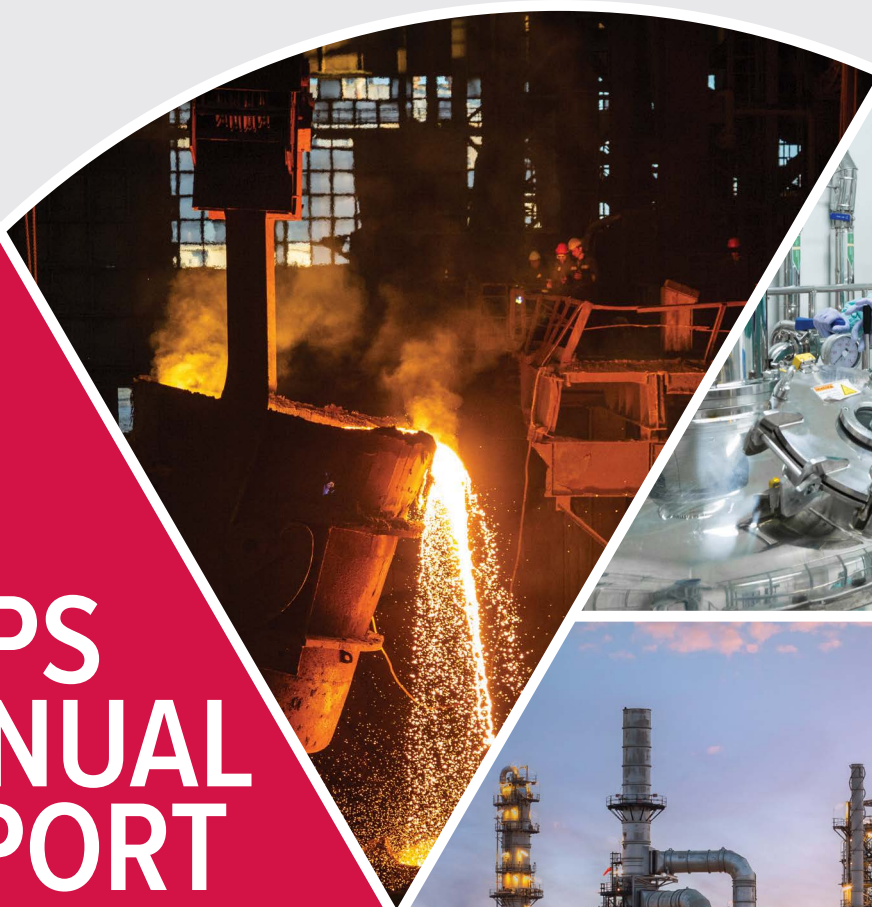


CCPS ANNUAL REPORT 2023



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

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 2024, 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.



MEMBERS IN
46
COUNTRIES



258
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
- MALAYSIA
- MONGOLIA
- MOROCCO
- PAKISTAN
- PERU
- PHILIPPINES
- PORTUGAL
- QATAR
- SAUDI ARABIA
- SINGAPORE
- SOUTH AFRICA
- SWITZERLAND
- THAILAND
- TRINIDAD AND TOBAGO
- UNITED KINGDOM
- USA
- VIETNAM

Message from the Executive Director & CEO



AT THE BEGINNING of 2023, CCPS set a goal to expand the “Responsible Collaborations” initiative to the next level. Throughout the year, CCPS forged stronger relationships with several other global and regional Process Safety organizations, and I am very happy to report that we are collaborating with other like organizations to

participate in the 1st International Process Safety Week December 2-6, 2024.

Overall, 2023 was an excellent one for CCPS. We made more progress on the “Early in the Process Safety Journey” programs; we further expanded our “Advanced Practitioners in Process Safety” initiatives, and grew CCPS’ global outreach. Highlights of our key goals and progress initiatives can be found below. My heartfelt thanks to our CCPS members, CCPS staff, and supporting AIChE teammates for their contributions to achieve these accomplishments.

