Responsible Care® activities. In 1993, he joined the CHEMSTAR Division as a Director. He manages the Chlorine Chemistry and the Carrier Assessment Councils, and the Laboratory and Research Chemicals Panel.

At Union Carbide, Mr. Greenert was Director of Public Issues and Contributions. He worked closely with CMA to develop Responsible Care®, and participated in the Board Public Perception Committee activities. Also, he worked with the CMA and Society of the Plastics Industry team which developed the American Plastics Council. He brings 31 years of business and public affairs experience at Union Carbide to CHEMSTAR.

Mr. Greenert earned his B.S. degree in chemical engineering at the University of Arkansas and is a graduate of the Public Affairs Institute of the Public Affairs Council.

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 and Vinyl Chloride 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." Previously, at the Stanford Research Institute, Dr. Shah was a Project Coordinator, and he served as a Senior Toxicologist. Earlier, 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.

Associate Directors

Carol R. Stack, Ph.D.

Dr. Stack joined CMA and the CHEM-STAR Division in 1980. She is currently responsible for management of the Chlorobenzenes, Inorganic Acid Mists, and Petroleum Additives Panels.

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.

Barbara O. Francis, MBA

Ms. Francis joined CMA and the CHEM-STAR Division staff in 1989. She is responsible for the management of the Cumene, Cresols, Dinitrotoluenes, Ketones and Oxo Process Panels.

Before coming to 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 U.S. Air Force in Europe. Ms. Francis received an MBA from Virginia Polytechnic Institute and State University and a B.S. in Biology and Chemistry from Bishop's University in Quebec, Canada.

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

Dr. Moran joined CMA and the CHEM-STAR Division in 1981. She continued this year as manager of the Butadiene, Carbon Disulfide, Methylenedianiline, Olefins, and Terephthalates Panels and managed the Laboratory and Research Chemicals Council until January.

Dr. Moran is a biochemist and Board Certified Toxicologist. She is currently on the finance committee 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 U.S. 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.

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 1985, he joined the CHEMSTAR Division as an Associate Director. He continued this year as manager of the Chlorine Dioxide, Ethylene Dibromide, Ethylene Oxide, Phosgene, and Water Additives Panels.

Dr. Romano came to CMA from the U.S. 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.

Kathryn A. Rosica, B.S.

Ms. Rosica joined CMA and the CHEMSTAR Division in 1986. In 1988 she was promoted to Associate Director in CMA's Health and Safety Division. Among her responsibilities there was serving as Staff Executive to the Health and Safety Committee. Ms. Rosica rejoined the CHEMSTAR Division in 1992. She is responsible for the management of the Ethylene Glycol Ethers, Methyl Bromide, Phenol and Propylene Glycol Ethers Panels.

Before coming to CMA, Ms. Rosica was a toxicologist for NUS, Inc., in Boston, MA. She received a B.S. in Toxicology from Northeastern University.

Elizabeth Festa Watson, B.A.

Ms. Festa Watson joined CMA and the CHEMSTAR Division in 1983. She is responsible for the management of the Crystalline Silica, Dibenzofurans/Dibenzodioxins, and Polychlorinated Biphenyls Panels, and the Atmospheric Research Council.

Prior to coming to CMA, she was Section Staff Executive with the National Electrical Manufacturers Association, where she was responsible for the Nuclear Magnetic Resonance Imaging Section within the Diagnostic Imaging and Therapy Systems Division. Previously, Ms. Festa Watson 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 Chemist at both CENTEC Corporation and Radian Corporation. She was also a recipient of a National Science Foundation Assistantship. Ms. Festa Watson earned a B.A. in Chemistry from Albertus Magnus College.

Senior Panel Managers

Jonathon T. Busch, MBA

Mr. Busch joined CMA and the CHEMSTAR Division in 1990. He is responsible for management of the Alkanolamines, Cyclohexane, Hydroquinone, Phenol Regulatory, Sodium Bromide, and Titanium Dioxide Panels, as well as the Highway Task Group of the Carrier Assessment Council.

