



**2024 CCPS[®]
ANNUAL
REPORT**



The CCPS Story

Just after midnight on December 3, 1984, water contamination in a methyl isocyanate storage tank created a toxic gas release in Bhopal, India, causing more than 3,000 fatalities and over 100,000 injuries to nearby residents.

In February of 1985, industry leaders asked the American Institute of Chemical Engineers (AIChE) to lead a collaborative effort to eliminate catastrophic Process Safety incidents. On March 23, 1985, AIChE formed the Center for Chemical Process Safety (CCPS); CCPS completed *Guidelines for Hazard Evaluation Procedures* a short time later.

As we enter 2025, we pause to reflect on the progress we've made, while we continue to honor the memories of those lost in Bhopal, by striving for a future where we can achieve a World without Process Safety Incidents. Toward this end, we remain committed to learning from incidents, advancing the practice, and collaborating broadly to implement safety measures. Vision 20/20 serves as our road map. Come join the "Global Community Committed to Process Safety" — be ready for the future by working to create it.

About CCPS

The Center for Chemical Process Safety (CCPS®) is a not-for-profit, corporate membership organization within AIChE that identifies and addresses Process Safety needs for facilities that handle, store, use, process, or transport hazardous materials. CCPS member companies, working in project subcommittees, define and develop useful, time-tested guidelines that have practical applications within industry. CCPS educates employees of member companies through its events, courses, books, tools, online resources, and publications.

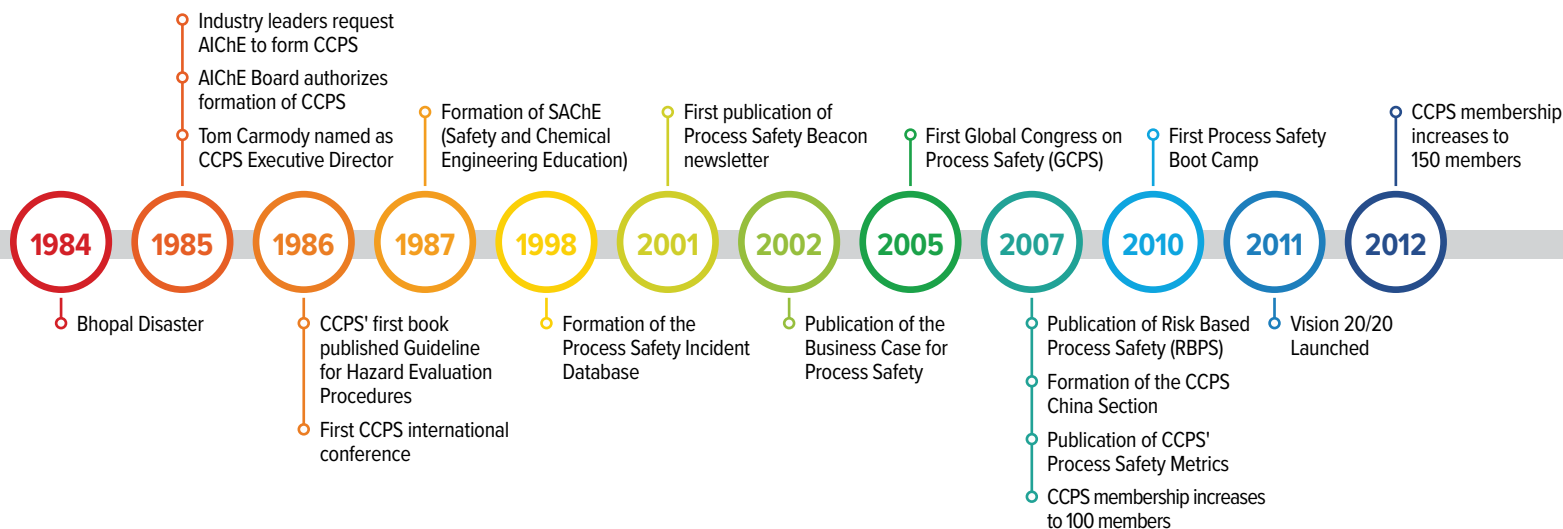
CCPS Vision

A World without Process Safety Incidents

CCPS Mission

CCPS is committed to achieve a world without Process Safety incidents by:

- Serving as a premier worldwide resource for Process Safety knowledge and understanding
- Advancing Process Safety culture, technical concepts and management practices
- Enhancing individual and organizational Process Safety competency
- Fostering collaboration within and across organizations, at all levels
- Promoting Process Safety as a key societal value and foundation for responsible, sustainable operation



Message from the Executive Director & CEO



Shakeel Kadri
CCPS Executive
Director & CEO

Overall, 2024 was a dynamic, productive, and successful year for CCPS. We executed our expanded “Responsible Collaborations” goal, continued our progress on the Early in the Process Safety Journey programs, extended our Advanced Practitioners in Process Safety initiatives, grew CCPS’ global outreach, increased our membership to 275 strong, and successfully executed the 1st International Process Safety Week.

I thank our global members, staff, and collaborating organizations for their contributions to these accomplishments. 2025 will be another big year for CCPS — as we commemorate the 40th anniversary of CCPS’ formation, with events at the Global Congress on Process Safety in Dallas, TX, April 6–10.

In 2024, the 1st International Process Safety Week (IPSW) was launched through the collaborative efforts of CCPS, the Mary K. O’Connor Process Safety Centre, the IChemE Safety Centre, the European Process Safety Center, and the Fire and Blast Information Group. Together, we developed and executed the first IPSW virtual event from December 2–6, 2024. Nearly 14,000 participants registered for IPSW, and we received highly favorable feedback. The IPSW content is available on-demand globally until December 1, 2025. Future IPSW plans are being discussed.

On other fronts, our Early in the Process Safety Journey programming raised Process Safety understanding within academia. Over 360,000 Safety and Chemical Engineering Education (SChE) certificates have been awarded since the program’s inception in 2015. In 2024, we also implemented two Faculty Workshops and four Student Process Safety Boot Camps. The Early Career Professional (ECP) initiative has also progressed, with one ECP module completed and a second nearing completion. We matured and moved the implementation of the CCPS Process Safety Fundamentals (CCPSf) program to AIChE Academy, for addition to the slate of AIChE early career credentialing programs.