Development of the SACHÉ Program, as part of the UPSLI initiative, is complete, and are now being deployed; over 300,000 SACHÉ certificates have been awarded since the start of this program in 2015. We also implemented three faculty workshops, including one held in Lemförde, Germany; and executed four Students Boot Camps. The Early Career Professional Learning Initiative [ECPLI] completed its first training module and we are seeking opportunities to pilot test it at potential locations. The 2nd ECP Training Module has been kicked off and will be completed in early 2024. The Process Safety Fundamentals Certificate program [CCPSf] continues to grow among the student and early career professional communities and we exceeded our 2023 goal of 100 CCPSf enrollments with 116 participants. There have been 278 CCPSf registrants since the program began in June 2021. The CCPSC® Credential program continues to grow globally, and now boasts 400 persons certified since the program’s inception.

I want to thank those members who have completed the Vision 20/20 self-assessment for their organizations. This is a very detailed assessment and we hope that many more companies will take this opportunity. We are currently in the process of completing the CCPS RBPS self-assessment tool and it will be available to the

membership in early 2024. Additionally, we are continuing to expand the CCPS body of knowledge; thank you to those who participated in these developments.

This year, CCPS completed several publications, including books, project monographs, and other focused documents, as well as four new editions of the Book of Beacons spanning 2019-2012. The Process Safety Incident Database (PSID) now includes over 870 incidents and users from over 125 companies.

In 2023, we continued to expand our regional and global networking engagement, both in-person and virtual, as appropriate by conducting meetings in the USA, Canada, China, Australia, Europe, Africa, South America, Trinidad & Tobago, Spain, Germany, Japan, South East Asia, and India.

Our global membership continues to grow, with a large portion of new members coming from outside the USA. We held three major conferences – the 19th Global Congress on Process Safety, the 2023 Global Conference on Process Safety and Big Data, and the 7th Global Summit on Process Safety in Himeji, Japan.

I want to take this opportunity to thank the entire Technical Steering Committee, the CCPS Planning Board, and the CCPS Governing Board for providing their strong support and guidance to CCPS. We recently completed a virtual Governing Board meeting and we received excellent feedback on how we can help to improve their interactions with the Technical Steering Committee and Planning Board, and their overall contributions to CCPS.

IN CLOSING, I want to recognize our Global Technical Director, Louisa Nara, for her 13 years of outstanding contributions to both the CCPS and AIChE, as well as the global Process Safety community at large. She retired from her current role in early December 2023. At her going away party in Houston in November 2023, one of the members very rightly summarized – Louisa was the heart of CCPS. Thank you, Louisa!

Personally, it continues to be my greatest honor and privilege to serve as the CCPS Executive Director and CEO. I wish you all a safe and healthy 2024.

A handwritten signature in black ink, reading "Shakeel H. Kadri".

Shakeel Kadri
CCPS Executive Director & CEO

Highlights from the Year

Events



13

**COUNTRIES IN PERSON
AND VIRTUALLY**



3,000+

**PROCESS SAFETY GLOBAL
PROFESSIONALS ENGAGED**

→ **4 Student Boot Camps**

→ **3 Faculty Workshops**

→ **3 Conferences**

- 19th Global Congress on Process Safety
- 2023 Global Conference on Process Safety and Big Data
- 7th Global Summit on Process Safety

→ **Regional Meetings, Panel Discussions, and Webinars**



1 Louisa A. Nara's CCPS Emeritus Recognition at the Fall Technical Steering Committee Meeting **2** 2023 Global Conference on Process Safety and Big Data **3** CCPS India Regional Meeting in Vadodara, Gujarat **4** Celanese Sponsored CCPS Student Process Safety Workshop **5** Fred Henselwood from NOVA Chemicals' CCPS Fellows Recognition at the Fall Technical Steering Committee Meeting

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/community/sites/committees/young-professionals

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



PUBLICATIONS: aiche.org/ccps/publications

MONOGRAPHS: aiche.org/ccps/publications/process-safety-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 **Dr. Anil Gokhale** at anilg@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' two LinkedIn pages:



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

Collaborate with your Process Safety peers through CCPS' LinkedIn forum. Share ideas, opinions, and recommendations with colleagues from around the world.

linkedin.com/groups/105603

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/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/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.