Before coming to CMA, Mr. Busch was a Senior Associate with ICF-Clement, a health and environmental sciences consulting firm. He was responsible for a variety of scientific efforts in toxicology, risk and exposure assessment, and environmental auditing. Previously, Mr. Busch was Senior Science Analyst with the Cosmetic, Toiletry and Fragrance Association. He was responsible for developing scientific literature reviews on chemicals and for technical and administrative efforts associated with ensuring ingredient and product safety for the cosmetic industry. Mr. Busch received a MBA in Finance from George Mason University and a B.S. in Biology from Virginia Polytechnic Institute and State University.

Cecilia W. Spearing, M.S.

Ms. Spearing joined CMA and the CHEMSTAR Division in 1991. She is responsible for management of the Isopropanol, Diisocyanates, and Toluenediamines Panels. She also manages the following panels that formed specifically for participation in the OECD High Production Volume Existing Chemicals Voluntary Testing Program: Ethylenebis-(stearamide); α-Olefins; and, Tris-(chloroalkyl)phosphates.

Before coming to CMA, Ms. Spearing was Project Coordinator, U.S. Army Medical Research and Development Command Peer Review Panels, in the Special Science Programs Department of the American Institute of Biological Sciences. Previously, she served as Staff Associate, Directorate for Mathematical and Physical Sciences, the National Science Foundation. She also served the Foundation as Assistant and Associate Program Director, Metabolic Biology. Ms. Spearing received a B.A. in Chemistry from Hunter College. She received an M.A. in Science Education from Teachers College, Columbia University and an M.S. in Biochemistry from The George Washington University School of Medicine and Health Sciences.

Marian K. Stanley, MBA

Ms. Stanley joined CMA and the CHEMSTAR Division 1990. She is responsible for the management of the Specialty Acrylates/Methacrylates and Phthalate Esters Panels.

Before coming to CMA, Ms. Stanley was a Technical Project Manager with Squibb-mark. Previously, she was employed as both a development and analytical chemist at Union Carbide Corporation. Ms. Stanley received a MBA in Pharmaceutical Studies from Fairleigh Dickinson University, and a B.S. in Chemistry from Pratt Institute.

Panel Managers

T. Dee Kuhn, B.S.

Ms. Kuhn joined CMA and the CHEMSTAR Division in 1991. She is responsible for the management of the Brominated Flame Retardants, Butylated Hydroxytoluene, Hydrazine, Cobalt, Metal Catalysts Producers, Nitrosamines, Propylene Oxide, and the Rubber Additives Panels.

Before coming to CMA, Ms. Kuhn was a Quality Assurance Supervisor with Hazleton Laboratories. Ms. Kuhn received a B.S. in Biology from Vanderbilt University, and is completing a M.S. in Environmental Biology from George Mason University.

Fernando S. Leiva, M.A.

Mr. Leiva joined CMA and the CHEMSTAR Division in May. He is responsible for the Hydrogen Fluoride, Oleylamine and the Alkylphenol and Ethoxylates Panels.

Before joining CMA, Mr. Leiva was Safety Director with the City of Charlotte and Mecklenburg County governments. Previously, he was an Area Loss Control Engineer for Burlington Industries. He is fluent in English and Spanish and has acted as translator for the Federal courts in Charlotte. Mr. Leiva received a M.A. degree from the University of North Carolina at Charlotte and a B.S. degree in Biology and Chemistry from Guilford College.

Kathleen M. Roberts, B.S.

Ms. Roberts joined CMA and the CHEMSTAR Division in 1991. She is responsible for the management of the Acetone, Aryl Phosphates, Chlorinated Pool Chemicals, Ethylene Dichloride, Ethylene Glycol, Fluoroalkenes, Hexamethylene Diisocyanate, and Vinylidene Chloride Panels. In addition, she manages the Materials of Construction, Personal Protective Equipment, Storage System, and Transportation Task Groups of the Hydrogen Fluoride Panel, as well as the Fuels Detergent Performance Task Group under the Petroleum Additives Panel.

Before coming to CMA, Ms. Roberts was Product Manager with Jellinek, Schwartz, Connolly & Freshman, an environmental consulting firm. In the firm's Pesticide Reregistration Division, she managed several pesticide testing programs required under FIFRA. Previously, she was a laboratory technician for Hazleton Laboratories America, conducting genetic and inhalation toxicology studies. Ms. Roberts received a B.S. degree in Biology from the University of North Carolina at Chapel Hill.