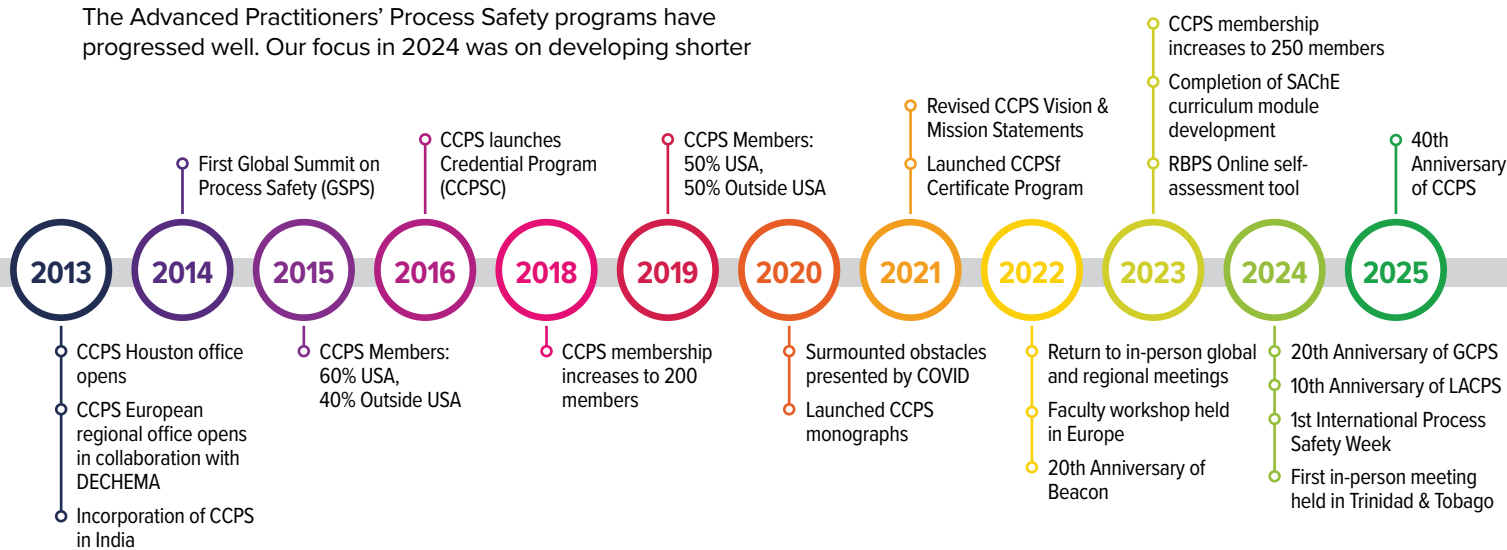
The Advanced Practitioners’ Process Safety programs have progressed well. Our focus in 2024 was on developing shorter

guideline documents — notably monographs. We updated 16 Safe Work Practices, published a new Key Principle, and are in the final review stages for three additional Golden Rules. We also published a monograph on Process Safety and Energy Transitions. The 9th release of the “Book of Beacons” was also published, covering all years since its inception to 2015. The CCPS Process Safety Glossary App underwent a redesign and full update. In addition, the book, Guidelines for Preparing Process Equipment for Maintenance and Return to Service was completed. The CCPS Process Safety Professional Certification (CCPSC) credentialing program is growing steadily, with 477 CCPSCs certified to date. We have also seen significant interest in Process Safety Leadership Education, as well as the implementation and assessment of the Risk Based Process Safety Management System.

We continued to expand our regional and global engagement and networking, both in-person and virtually. With our members’ assistance, in 2024 we conducted virtual and in-person events in 12 countries and regions: the U.S., Canada, China, Europe, Africa, South America, Trinidad & Tobago, France, Germany, South East Asia, and India. We had hugely successful CCPS regional meetings in Canada (150 attendees) and Trinidad (200), as well as CCPS regional conferences in Latin America (600) and the Global Summit (600). All drew strong attendance from highly engaged Process Safety professionals and leaders. Almost all of the work for these events was conducted by CCPS staff with local partners at each site.

IN CLOSING, I thank the entire CCPS Technical Steering Committee, the CCPS Planning Board, and the CCPS Governing Board for their steadfast support and guidance. These three governing bodies are working together to further enhance their interactions and engagement, and improve our planning. I have been fortunate to engage with and contribute to this global community, committed to building global Process Safety excellence. Serving as the CCPS Executive Director and CEO for the past ten years has been my most incredible honor and privilege.

I wish you all a safe and healthy 2025.



Highlights from the Year

Events

 **12**
COUNTRIES VISITED
IN-PERSON AND VIRTUALLY

 **16,000+**
PROCESS SAFETY GLOBAL
PROFESSIONALS ENGAGED

- 4 Student Boot Camps
- 2 Faculty Workshops
- 4 Conferences
 - 20th Global Congress on Process Safety
 - 10th Latin American Conference on Process Safety
 - 2024 Global Conference on Process Safety and Big Data
 - 8th Global Summit on Process Safety
- Regional Meetings, Panel Discussions, and Webinars



1 2024 Global Conference on Process Safety and Big Data 2 Trinidad 2nd Annual Regional Meeting 3 Regional Meeting in Argentina

 MEMBERS IN
48
COUNTRIES

 **275**
GLOBAL MEMBER
COMPANIES

Expanding global and regional engagement

- ANGOLA
- ARGENTINA
- AUSTRALIA
- BAHRAIN
- BOLIVIA
- BRAZIL
- BRUNEI
- CANADA
- CHINA
- COLOMBIA
- DENMARK
- ECUADOR
- EGYPT
- GERMANY
- INDIA
- ISRAEL
- ITALY
- JAPAN
- KUWAIT
- LUXEMBOURG
- MALAYSIA
- MONGOLIA
- MOROCCO
- PAKISTAN
- PERU
- PHILIPPINES
- PORTUGAL
- QATAR
- SAUDI ARABIA
- SINGAPORE
- SOUTH AFRICA
- SWITZERLAND
- THAILAND
- TRINIDAD AND TOBAGO
- UNITED KINGDOM
- USA
- VIETNAM

Get Your Company Involved

JOIN CCPS as a member company to help prevent catastrophic Process Safety incidents.



NOT A CCPS MEMBER YET?

Contact CCPS at ccps@aiche.org or **1.646.495.1371**
aiche.org/ccps

SHARE your expertise by participating in the Global Congress on Process Safety (GCPS), Global Summit on Process Safety (GSPS), a CCPS Regional Conference, or a Global or Regional Technical Steering Committee Meeting.



CONFERENCES, MEETING & EVENTS: aiche.org/ccps/conferences-events

MENTOR your new employees by bringing them to the Young Professionals program at the GCPS.



aiche.org/Bring-a-Young-Colleague

MODEL your company as a Process Safety champion for CCPS publications, monographs, and tools.



PUBLICATIONS: aiche.org/ccps/publications

MONOGRAPHS: aiche.org/ccps/monographs

TOOLS: aiche.org/ccps/tools

COMMUNICATE the message by forwarding CCPS' *Process Safety Beacon* to your colleagues, available in over 40 languages.



Sign up for the CCPS Beacon:
aiche.org/ccps/process-safety-beacon

VOLUNTEER for a CCPS project subcommittee.

Share your knowledge and help shape industry best practices. Opportunities are available for subject matter experts to work with other global member companies on new or ongoing projects each year. You or anyone from your company can also participate as a peer reviewer. Key contributors will be recognized in the published materials.



Your company must be a CCPS member to volunteer for a project. Contact **CCPS** at ccps-projects@aiche.org to volunteer or peer review for any of CCPS' available projects.