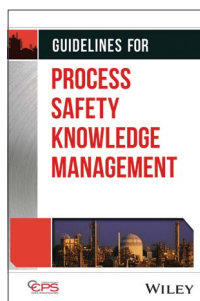
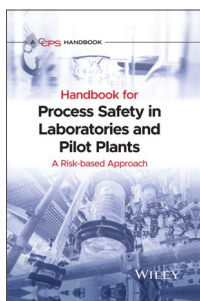


Review current listings at:
aiche.org/ccps/community/members/directory

Resources to Explore

New Books and Monographs

- *Handbook for Process Safety in Laboratories and Pilot Plants: A Risk-Based Approach*
- *Guidelines for Process Safety Knowledge Management*
- 2 online editions of the *Book of Beacons*
- Several new Project 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' translated books and monographs.

CCPS Book Videos

In 2023, CCPS released 3 short videos for the following 2022 books, featuring the main contributors from each publication.

- *Human Factors Handbook for Process Plant Operations: Improving Process Safety and System Performance*
- *Managing Cybersecurity in the Process Industries: A Risk-Based Approach*
- *Process Safety for Engineers: An Introduction*

Process Safety Beacon

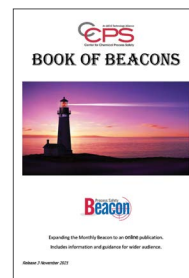
Produced by CCPS, the *Process Safety Beacon* (aiche.org/ccps/process-safety-beacon) is a resource aimed at delivering Process Safety messages to plant operators and other manufacturing personnel. The monthly one-pager, often used as a training tool, covers a breadth of Process Safety topics. Each issue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



a real-life accident, 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



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.

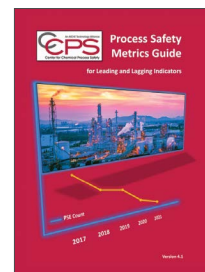


Process Safety Incident Evaluation (PSIE) Tool

The app for the updated Process Safety Incident Evaluation (PSIE) Tool was launched for iPhones and Android devices in November 2023. It can be downloaded from the Apple and the Google Play app stores. The updates include changes to the threshold quantities and calculations to match the CCPS Process Safety Metrics Guide for Leading and Lagging Indicators, Version 4.1, and API RP 754, Version 3.

Process Safety Metrics Guide for Leading and Lagging Indicators

This guide is for those that are managing metrics and evaluating trends within their company's Process Safety systems, which can continuously improve their Process Safety programs and risks. Evaluating and responding to trends using company-specific Process Safety metrics will help reduce Process Safety risks as well. A few translations of this guide are also available 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/publications/safe-work-practices

RAST and CHEF

The **Risk Analysis Screening Tool (RAST)** is an Excel-based software that is used to help validate hazard scenarios and evaluate process risks. RAST is an excellent tool for assisting Process Hazards Analysis (PHA) teams, managing the risks associated with changes to a process, or evaluating and potentially reducing the risks of a process during its design. Version 4.2 of the updated RAST software was released in February 2023, and the first edition of the RAST Technical Administrator's Manual was issued in October 2023.

Chemical Hazards Engineering Fundamentals (CHEF) is a Calculation Aid for those interested in understanding the engineering and mathematical framework of RAST. CHEF provides the background equations that are used in RAST. The Calculation Aid was updated and reissued in June 2023.

Tools, user manuals, and case studies are on the CCPS website: aiche.org/ccps/resources/tools/risk-analysis-screening-tool-rast-and-chemical-hazard-engineering-fundamentals-chef

Risk Based Process Safety (RBPS) Resources

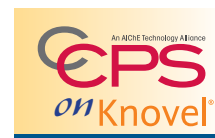
The CCPS RBPS approach has been used to help improve Process Safety performance for more than a decade. It is based on four pillars: Commitment to Process Safety, Understand Hazard and Risk, Manage Risks, and Learn from Experience. In addition to the CCPS Guidelines (aiche.org/resources/publications/books/guidelines-risk-based-process-safety), 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 offers easy navigation and search capabilities within the CCPS publications.