Senior Administrative Assistants

Devonne Bilal

Ms. Bilal joined CMA and the CHEMSTAR Division in 1980. She became Senior Administrative Assistant in 1993. Ms. Bilal is responsible for Division administrative oversight and training of the Division support staff. She also coordinates production of Division publications such as the CHEMSTAR News and the CHEMSTAR Annual Report.

Before coming to CMA, Ms. Bilal was a Personnel Clerk at the Department of State, Bureau of Consular Affairs, responsible for the Passport Services function. Earlier, she taught English, history and mathematics at Muhammad University. Ms. Bilal studied Business Management at Strayer College.

Patricia A. Messenger

Ms. Messenger joined CMA and the CHEMSTAR Division in 1982. She became Senior Administrative Assistant, Business Councils in 1993. She is responsible for administrative oversight of all Business Councils managed within the Division, as well as direct administrative support and task group management for the Total Quality and Chemical Distributors Councils.

Before coming to CMA Ms. Messenger was administrative assistant at Clas Riggs Owens & Ramos and technical services representative at the Burroughs Corporation. Earlier she instructed the mentally and physically challenged in Summit County, OH. She also received an elementary grades teaching certificate from the Catholic Diocese of Cleveland. Ms. Messenger studied Biology at the University of Akron.

Legal Counsel

The panels and councils were directly assisted by the CMA Office of General Counsel 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 counselled 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 supported Division managers in drafting and negotiating the nearly 150 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.

Counsel

Robert D. Ondocsin, J.D.

Mr. Ondocsin joined the CMA Office of General Counsel in 1989 as Counsel for OSHA matters including hazard communication, worker notification, employee medical, health and safety programs, and right-to-know. He became Counsel to the CHEMSTAR Division in 1991. He reviews and provides counsel in production of all substantive panel and council documents including contracts, regulatory comments, legislative correspondence and testimony, filings in litigation, and press releases. In addition, he advises panels and councils on antitrust issues and manages retained counsel.

Before coming to CMA, Mr. Ondocsin was an Industrial Hygienist with Union Carbide Corporation. He also held a similar position at PPG Industries, Inc. He holds a B.S. and a M.S. from the University of Pittsburgh, and a J.D. from Pace University.

Division Managers

Seated: *Elizabeth Moran, Hasmukh Shah, Langley Spurlock, Carol Stack, and Clyde Greenert.* ***Back:*** *Devonne Bilal, Patricia Messenger, Kathryn Rosica, Jonathon Busch, Cecilia Spearing, Fernando Leiva, Marian Stanley, Robert Romano, Elizabeth Watson, Barbara Francis, Kathleen Roberts, and Dee Kuhn.*

American Plastics
Atmospheric Research
Carrier Assessment
Chemical Distributors
Chlorine Coordinating
Total Quality

Acetone
Alkanolamines
Alkylphenols & Ethoxylates
Aryl Phosphates
Biocides
Brominated Flame Retardants
Butadiene
Butylated Hydroxytoluene
Carbon Disulfide
Chlorinated Pool Chemicals
Chlorine Dioxide
Chlorobenzenes
Cobalt
Cresols
Crystalline Silica
Cumene
Cyclohexane
Dibenzofurans/dioxins
Diisocyanates
Dinitrotoluenes
Ethylenebis-(stearamide)
Ethylene Dichloride
Ethylene Glycol
Ethylene Glycol Ethers
Ethylene Oxide
Fluoroalkenes
Hexamethylene Diisocyanate
Hydrazine
Hydrogen Fluoride
Hydroquinone
Inorganic Acid Mists
Isopropanol
Ketones
Laboratory and Research Chemicals
Maleic Anhydride
Metal Catalysts
Methyl Bromide
Naphthenates
Nitrosamines
Olefins
α-Olefins
Oleylamine
Oxo Process
Petroleum Additives
Phenol
Phosgene
Phthalate Esters
Polychlorinated Biphenyls
Propylene Glycol Ethers
Propylene Oxide
Rubber Additives
Sodium Bromide
Specialty Acrylates/Methacrylates
Terephthalates
Titanium Dioxide
Toluenediamines
Tris(chloroalkyl)phosphates
Vinyl Chloride
Vinylidene Chloride
Water Additives

The CHEMSTAR Vision

"To be the most effective provider of technical and management services for specific issue groups within the chemical industry. To have our groups be the best in the world at addressing advocacy, research, education, communication, and evaluation issues in their focus areas."

CMA