Volunteer Today: aiche.org/ccps/community/projects/accepting-volunteers

NETWORK with your peers via CCPS' LinkedIn page:



Follow our LinkedIn page to stay up-to-date with CCPS information about members, events, books, services, and benefits.

linkedin.com/showcase/ccps-process-safety

PARTICIPATE by using the Vision 20/20 self-assessment tool (open to all) and the RBPS self-assessment tool (members-only), driven by five industry tenets, four societal themes, and the twenty RBPS elements.



aiche.org/ccps/vision-2020 and aiche.org/ccps/rbps

EDUCATE your workforce

by getting involved with the CCPS education curriculum, with face-to-face and virtual instructor-led courses including *Process Safety Boot Camp* (CH900) / *Foundations of Process Safety* (CH910), *Recognizing Catastrophic Incident Warning Signs* (CH901), *Incident Investigation and Root Cause Analysis* (CH850), and our many eLearning courses on Process Safety and related topics.



aiche.org/ili/academy

DEMONSTRATE OR BUILD YOUR COMPETENCY



CCPSC® – this elite global Process Safety Certification is based on experience and knowledge of the CCPS RBPS elements. The assessment is based on a rigorous application and exam offered three times per year.

Learn more at aiche.org/ccps/ccpsc

CCPSf – this certificate program is ideal for early career professionals and students. It includes 24 Process Safety SACHe courses, and awards a certificate upon completion.

Learn more at aiche.org/ccps/ccpsf

ADVERTISE your

company's services and website for FREE through CCPS' online Professional Services Directory. This opportunity is only available to CCPS member companies. For information on how to get your company listed, please contact **Michele Horwitz** at michh@aiche.org.



Review current listings at:
aiche.org/ccps/community/members/directory

Resources to Explore

New Books and Monographs

- *Guidelines for Preparing Process Equipment for Maintenance and Return to Service*
- 2 online editions of the *Book of Beacons*
- Several new monographs

For a list of CCPS' ongoing projects, please refer to our Projects Page – aiche.org/ccps/projects.

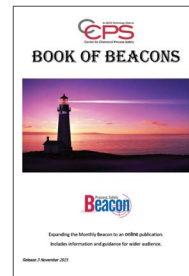
Please refer to the **Process Safety at a Glance** flyer for a list of CCPS' books and monographs.



and describes the lessons learned and practical means to prevent a similar accident in your plant. With an estimated distribution of one million readers, and published in over 40 languages, the *Beacon* is CCPS' most widely read publication.

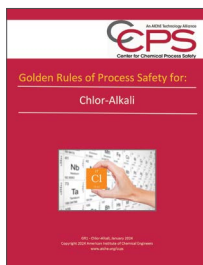
Book of Beacons, now available online, for members only.

aiche.org/ccps/process-safety-beacon/book-of-beacons

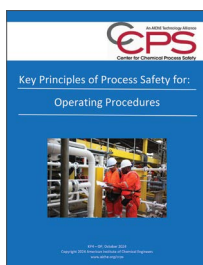


Golden Rules and Key Principles

CCPS Golden Rules are designed to provide Process Safety professionals with information to deal with Process Safety hazards. These rules/tenets are based on absolute statements to address the inherent hazards associated with process technologies including FCC operations, chlorine chemistry, nitration chemistry, peroxides, combustible dust, and others.



CCPS Key Principles address key elements of Process Safety Management Practices. The key principles presented reflect good, common, or successful practices and are intended to assist in the design and implementation of these elements. These principles are intended to strengthen and support Incident Investigation, Management of Change, and Operational Readiness programs.



Process Safety Glossary

The app for the Process Safety Glossary is available for iPhones and Android devices. It can be downloaded from the Apple and Google Play app stores. It is a handy tool to look up the definition of Process Safety terms.

Process Safety Incident Database (PSID®)

The **CCPS Process Safety Incident Database (PSID)**, is a lessons learned tool, available to most member companies and contains over 700 incident details provided by CCPS members. Member companies who wish to register and enhance the breadth of knowledge in PSID by contributing content can contact ccps_psid@aiche.org.



Process Safety Incident Evaluation (PSIE) Tool

The app for the updated Process Safety Incident Evaluation (PSIE) Tool was launched for iPhones and Android devices. It can be downloaded from the Apple and the Google Play app stores. Also included online is a Leading and Lagging Indicators Manual to support the online tool.

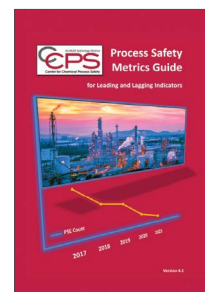
Process Safety Beacon

Produced by CCPS, the *Process Safety Beacon* (aiche.org/ccps/process-safety-beacon) is a resource aimed at delivering Process Safety messages to plant operators and other manufacturing personnel. The monthly one-pager, often used as a training tool, covers a breadth of Process Safety topics. Each issue discusses a real-life accident,



Process Safety Metrics Guide for Leading and Lagging Indicators

The **Process Safety Metrics Guide** is for those who are selecting and managing a company's Process Safety metrics. By evaluating and responding to trends using company-specific



metrics, a company can continuously reduce its Process Safety risks and improve its Process Safety programs. A few translations of this guide are available, as well. It is free and downloadable at aiche.org/ccps/process-safety-metrics.

Safe Work Practices (SWP)

The **Safe Work Practices** are designed to reach and provide value to a very broad audience, including operations, maintenance, and engineering personnel in the process industries. Specific notes and potential vulnerabilities are presented, allowing users to personalize safe work practices to raise the sense of vulnerability for potential hazards.



aiche.org/ccps/swp

RAST and CHEF

The **Risk Analysis Screening Tool (RAST)**, an Excel-based software, is used to help validate hazard scenarios and evaluate Process Safety risks. RAST is excellent for assisting Process Hazards Analysis (PHA) teams, managing the Process Safety risks associated with process changes, or evaluating and potentially reducing the Process Safety risks of a process during its design.

The **Chemical Hazards Engineering Fundamentals (CHEF)** tool, also Excel-based, is a Calculation Aid that describes the engineering and mathematical framework used in a screening Hazards Identification and Risk Analysis (HIRA). CHEF provides the user with the mathematical equations that are used in RAST's HIRA calculations.

The RAST and CHEF tools, user manuals, and case studies are free and downloadable at aiche.org/ccps/rast

Risk Based Process Safety (RBPS) Resources

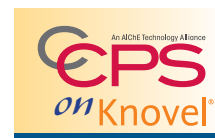
The CCPS RBPS approach has been used to help improve Process Safety performance for more than a decade. It is based on four pillars: Commitment to Process Safety, Understand Hazard and Risk, Manage Risks, and Learn from Experience. In addition to the CCPS Guidelines (aiche.org/resources/publications/books/guidelines-risk-based-process-safety), there are many resources, such as webinars, book summaries,

in-person and virtual training courses, that can be used to help companies implement these pillars and their associated elements.

aiche.org/ccps/resources/rbps

CCPS on Knovel

As a CCPS member, your organization is entitled to a 35% discount on the CCPS collection on Knovel (knovel.com). For more information about subscribing to the CCPS collection on Knovel, contact Knovel directly at CCPSonKnovel@elsevier.com. The Knovel collection provides easy online navigation and search functionalities for CCPS Books and the GCPS Proceedings within the digital library.