Chemical Reactivity Worksheet

The Chemical Reactivity Worksheet (CRW) is useful for determining the chemical reactivity of thousands of common hazardous chemicals, absorbent compatibility, and materials of construction suitability in chemical processes. The CRW predicts possible hazards when mixing chemicals. It is a powerful tool for companies handling and storing hazardous chemicals, including emergency responders and planners. This resource is available and free to anyone.

aiche.org/ccps/resources/chemical-reactivity-worksheet

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 so now 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 boot camps in 2023.

For more information: aiche.org/ccps/education/undergraduate-process-safety-learning-initiative#studentbootcamps

→ **AdvanSix Sponsored CCPS Student Boot Camp**
September 8-9 | Virginia Commonwealth University

→ **Celanese Sponsored CCPS Student Process Safety Workshop**
September 22-23 | Prairie View A&M University

→ **Chemours Sponsored CCPS Student Boot Camp**
September 29-30 | University of Louisville

→ **Chevron Sponsored CCPS Student Boot Camp**
November 17-18 | California State Polytechnic University, Pomona



■ AdvanSix Sponsored CCPS Student Boot Camp



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.

Three faculty workshops were conducted in 2023, including an event in Lemförde, Germany.

For more information: aiche.org/ccps/resources/conferences/events/faculty-workshops

→ **Dow Sponsored CCPS Faculty Workshop**
June 12-15

→ **BASF Sponsored CCPS Faculty Workshop**
July 10-13

→ **Chevron Sponsored CCPS Faculty Workshop**
(Virtual Event)
November 14-15



■ 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).

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

ADVANSIX

ARKEMA



ECOLAB

ExxonMobil

FMC

An Agricultural Sciences Company

Lubrizol

lyondellbasell
Advancing Possible



NOVA Chemicals



Reliance
Industries Limited



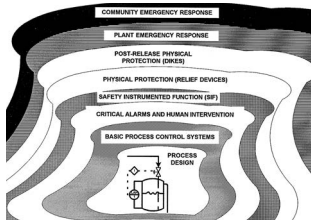
TRONOX

Need to learn at your own pace?

AIChE® Academy has you covered with a variety of eLearning courses to choose from.



ELS105
Process Safety
Management Overview



ELA109
Layer of Protection
Analysis (LOPA)



ELA 120
20 Elements of Risk
Based Process Safety

Members and non-members use Academy's materials to improve their professional skills, train teams, and brush up on trending topics. Many Academy products offer continuing education units (CEUs) and professional development hours (PDHs).

AIChE
ACADEMY
aiche.org/ili/academy



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/ccpsc



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 SACHE 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/ccpsf

*The CCPSC® is not a training program

Global Events

NORTH AMERICA

19th Global Congress on Process Safety

The 2023 AIChE Spring Meeting and 19th Global Congress on Process Safety (GCPS) was held in Houston, March 12 – 16, 2023 and featured 49 Technical Sessions, 145 technical papers and 70 poster presentations. CCPS also hosted a 2-day RAST/CHEF workshop the weekend before the conference and a Technical Steering Committee Dinner and Meeting with 140 people in attendance. The Global Congress incorporated the programming of the 57th Annual Loss Prevention Symposium, the 38th CCPS International Conference, the 25th Process Plant Safety Symposium, the 12th Process Safety Management Mentoring Forum, and the International Perspectives on Process Safety from around the World.

**SPRING23
+19TH GCPS**
A Joint AIChE and CCPS Meeting

2023 Risk Analysis Screening Tool (RAST) Training

CCPS led a 2-day, in-person Risk Analysis Screening Tool (RAST) Workshop in March before the 19th GCPS. The workshop showed users how the RAST software works, what data is needed, and what simplifying engineering assumptions have been made. The participants learned how RAST guides Process Hazards Analysis (PHA) team

members through a Hazard Identification and Risk Analysis (HIRA), including how RAST can be used to address protection layer reliability through a Layer of Protection Analysis (LOPA).

8th Annual Regional Calgary Meeting

Co-hosted by Keyera, this meeting was the largest Calgary regional gathering to date at 113 people. The presentations and discussions covered a combination of advanced research topics, along with industrial applications and case studies. Students were invited from local universities to share their latest and most impressive research in front of their mentors and peers. The afternoon theme focused on applications of artificial intelligence for enhancing Process Safety.