Chemical Reactivity Worksheet

The **Chemical Reactivity Worksheet (CRW)** is a powerful tool for companies, including emergency responders and planners, that are handling, storing, or managing hazardous chemicals. The CRW is used to determine the chemical reactivity of thousands of common hazardous chemicals, their absorbent compatibility, and their materials of construction suitability. In addition, the CRW can be used to predict possible hazards between two chemicals when they are mixed. This resource is free and downloadable at aiche.org/ccps/crw.

Executive Leadership Workshop

The Executive Leadership Workshop is a one-day, in-person, intensive training designed for top-level executives. The workshop addresses the Process Safety needs of corporate executive, business, and regional leadership teams to establish a business case for Process Safety, and to improve the Process Safety culture within an organization, among other key learnings. For more information, please contact **Denise DeLuca Mallon** at denid@aiche.org.

Professional Services Directory

The Professional Services Directory is a resource for manufacturing companies. All providers listed are member companies specializing in Process Safety services.

aiche.org/ccps/community/members/directory



SACHE[®]

Launching your career with a strong Process Safety foundation to help create a safer, more livable world...

...begins in the classroom. As part of AIChE's *Doing a World of Good* campaign, and in conjunction with the Center for Chemical Process Safety (CCPS), industry and academia have come together to launch a major global initiative to improve and accelerate Process Safety education at the university level you can graduate with a strong foundation in Process Safety.

aiche.org/sache

SACHE
Safety+Chemical
Engineering Education

AIChE 
The Global Home of Chemical Engineers

**DOING
A WORLD
OF GOOD**



Student Boot Camps

Student Boot Camps, sponsored by CCPS member companies, provide an introduction to engineering students about how leading companies across a variety of chemical process industry (CPI) sectors manage Process Safety to prevent catastrophic accidents involving toxic, highly reactive, and flammable materials. These events are part of the Undergraduate Process Safety Learning Initiative (UPSIL), a core priority of the AIChE Foundation's *Doing a World of Good* campaign. CCPS held four in-person Student Boot Camps in 2024.

For more information: aiche.org/studentbootcamps

→ **Chevron Sponsored CCPS Student Boot Camp**
February 10 - 11 | University of Southern California

→ **BASF Sponsored CCPS Student Boot Camp**
September 7 - 8 | University of Houston

→ **Celanese Sponsored CCPS Student Process Safety Workshop**
October 5 - 6 | Clemson University

→ **LyondellBasell Sponsored CCPS Student Boot Camp**
October 19 - 20 | The Ohio State University



■ Celanese Sponsored CCPS Student Process Safety Workshop



CCPS Faculty Workshops

Faculty Workshops, sponsored by CCPS member companies, show chemical engineering faculty how Process Safety is put into industrial practice and demonstrates the importance of Process Safety to the design, operation, and maintenance of chemical, petrochemical, oil & gas, and other industries dealing with hazardous materials. These events are part of AIChE's *Doing a World of Good* campaign.

Two faculty workshops were conducted in 2024, including an event in Bahia Blanca, Argentina.

For more information: aiche.org/facultyworkshop

→ **Dow Sponsored CCPS Faculty Workshop**
August 5 - 8 | Bahia Blanca, Argentina

→ **BASF Sponsored CCPS Faculty Workshop**
July 15 - 18 | Wyandotte, MI



■ Dow Sponsored CCPS Faculty Workshop



Early Career Professionals

Engineering professionals early in their career find that Process Safety training and the understanding of practical aspects of day-to-day work are typically challenging. The Early Career Professional Learning Initiative (ECPLI) focuses on identifying the needs of the Early Career Professional (ECP) working in Process Safety. The ECPLI Committee (logos below) has identified key focus areas that ECPs encounter, and has outlined training modules for these topics. The first pilot training module covered Management of Change and the second pilot training module will cover Piping and Instrumentation Diagrams (P&IDs). The P&ID module will be deployed in early 2025.

For more information about the program, please contact ccps@aiche.org.



Process Safety Boot Camps

The Process Safety Boot Camp is CCPS' flagship course based on CCPS' Risk Based Process Safety (RBPS) Management approach, featured in the CCPS book *Guidelines for Risk Based Process Safety*. The Boot Camp covers the fundamental concepts of Process Safety, why effective Process Safety management systems are needed, and why Process Safety is important as an operating principle. Participants from the chemical, oil & gas, pharmaceutical, foods, metals, mining, and other industries will gain the knowledge to improve Process Safety management practices through the four pillars and twenty elements of RBPS, to build and operate more effective systems that will fit their company's needs and resources.

This highly interactive course is taught by two Process Safety experts, each with 25+ years' experience. Lectures, videos, incident case studies, discussions, and breakout sessions are featured. Please visit aiche.org/ili/academy/courses/ch900/process-safety-boot-camp to register for a public face-to-face or virtual course, or contact sales@aiche.org for information on a private course.



CCPS Process Safety Professional Certification



The **CCPS Process Safety Certification (CCPSC®)** exam shows your employer and colleagues that you have the significant depth and breadth of experience needed to excel in your career. This rigorous certification process verifies your competency as an expert in the latest Process Safety tools and techniques.

Requirements to qualify for the exam include 5 years' experience and a degree in a STEM (Science, Technology, Engineering or Math) field, or 10 years' Process Safety experience. In-depth knowledge of the CCPS Risk Based Process Safety concepts and applications are also required. The exam is offered three times per year; March, July, and November. The annual renewal, which includes a continuing education requirement, serves to prove your ongoing proficiency.* For more information about the CCPSC® certification program, please go to aiche.org/ccps/ccpsc

*The CCPSC® is not a training program



The **CCPS Process Safety Fundamentals Certificate Program (CCPSf)** is a training program designed for students, early career professionals, and mid-career professionals adding Process Safety to their responsibilities. It is a curated list of 24 Safety and Engineering courses from our SACHÉ course offerings within 5 categories: Process Safety Basics; Introduction to Hazards; Understanding Risk; Practical Applications for Managing Risk; and Risk Based Process Safety (RBPS) Pillars. For more information about the CCPSf, please go to aiche.org/ccps/ccpsf



CCPS Subcommittees

CCPS Pharma, Food, & Fine Chemicals Subcommittee

The **Pharma, Food, & Fine Chemicals (PFFC) Subcommittee** was established to support members of CCPS within the pharmaceutical, food, and fine chemicals sectors. The primary goal of the PFFC is to ensure that Process Safety in pharmaceutical and small-batch operations is implemented appropriately. This involves sharing best practices, fostering mutual learning, and promoting effective, compliant, and risk-based approaches. Additionally, the PFFC aims to disseminate how various companies apply Process Safety Management (PSM) principles. PFFC hosts quarterly meetings that are open to all, please visit aiche.org/ccps/pffc for more information.

CCPS Mining, Minerals, & Metals Subcommittee

The **Mining Minerals and Metals (MMM) Subcommittee** is dedicated to advancing the global mining, minerals, and metallurgical sectors by leveraging the CCPS Risk Based Process Safety (RBPS) framework as its core principle. Additionally, it seeks to identify existing challenges and offer guidelines and tools to address the gaps not currently addressed by the RBPS framework. Ultimately, the subcommittee is committed to fostering the exchange of best practices among its members to enhance collective knowledge. MMM hosts 2-3 meetings each year for anyone interested, for further information about the CCPS MMM Subcommittee, please visit aiche.org/ccps/mmm.

Global Events

NORTH AMERICA

20th Global Congress on Process Safety

The 2024 AIChE Spring Meeting and 20th Global Congress on Process Safety (GCPS) was held in person March 24 - 28, 2024. The 20th GCPS featured 50 Technical Sessions, over 130 technical papers, and 119 poster presentations. The Global Congress incorporates the programming of the 58th Annual Loss Prevention Symposium, the 39th CCPS International Conference, the 26th Process Plant Safety Symposium, the 13th Process Safety Management Mentoring Forum, and the International Perspectives on Process Safety from around the World.



9th Annual Regional Calgary Meeting

CCPS held its 9th annual Canada Regional Meeting in Calgary on September 10th, setting a new attendance record with nearly 150 participants. Ovintiv generously sponsored the event, with 67 companies in attendance. The event featured insightful presentations by company presenters as well as students from the University of Alberta, on key learnings, innovative methods, and critical focus areas in Process Safety. With topics such as “Carbon Capture Sequestration Opportunities and Risk”, A Panel Discussion on Safety Critical Equipment”, “Creating an Early Warning System – Dashboard of Precursory Conditions”, and Mind the Gap: Bridging Asset Integrity and Process Safety, through a Digital Transformation Era.”

2024 Fall TSC Meeting

The Fall Technical Steering Committee Meeting was held on November 13 -14, 2024 in Houston, TX. Over 70 attendees participated in person. Throughout the 2-day meeting, attendees heard presentations ranging from CSB updates to the Changing Cybersecurity Threat Landscape and Process Safety Impacts. Multiple interactive workshops such as “2024 Process Safety Wins and Challenges”, “Vision 20/20 Revamp” and “CCPS 2025 Projects Workshop”, were also conducted during the meeting to help CCPS gain insights on how to better serve our members and achieve CCPS’ mission of “A World without Process Safety Incidents”. During the meeting, Kathy Shell from Process Safety Core Consulting, LLC, Robert Johnson from Unwin Company, and Mike Snyder from Dekra were announced as CCPS Fellows.

CARIBBEAN

Trinidad 2nd Annual Regional Meeting

CCPS hosted its first in person meeting in Trinidad on October 10, 2024. It was co-hosted by Heritage Petroleum Company Limited and chaired by Wayne Mohan. The event saw an impressive turnout, with approximately 200 registrants. Nine sponsoring Companies and 38 organizations actively participated, including seven-member companies. The Minister of Energy spoke in person, and the US Embassy Political Officer Scott Hanson to the US Ambassador to Trinidad and Tobago spoke by video with a message to the audience. Many



1 20th Global Congress on Process Safety Planning Committee 2 Wayne H. Mohan's Meeting Chair and Ambassador for Process Safety Recognition at the Trinidad Regional Meeting 3 9th CCPS Canadian Regional Meeting 4 8th Global Summit on Process Safety

GLOBAL EVENTS

incredible incidents were shared on topics such as “Key Insights and Learnings from a Turbine Generator Lube Oil Fire,” “Tank 27 Hydrotest Failure,” and “UPS Failure and Upgrade.” Additionally, speakers discussed “How to Manage their Process Safety Risks” and “Strengthen Process Culture” within their organizations. The day concluded with a well-attended two-hour catered social hour. CCPS looks forward to the 2025 meeting in Trinidad.

ASIA / OCEANIA / AFRICA

India Regional Meeting

Sponsored by Yash Rasayan Pvt. Ltd. and UPL University of Sustainable Technology, this event attracted 200 industry representatives across India. The meeting showcased four case studies on Process Safety Incidents presented by member companies, covering topics such as 'Explosion in Thermic Fluid Heater Furnace', 'Loss of Functionality of ON-OFF Valve Leading to Process Safety Incident', 'Fire Incident During Nitric Acid Storage', and 'Are Your Safety Barriers Healthy?'

South East Asia Regional Meeting

Sponsored by FM, Singapore. A key highlight was an immersive tour of the state-of-the-art FM Learning Centre. The event brought together 80 delegates representing CCPS member companies from across Southeast Asia. The meeting highlighted a short workshop on API RP 754: KPI Performance measurement facilitated by Shakeel Kadri, Executive Director & CEO of CCPS. The meeting featured five technical sessions and best practice sharing on topics including Accelerating Total Productive Maintenance for Process Safety, Understanding Human Reliability Analysis (HRA), MOC Improvements at NSRP, and PHA: Are studies good enough for risk reduction?

Middle East Regional Meeting

Hosted by SIPCHEM brought together 80 Process Safety professionals across the Middle East. Senior executives from CCPS member companies exchanged best practices on critical subjects, including Aramco's API RP 754 Implementation Journey, and SABIC's Process Safety Competency Development Journey. Additionally, the meeting featured a tutorial focused on Asset Integrity and Plant Turnaround.

5th CCPS Webinar on Process Safety in Africa

Sponsored by DNV and our industry partner, the Process Safety Initiative of Nigeria, co-hosted the webinar, which was attended by more than 200 delegates from across

Africa. This webinar disseminated a wide range of critical Process Safety topics and promoted the exchange of knowledge within Africa. Participants were presented with discussions on various subjects, including updates from CCPS, PSM Leadership Experience Sharing, Development of Process Safety Competencies, Petroleum Storage Tank Fires, Safeguard Verification, and Application of Machine Learning Techniques for Process Safety Assessments.

API 754 Implementation Workshop

The CCPS Workshop on Process Safety Metrics: API-754 Implementation was held in Dammam, Saudi Arabia, with sponsorship from Saudi Aramco. This workshop was specifically tailored for 40 Saudi Aramco employees, aimed at improving their comprehension and application of Process Safety metrics in their work. Over two days, the interactive session, co-led by Shakeel Kadri and Kelly Keim, offered comprehensive insights and practical resources for the effective implementation of API RP 754.

8th Global Summit on Process Safety (GSPS)

The 8th CCPS Global Summit on Process Safety (GSPS) took place at the Jio World Centre in Mumbai, India, attracted more than 550 Process Safety professionals from around the world. This three-day event commenced with a pre-conference workshop followed by two days filled with 45 technical presentations, nine keynote presentations, and two dynamic panel discussions. Some of the featured panels and session topics included the Leadership Forum, Leadership Panel, Emerging Technologies, Chemical Reactivity Management, Human Factors, Alternative Energy Sources, and case studies on Hydrogen Safety and Process Safety Incidents.



LATIN AMERICA

10th Latin America Conference on Process Safety (LACPS)

The 10th LACPS was held from September 18-20, 2024 in Barranquilla, Colombia. The conference demonstrated significant growth, building upon previous achievements with an unprecedented number of participants. Throughout the three-day event, over 600 attendees from various industries and countries gathered. The conference featured an impressive program that included six keynote speeches, two panel discussions, 15 poster presentations, and 124 technical presentations across 32 sessions. The sessions were organized into 4 simultaneous tracks, all equipped

with translation services for Spanish, Portuguese, and English speakers. This event offered valuable opportunities for professional development and the exchange of ideas on a range of topics, including leadership and culture in Process Safety, cyber risks, and Process Safety technologies, as well as Process Safety in mining, renewable energy, food, agriculture, and biofuels.