2023 CCPS Incident Investigation Courses

CCPS and AIChE Academy taught the first two editions of the Incident Investigation Course at a member company site, Ergon, Inc., in Newell, WV.

2023 Fall TSC Meeting

The Fall Technical Steering Committee Meeting was held November 8-9, 2023 in Houston, TX. Over 70 attendees participated during the in-person meeting. Several dozen others joined online. The member sharing and discussions were incredibly valuable. Throughout the 2-day meeting, topics such as 'The Knowledge Retention Challenge',



1 19th Global Congress on Process Safety Planning Committee **2** Jerry Forest's CCPS Fellows Recognition at the Fall Technical Steering Committee Meeting **3** 8th CCPS Canadian Regional Meeting **4** CCPS India Regional Meeting in Mumbai, India

GLOBAL EVENTS

'Major Accident Hazards Awareness of CO₂,' and 'Practical Use Cases for Process Safety Digitalization' took place. In addition to a workshop and an open forum, members learned about upcoming projects, CCPS updates, and an announcement of two new CCPS Fellows, Fred Henselwood, NOVA Chemicals and Jerry Forest, CCPSC. Louisa A. Nara, CCPSC was also announced as a new CCPS Emeritus Member.

CCPS Conference Presentations

In May 2023, CCPS was invited to present two in-person presentations at the Spring Purdue Process Safety and Assurance Center (P2SAC) Conference. The first presentation described a chlorine release incident, with the actual event compared to the results estimated with the Risk Analysis Screening Tool (RAST). The second presentation introduced content from *CCPS' Handbook for Process Safety in Laboratories and Pilot Plants: A Risk-Based Approach*, which was published in September 2023. In December, CCPS presented another incident case study at the Winter (P2SAC) Conference. The evaluation discussed a significant near-miss incident and how the investigation team leader was placed in a difficult decision-making position due to the business leader's Process Safety Culture.

CCPS was a guest speaker at the American Chemistry Council's (ACC) Regional Process Safety Forum and Network Meeting held in October. The first of three sessions led by CCPS was an overview presentation and panel discussion on Inherently Safer Design (ISD). During the second day, CCPS provided an overview of its Process Safety resources, followed by an incident investigation presentation and a case study workshop.

CARIBBEAN

CCPS Virtual Trinidad & Tobago Meeting

In 2023, the first meeting between CCPS and the Caribbean Island Nation was held in Trinidad & Tobago. The meeting was held virtually on October 4, and was co-hosted by Heritage Petroleum Company and moderated by Wayne Mohan, Heritage's Process Safety Discipline Manager. The meeting brought together member companies such as Nutrien, Woodside Energy, BP, and Point Lisas Nitrogen Limited, as well as non-member companies Proman and Atlantic LNG. Important incident topics were shared such as Managing End-of Life Asset Risks, Pipework Failure During Leak Test, Failure of FRP Piping at the Sea Cooling Water Recirculating Pump Discharge, Angostura Loss of Primary Containment due to

Stainless Steel 304 Bolts, amongst others. 2024 will see its first in-person meeting to allow for more networking and information sharing.

ASIA / OCEANIA / AFRICA

India Regional Meetings

Two CCPS India Regional Meetings were held in 2023. The first meeting was held on May 14 in Mumbai and was sponsored by Chola Mandalam Risk Services Ltd. The second event took place on December 2, and was sponsored by Aarti Industries Ltd. and UPL Ltd. The theme of these meetings was 'Sharing of Best Practices and Lessons Learned from Recent Incidents.' Member companies shared their Process Safety incidents case studies and lessons learned. Over 300 industry representatives attended these events.

South East Asia Virtual Regional Meeting

The South East Asia Virtual Regional Meeting was held on October 4, 2023 and was co-hosted by Process Safety & Reliability Group (PSRG). The theme of this event was 'Sharing of Best Practices and Lessons Learned from Recent Incidents.' 150 Industry representatives from industries across South East Asia attended the meeting.

4th CCPS Virtual Africa Meeting

The meeting was held on October 18, 2023 and was co-hosted by DNV. Process Safety Initiatives in Nigeria (PSIN) was an Institutional Partner for this event. This meeting brought together leading domain experts, companies, and authorities to share knowledge and support the advancement of Process Safety management practices in the region. More than 150 industry representatives across the Africa region attended this event.