Latin America Regional Meetings

In 2024, CCPS member companies Transpetro and Pan American Energy sponsored two Latin America Regional Meetings, which took place in Rio de Janeiro, Brazil, and Buenos Aires, Argentina respectively. These events collectively provided nearly 150 corporate representatives from the region with the opportunity to network, exchange knowledge, and strengthen their professional connections. Additionally, a third in-person meeting was convened following the 10th LACPS, where regional leaders engaged with CCPS staff to review ongoing regional projects and discuss future initiatives.

In addition to the aforementioned events, CCPS conducted webinars in Spanish and Portuguese, accessible to the general public, aimed at promoting our vision and encouraging professionals in Process Safety to collaborate in our mission to enhance the safety of chemical processes globally.

CCPS Process Safety Knowledge Sharing, Forums, and Other Events

Co-Hosted Virtual Meetings Brazil 2024 (Portuguese):

This year, CCPS has worked with different companies including IBP, Gerdau, Ipiranga, Transpetrol, and FM to offer presentations in Portuguese targeting different Process Safety topics important for the region.

Virtual Foro-Debates (Spanish): Since 2020, CCPS and UTN FRN (Universidad Tecnológica Nacional Facultad Regional de Neuquén) have co-hosted 19 cycles of virtual conferences and debates on Process Safety, four of them in 2024. Attendees not only included professionals from Latin American countries, but also from other countries such as Spain, Portugal, and the United States. The events contained presentations and discussions for the oil and gas, chemical, alternative energy, mining, steel, agrochemicals, cosmetics, food, and pharmaceutical industries, amongst others.

EUROPE

CCPS Europe Regional Meetings

In 2024, CCPS continued its successful series of regional meetings, co-organizing an inspiring event with Eni. The

206 attendees enjoyed exclusive insights into exciting case studies from renowned companies like L'Oréal, Covestro, Celanese, and Hovione. A particular highlight was the innovative contribution from Empirisys on applying large language models in Process Safety, showcasing the impressive potential of digital solutions, and setting new standards in the field.

The second regional meeting occurred at TotalEnergies' site in Paris, providing a unique platform for technology presentations and case studies, especially from the oil and gas industry. Focusing on toxicology, this event offered in-depth insights and practical applications, advancing safety standards in the industry.

2024 Global Conference on Process Safety and Big Data

The 2024 Global Conference on Process Safety and Big Data occurred on October 29-30 in Frankfurt, Germany, marking its ninth successful iteration and drawing professionals worldwide. The conference provided a comprehensive platform to promote digitalization and modern tools in Process Safety, featuring an outstanding program with four high-level keynotes, three-panel discussions, and over 15 technical presentations. The conference focus has evolved from purely Big Data applications to the broader use of digitalization technologies. Numerous case studies and solutions provider presentations enriched the program, offering participants practical, forward-looking insights into the progress of digital transformation in Process Safety.

International Process Safety Week

In December 2024, CCPS, in collaboration with four other prominent Process Safety organizations, inaugurated the inaugural International Process Safety Week. This initiative underscores a collective global dedication to improving safety across various industries, with the ultimate aim of achieving "A World without Process Safety Incidents."



The week-long virtual event featured a diverse range of topics, including Reflections on Key Events & Lessons Learned, Interviews with Senior Leaders and CSB Board Members, Panel Discussions, Process Safety Education and Resources, Modeling, Dust Explosions, Digitalization, and Energy Transition, attracting over 13,000 participants. All presentations were recorded and will be accessible for one year following the event through the virtual platform vFairs. For more information, please visit aiche.org/ccps/ipsw.

2025 Meetings, Destinations and Global Offices

NORTH AMERICA

- **CCPS Governing Board Meeting**
April 3, 2025
Dallas, TX (in person)
- **CCPS Spring Planning Board Meeting**
April 11, 2025
Dallas, TX (in person)
- **21st Global Congress on Process Safety**
April 6 – 9, 2025
Dallas, TX (in person)
- **Spring Technical Steering Committee Dinner**
April 9, 2025
Dallas, TX (in person)
- **Spring Technical Steering Committee Meeting**
April 10, 2025
Dallas, TX (in person)
- **DIERS Spring Meeting**
April 30 – May 2, 2025
Virtual
- **CCPS Canada Regional Meeting**
September 4, 2025
Calgary, Canada (in person)
- **DIERS Fall Meeting**
October 27 – 28, 2025
Houston, TX (in person)
- **CCPS Fall TSC Meeting**
November 5 – 6, 2025
Houston, TX (in person)
- **Fall Planning Board Meeting**
November 4, 2025
Houston, TX (in person)

EUROPE

- **2025 CCPS Europe Regional Meeting**
March 27, 2025
Virtual
- **2025 Global Conference on Process Safety and Big Data**
November 11 - 12, 2025
Frankfurt, Germany (in person)
- **2025 CCPS Europe Regional Meeting**
November 13, 2025
Frankfurt, Germany (in person)

LATIN AMERICA

- **2025 CCPS Latin America Regional Meeting**
May 7 – 9, 2025
Timoteo, MG, Brazil (in person)
- **2025 CCPS Latin America Regional Meeting**
October 15 - 17, 2025
Santiago de Chile, Chile (in person)

CARIBBEAN

- **CCPS Trinidad & Tobago Regional Meeting**
October 9, 2025
Trinidad & Tobago (in person)



INDIA AND MIDDLE EAST

- **Gulf Contractor Safety Forum [CCPS & Nexus]**
May 20 – 22, 2025
Saudi Arabia (in person)
- **2025 Middle East Process Safety Conference**
October 2025
Saudi Arabia (in person)
- **India Regional Meeting**
October 2025
(in person)

AFRICA

- **CCPS and DNV Present Process Safety in Africa**
July 2025
Virtual

ASIA PACIFIC

- **CCPS South East Asia Regional Meeting**
October 2025
(in person)



- **2nd International Process Safety Week**
December, 2025
Virtual

AUSTRALIA

- **CCPS Australia Regional Meeting**
June 2025
Virtual

GLOBAL TECHNICAL STEERING COMMITTEE WEB CONFERENCES

- **Virtual TSC Meeting** – February 12, 2025
- **Virtual TSC Meeting** – June 25, 2025
- **Virtual TSC Meeting** – September 24, 2025

All Web Conferences are from 10:00am-12:00pm ET

CCPS LOCATIONS

- New York, NY
- Houston, TX
- Frankfurt, Germany
- Mumbai, India

The above plans are preliminary and the events are subject to change.

Look for upcoming events on our website — [aiche.org/ccps](https://www.aisc.org/ccps)

Organizational Structure

Technical Steering Committee (TSC)

The Technical Steering Committee (TSC) is the main body of CCPS, with at least one representative from each CCPS member company. The key functions of the TSC are to assist the CCPS Executive Director & CEO in:

- Developing an overall multi-year program for CCPS
- Defining the priorities for project selection
- Selecting specific projects for CCPS

- Defining and reviewing the scope for these specific projects
- Suggesting membership for the project subcommittees
- Reviewing the status of project programs

The CCPS Technical Steering Committee meets in person two times a year and by web conference two to three times a year.

CCPS Governance

Activities are monitored and directed by the:

- Governing Board
- Planning Board
- Technical Steering Committee

Additionally, members of the Technical Steering Committee and other member company representatives serve on subcommittees that oversee CCPS projects.

The CCPS Governing Board members include the Executive Director & CEO of AIChE, the AIChE Board Treasurer, two AIChE Board Directors, the CCPS Executive Director & CEO, the CCPS Planning Board Chair as an ex-officio member, and select CCPS member representatives. The Chair of the Governing Board is the Executive Director & CEO of CCPS. The Governing

Board shall meet once a year. Special meetings of the Governing Board may be called at any time by any three Members of the Governing Board.

The Governing Board will be responsible for:

- Developing the strategy for CCPS
- Long-term planning
- Approving CCPS project ballots (as selected by the Technical Steering Committee)

The Planning Board is responsible for evaluating opportunities and gaps in CCPS programs relative to its strategy and generating potential initiatives to address them.



■ 2024 Fall Technical Steering Committee Meeting

2024 CCPS Governing Board Members

Khaled KAA Alalyani, SABIC
Victor Bohnert, AIChE
Garry Bryan, Bayer
Michelle Caveness, Eastman
Yong Sai Chung, PETRONAS
David Dixon, SDSMT
Dave Greganti, Dow
Timothy Guglielmo, ExxonMobil
Yatendra Lodha, Reliance Industries Ltd.
Shawn Marsh, Evonik
Scott Meikle, Ecolab

Anne O'Neal, Chevron
Senyo Opong, Dupont
Mark Patterson, BASF
Antonio Queiroz, Braskem
Mike Snyder, Dekra
Ian Tinegate, BP
Shakeel Kadri, AIChE [Chair]
Fred Henselwood, NOVA [ex-officio member]
Ana Davis, Syngenta [BOD Treasurer]
Dave Parrillo, Dow [Board Director]

2024 CCPS Planning Board Members

Fred Henselwood, NOVA (Chair)
Abdul Aldeeb, Siemens Energy
Todd Aukerman, LanXess Corporation
Jennifer Bitz, CCPS
Anil Gokhale, CCPS
Cheryl Grounds, Emeritus
Shakeel Kadri, CCPS
Kathy Kas, The Dow Chemical Company

Gregg Kiihne, BASF
Pete Lodal, Emeritus
Stephen Murphy, Syngenta
Masaki Nakagawa, Mitsubishi Chemical Corporation
Samantha Scruggs, BP Corp North America
Jatin Shah, BakerRisk
John Wincek, Dekra Process Safety
Elliot Wolf-Stokes, Honeywell



■ CCPS Planning Board

CCPS Staff



Shakeel Kadri
Executive Director &
CEO



Carmen H. Osorio Amado
Latin America Regional
Manager



Jennifer Bitz
Lead Process Safety Engineer /
Project Manager



Vishal Chavan
Asia Pacific
Project Manager



Jing Chen
Principal Engineering
Specialist



Umesh Dhake
Associate Director, CCPS
Asia, Oceania, and Africa
Regions



Anil Gokhale
Chief Operations Officer



Michele Horwitz
Associate Director,
CCPS Membership



Willi Meier
European General Manager



Christa Pennino
Engineering Specialist




Bruce Vaughn
Lead Process Safety Subject
Matter Expert

Updates and Impact

The *Doing a World of Good* campaign funds several priorities that are transforming the profession and the world around us, including the Undergraduate Process Safety Learning Initiative (UPSIL).

WHERE WE ARE TODAY

 **361,846**
SAFETY CERTIFICATES
AWARDED TO STUDENTS
WORLDWIDE

 **92,897**
STUDENTS
COMPLETED SACHE
MODULES WORLDWIDE

 **1,002**
FACULTY
MEMBERS
EDUCATED IN
PROCESS SAFETY

(Statistics as of January 2025)

FOUNDERS' CIRCLE

| Changemaker \$5M and up | Visionaries \$2M - \$4,999,999 |
|--|---|
|  Chemours™  DOW |  BASF  CABOT  Celanese  Chevron  Chevron Phillips CHEMICAL  EASTMAN  LYB LyondellBasell  SYENSQO |
| Benefactors \$750,000 - \$1,999,999 | Underwriter \$500,000 - \$749,999 |
|  ADVANSIX  BAYER  DUPONT  ExxonMobil  Lubrizol  PPG  سابك sabic |  American Chemistry Council  AIR PRODUCTS  EVONIK  MERCK |
| Patrons \$250,000 - \$499,999 | |
|  3M  ADM  ARKEMA  CF  covestro  Deloitte.  ECOLAB®  FLUOR®  GRACE  HEXION™  Honeywell  Linde  Pfizer  polarispartners  SASOL  Shepherd  synthomer  TotalEnergies  TRINSEO.  Univar Solutions | |

*Founders' Circle as of January 2025

To learn more, visit DoingaWorldofGood.org

Thank you to the AIChE Foundation which celebrates a decade of Doing a World of Good in 2025. They, along with many corporate investments brought to life the CCPS Faculty Workshop and Student Bootcamp programs in 2024. These programs are a gateway to students successfully learning about Process Safety and for professors to teach Process Safety at their institutions. These programs have been held both in the USA and internationally. To learn about advancing Safety & Ethical Process through the AIChE Foundation and support the professional development of students and professors, please contact Natalie Krauser at natak@aiCHE.org.