7th Global Summit on Process Safety (GSPS)

The 2-day event took place on November 28-29, 2023 in Himeji, Japan. The summit showcased 56 technical presentations, two keynotes, and two invited lectures. The highlights of the conference were the leadership forum, the leadership panel, and the technical panel discussion. The meeting was co-hosted by the Japan Society of Safety Engineers (JSSE) and sponsored by leading companies across the globe. The summit was attended by over 300 Process Safety professionals from around the world.



CCPS China TSC Meetings

CCPS continued to host virtual China Regional Technical Steering Committee Meetings to support our members in the region. Case studies, incident reviews, CCPS tools, and publication overviews continue to be the focus of the virtual meetings.

LATIN AMERICA

Latin America Regional Meetings

In 2023, CCPS conducted three Latin America Regional Meetings, which provided Process Safety colleagues the opportunity to network, learn from each other, and continue building stronger professional relationships. The first meeting was held during the 19th GCPS, where regional leaders met with CCPS staff and Process Safety corporate colleagues to learn about CCPS projects and plans for the future.

The second event was sponsored by Pluspetrol, and took place in Lima, Peru. The last regional meeting took place in Cartagena, Colombia and it was sponsored by Ecopetrol, who invited the participants for a half-day visit at their refinery (Reficar). Both meetings were followed by networking dinner events, and one of the dinners was sponsored by IESCO GROUP and SACS GROUP.

Overall, 100 special guests and attendees from CCPS member companies, including YPF, Vale, Pan American Energy, Geopark, Hocol, Hunt LNG, Ocesa, Cargill, Emerald Energy, PSRG, Repsol, Pluspetrol, and Ecopetrol enjoyed the special event.

CCPS Process Safety Knowledge Sharing, Forums, and Other Events

- CCPS conducted three virtual Process Safety Knowledge Sharing meetings in Portuguese. There were more than 90 attendees at each of these events, where attendees from companies such as Vale, FGV/ CESGE, Usiminas, Cargill, CVALE, LDC, and Transpetro volunteered to share their Process Safety journeys and lessons learned.
- Since 2020, CCPS and UTN FRN (Universidad Tecnológica Nacional Facultad Regional de Neuquen) held fifteen cycles of virtual conferences and debates on Process Safety. In 2023, the companies facilitated four meetings. There were 250-300 registered participants in each of these meetings from different industries, covering oil & gas, chemical, alternative energy, mining, steel, agrochemicals, cosmetics, food, and pharmaceutical industries, amongst others.

- Expositram, considered one of the largest mining exhibitions in Latin America, invited CCPS Latin America Regional Manager, Carmen Osorio, to participate at a special panel dedicated to Process Safety in the Mining Industry.

EUROPE

CCPS Europe Regional Meetings

CCPS co-organized a regional meeting with Dow, which discussed Process Safety with a focus on Artificial Intelligence and Digital Transformation. Case Studies were presented from Dow and Repsol, which showed the state-of-the-digitalization of Process Safety in Europe. The second regional meeting was held at Repsol's site in Madrid and offered numerous case studies and technology presentations from the oil & gas industry.

2023 Global Conference on Process Safety and Big Data

The 2023 Global Conference on Process Safety and Big Data held in Frankfurt, Germany, October 24-25, featured presenters and attendees from around the world. The conference program highlighted three keynote presentations, three panel discussions, and more than twenty technical presentations focusing on digitalization and tools to improve Process Safety.

CCPS - Cefic Virtual Workshop

On December 5, 2023, CCPS organized a workshop with Cefic, the European Chemical Industry Council. The event focused on the new EU regulations concerning Process Safety and Cybersecurity. CCPS is planning to hold additional joint webinars with Cefic in 2024.



■ CCPS Latin America Regional Meeting in Lima, Peru



■ 2023 CCPS Europe Regional Meeting

2024 Meetings, Destinations and Global Offices

NORTH AMERICA

- **CCPS Governing Board Meeting**
March 21, 2024
New Orleans, LA (in person)
- **CCPS Spring Planning Board Meeting**
March 24, 2024
New Orleans, LA (in person)
- **20th Global Congress on Process Safety**
March 24-28, 2024
New Orleans, LA (in person)
- **Spring Technical Steering Committee Dinner**
March 27, 2024
New Orleans, LA (in person)
- **Spring Technical Steering Committee Meeting**
March 28, 2024
New Orleans, LA (in person)
- **DIERS Spring Meeting**
April 24-26, 2024
Virtual
- **CCPS 9th Canada Regional Meeting**
September 5, 2024
Calgary (in person)
- **DIERS Fall Meeting**
October-November 2024
Houston, TX (in person)
- **CCPS Fall TSC Meeting**
Early November 2024 - 1.5 day meeting
Houston, TX (in person)
- **Fall Planning Board Meeting**
Early November 2024
Houston, TX (in person)

CARIBBEAN

- **CCPS Trinidad & Tobago Regional Meeting**
May 2024
Trinidad & Tobago (in person)

EUROPE

- **CCPS Europe Regional Meeting**
March 15, 2024
Virtual
- **Process Safety Session atACHEMA**
Jointly organized with the EPSC
June 14, 2024
Frankfurt, Germany (in person)
- **CCPS Europe Regional Meeting**
September 19, 2024
Paris, France (in person)
- **Global Conference on Process Safety and Big Data**
October 2024
Frankfurt am Main, Germany (in person)

LATIN AMERICA

- **CCPS Latin America Regional Meeting**
February 22, 2024
Virtual
- **CCPS Latin America Regional Meeting**
April 2024
Argentina (in person)
- **CCPS Latin America Regional Meeting**
June 2024
Brazil (in person)
- **10th Latin American Conference on Process Safety**
September 18-20, 2024
Colombia (in person)
- **CCPS Latin America Regional Meeting**
November 21, 2024
Virtual



AFRICA

- **CCPS and DNV Present Process Safety in Africa**
August 2024
Virtual

ASIA PACIFIC

- **CCPS Process Safety Symposium**
October 2024
Vietnam (in person)
- **CCPS South East Asia Regional Meeting**
October 9, 2024
Singapore (in person)

AUSTRALIA

- **CCPS Australia Regional Meeting**
April 2024
Virtual

INDIA AND MIDDLE EAST

- **CCPS India Regional Meeting**
May 10, 2024
Mumbai (in person)
- **8th Global Summit on Process Safety**
November 27-28, 2024
Mumbai (in person)
- **Middle East Process Safety Conference**
Date TBD
Saudi Arabia (in person)



- **1st International Process Safety Week**
December 2-6, 2024
Virtual Meeting

GLOBAL TECHNICAL STEERING COMMITTEE WEB CONFERENCES

- **Virtual TSC Meeting** – June 26, 2024
- **Virtual TSC Meeting** – September 25, 2024

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

CCPS LOCATIONS

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

Please note that any meeting that is designated with a face-to-face location in 2024 may be changed to Virtual if deemed unsafe to meet due to COVID-19. The above plans are preliminary and the events are subject to change.

Look for upcoming events on our website — aiche.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 face-to-face 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.



■ 2023 Fall Technical Steering Committee Meeting

CCPS Governing Board

Khaled KAA Alalyani, SABIC
Garry Bryan, Bayer
Michelle Caveness, Eastman
Yong Sai Chung, PETRONAS
Dave Greganti, Dow
Timothy Guglielmello, ExxonMobil
Yatendra Lodha, Reliance Industries Ltd.
Shawn Marsh, Evonik
Scott Meikle, Ecolab
Senyo Opong, Dupont
Mark Patterson, BASF

Antonio Queiroz, Braskem
Mike Snyder, Dekra
Ian Tinegate, BP
Darlene Schuster, AIChE
Shakeel Kadri, AIChE [Chair]
Fred Henselwood, NOVA [ex-officio member]
Ana Davis, Syngenta [BOD Treasurer]
David Dixon, South Dakota School of Mines and Technology [Board Director]
Anne O'Neal, Chevron [Board Director]
Dave Parrillo, Dow [Board Director]

CCPS Planning Board

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

Pete Lodal, Emeritus
Stephen Murphy, Syngenta
Louisa Nara, CCPS
Samantha Scruggs, BP Corp North America
Jatin Shah, BakerRisk
John Wincek, Dekra Process Safety
Elliot Wolf-Stokes, The Chemours Company



■ 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
Membership Manager



Willi Meier
European General Manager



Louisa Nara
Global Technical Director



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



306,227

SAFETY CERTIFICATES
AWARDED TO STUDENTS
WORLDWIDE



80,204

STUDENTS
COMPLETED SACHE
MODULES WORLDWIDE



912

**FACULTY
MEMBERS**
EDUCATED IN
PROCESS SAFETY

KEEP IT GOING!