AIChE
The Global Home of Chemical Engineers

**DOING
A WORLD
OF GOOD**

2025 Global CCPS Members*

| | | | | | |
|--|---|--|--|---|--|
| 3M Company | Bunge | Engro Powergen | Jensen Hughes | Oxiquim | Southern Company Services, Inc. |
| Aarti Industries Limited | Burns and McDonnell | Eni S.p.A. | Johnson & Johnson | Oxiteno | Sphera |
| ABIQUIM - Associação Brasileira da Indústria Química | BYK USA | Equate Petrochemical Company | Jordan Engineers Association | Pan American Energy LLC | Starr Technical Risks Agency Inc. |
| ABS Group | Cabinda Oil Refinery | Ergon | Kaypear Engineering LLP | Parkland Refining (BC) Ltd. | State of California - PSM |
| Abu Dhabi National Oil Co. (ADNOC) | Cabot Corporation | Essentia | Kenvue | Petro Rabigh | Stepan Company |
| AC&S Inc. | Calumet Specialty Products Partners, L.P. | Esenttia S.A. | Ketjen Corporation | Petrobras | Superform Chemistries Limited |
| AcuTech Consulting Group | CAMBREX | Evonik Corporation | King Industries Inc. | Petrochemical Corporation of Singapore (Pte) Ltd. | Syensqo |
| ADAMA | Canadian Natural Resources, Ltd. | Exida | Koch Industries | Petronas | Syngene International, Ltd. |
| AdvanSix | Cargill | Exponent Inc | Kraton Corporation | Pfizer | Syngenta |
| aeSolutions | Celanese Chemicals | ExxonMobil Chemical Co. | Kuraray America Inc. | Phillips 66 | Taiyo Oil Co., Ltd. |
| Aether Industries Ltd. | Cenovus Energy | Fatima Fertilizer Company Ltd. | Kuwait Integrated Petroleum Industries Company (KIPIC) | Phoenix Park Gas Processors Ltd. | TATA Steel Limited |
| Air Liquide Americas | CF Industries Inc. | Fauji Fertilizer Bin Qasim Limited (FFBL) | Kuwait Oil Company | PI Industries Ltd. | TC Energy |
| Air Products and Chemicals Inc. | ChampionX | FFBL Power Company Ltd. | L&T Hydrocarbon Engineering Limited | Piramal Pharma Limited | Teijin Aramid B.V. |
| Albemarle Corporation | ChemTrade Logistics | Finolex Industries Ltd. | LanXess | Pluspetrol S.A. | Telluride Engineering |
| Alkermes | Cheniere | Fluor Corporation | LanzaTech | Point Lisas Nitrogen Limited | TEMA S.A |
| American Refining Group, Inc. | Chevron Corporation | FM | Linde plc | PPG | The Bahrain Petroleum Company (BAPCO) |
| Americas Styrenics | Chevron Phillips Chemical Company LP | FMC Corporation | LiquidPower Specialty Products | PrefChem Pengerang Refining Company Sdn. Bhd. | The Chemours Company |
| Amgen | China Chemical Safety Association | Formosa Plastics Corporation | Lotte Biologics USA | Primient | The Dow Chemical Company |
| Anglo American PLC (UK) | Cholamandalam MS Risk Services | Future Fuel Chemical Company | LyondellBasell | Process Improvement Institute, Inc. | The Lubrizol Corporation |
| Anupam Rasayan India Limited | CNOOC China Limited | Galaxy Surfactants Limited | MA'ADEN | Process Safety Core Consulting, LLC | The Mosaic Company |
| Aon Energy Risk Engineering | CNX Resources | Gateway Consulting Group, Inc. | Mallinckrodt | Procter & Gamble | The National Gas Company of Trinidad and Tobago Ltd. |
| Aperam Inox America Do Sul SA | Contra Costa Health Services | GeoPark | Map Ta Phut Tank Terminal | Pryxida Tech | Thermo Fisher Scientific |
| ArcelorMittal | Corden Pharma Colorado | Gerdau Aços Longos S.A | Massy Energy Engineered Solutions | PSRG Inc. | TotalEnergies |
| Archer Daniels Midland | Corteva Agriscience | Givaudan | Merck & Co., Inc. | Qatar Energy | TPC |
| Arkema Inc. | Cosmo Oil Co Ltd. | Globorise Technologies LLC | Merck KGaA Darmstadt, Germany | Qatar Fertiliser Company (QAFCO) | Trans-Northern Pipelines, Inc. |
| Arlanxeo | Covestro LLC | GOARC | Michelman, Inc. | QAPCO | Transpetro |
| ARPEL | CP Kelco | Grace | Mitsubishi Chemical Corporation | Reliance Industries Ltd. | Transportadora Asociada De Gas S.A. – TAG |
| Ash Stevens | Croda | Group14 Technologies | Moeve | REPSOL | Trinseo |
| Ashland | DASIS Corp | Gulf Petrochemical Industries Co. | Multi-Chem | REXTac | Tronox |
| Asian Paint Ltd. | Deccan Fine Chemicals (I) PVT. Ltd. | Helwan Fertilizers Co. | National Grid | Rio Tinto | TÜV Rheinland (Taiwan) Co., Ltd. |
| Astron Energy | Deepak Phenolics Ltd. | Hengyuan Refining Company Berhad | Navine Fluorine International Ltd. | SABIC | uc2c.ai Inc. |
| ATCO Next Energy | DEKRA | Heritage Petroleum Co. Ltd. | Nayara Energy | Sadara Chemical Co. | Ultrapar Participações S/A (Ultra Group) |
| avantor | DNV | Hocol SA | Neuland Laboratories Ltd. | Sahara International Petrochemical Co. (SipChem) | Uniphos Colombia Plant Ltd. |
| Axalta | DOOC SA | Honeywell | Newcrest Mining Limited | Saudi Aramco Oil Company | Unwin Company |
| Baker Hughes, Inc. | Dorf Ketal Chemicals (I) Pvt. Ltd | Hovione Farmaciencia S.A | Nghi Son Refinery and Petrochemical LLC | Scientific Protein Labs | US EPA / OEM |
| BakerRisk | dss+ | Hunt LNG | Noramco | Shell | Usiminas |
| BASF Corporation | DuPont | Huntsman | North West Redwater Partnership | Shaanxi Beiyuan Chemical Industry Group Co., Ltd. | Vale, Brazil |
| Bazan Group | Eastman Chemical Company | Idemitsu Kosan Co. Ltd. | NOVA Chemicals Corporation | Shenyang Research Institute of Chemical Industry | Vertellus Specialties Inc. |
| Bayer Corporation | Ecolab | IESCO GROUP | Nutrien | Sherwin-Williams Company | WACKER Americas |
| Beijing Strong Information System Co., Ltd. | Ecopetrol | Incitec Pivot Limited/ Dyno Nobel | Occidental | Showa Yokkaichi Seikiyu Co. Ltd. | Wanhua Chemical Group Co., Ltd. |
| Berkshire Hathaway Specialty Insurance | Ecovyst | India Glycols Limited | ODL (Oleoductos de los Llanos Orientales) | SI Group | Wesfarmers Chemicals Energy and Fertilisers |
| Best Value Chem Pvt Ltd. | Elanco Animal Health | Indorama Eleme Petrochemicals Limited | Oil Industry Safety Directorate | Siemens Energy Inc. | Western Midstream |
| Bharat Rasayan Limited (Bharat Group) | Eli Lilly and Company | Industry Risk Control, Ltd. | Oleoducto Central S.A. / Ocesa | SimTech (Beijing) Software Technologies Co., Ltd. | Woodside Energy |
| BP Corp North America | Emerald Energy PLC | Ingenero | Oleoducto de Colombia | SIS-Tech Solutions | YARA Trinidad |
| Braskem | Emerson Automation Solutions | Ingevity Corp. | Olin Corporation | Solano County: Department of Resource Management | Yashashvi Rasayan Pvt. Ltd. |
| Brinsa S.A. | Empirisys | Intel Corporation | Optima Chemical Group, LLC | Solvay USA Inc. | YPF – Yacimientos Petroliferos Fiscales |
| Bristol Myers Squibb | ENAP | International Flavors and Fragrances (IFF) | OO | | |
| Brunei-Methanol Company | ENEOS | Iomosaic Corporation | | | |
| Buckeye Partners, LP | Energy Transfer | IRESA Inc. | | | |
| Buckman North America | Engineers India Limited | | | | |
| | Engro Polymer and Chemical Ltd MS | | | | |

*Member list current as of February 2025



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