\$51

MILLION
TOTAL FUNDS
RAISED

FOUNDERS' CIRCLE

Changemaker

\$5M and up



Visionaries

\$2M - \$4,999,999



EASTMAN

lyondellbasell
Advancing Possible

Benefactors

\$750,000 - \$1,999,999

ADVANSIX



CABOT

Celanese
The chemistry inside innovation™



DUPONT

ExxonMobil

سابك
sabik

SOLVAY

Underwriter

\$500,000 - \$749,999



Patrons

\$250,000 - \$499,999

3M



AIR PRODUCTS



ARKEMA

covestro

ECOLAB

EVONIK
Leading Beyond Chemistry

GRACE

Lubrizol

MERCK

Pfizer

polarispartners

SASOL



synthomer



TRINSEO

Univar Solutions

To learn more, visit DoingaWorldofGood.org

AIChE
The Global Home of Chemical Engineers

**DOING
A WORLD
OF GOOD**

*As of November 2023

2024 Global CCPS Members*

3M Company	Cabot Corporation	Fluor Corporation	Mitsubishi Chemical Corporation	Shaanxi Beiyuan Chemical Industry Group Co., Ltd.
Aarti Industries Limited	Calumet Specialty Products Partners, L.P.	FM Global	Multi-Chem	Sherwin-Williams Company
ABQUIM - Associação Brasileira da Indústria Química	CAMBREX	FMC Corporation	National Grid	Showa Yokkaichi Seikiyu Co. Ltd.
ABS Group	Canadian Natural Resources, Ltd.	Formosa Plastics Corporation	Navine Fluorine International Ltd.	SI Group
Abu Dhabi National Oil Co. (ADNOC)	Cargill	Future Fuel Chemical Company	Newcrest Mining Limited	Siemens Energy Inc.
AC&S Inc.	Celanese Chemicals	Galaxy Surfactants Limited	Nghi Son Refinery and Petrochemical LLC	SimTech (Beijing) Software Technologies Co., Ltd.
AcuTech Consulting Group	Cenovus Energy	Gateway Consulting Group, Inc.	North West Redwater Partnership	SIS-Tech Solutions
ADAMA	CF Industries Inc.	GeoPark	NOVA Chemicals Corporation	Solano County: Department of Resource Management
AdvanSix	ChampionX	Gerdau Aços Longos S.A	Nuclear Fuel Services	Solaris Chemtech Industries Limited
Advisian Malaysia Sdn. Bhd.	Cheniere	GOARC	Nutrien	Solvay USA Inc.
aeSolutions	Chevron Corporation	Gopher Resource	Occidental	Southern Company Services, Inc.
Air Liquide Americas	Chevron Phillips Chemical Company LP	Group14 Technologies	ODL (Oleoductos de los Llanos Orientales)	Sphera
Air Products and Chemicals Inc.	China Chemical Safety Association	Gulf Petrochemical Industries Co.	Oil Industry Safety Directorate	Starr Technical Risks Agency Inc.
Albemarle Corporation	Cholamandalam MS Risk Services	Helwan Fertilizers Co.	Oleducto Central S.A. / Ocesa	State of California - PSM
Alkermes	CNOOC China Limited	Hengyuan Refining Company Berhad	Olin Corporation	Stegan Company
American Refining Group, Inc.	Contra Costa Health Services	Heritage Petroleum Co. Ltd.	Optima Chemical Group, LLC	Syngene International, Ltd.
Americas Styrenics	Coogee Chemicals Pty Ltd.	HMC Polymers	OQ	Syngenta
Amgen	Corden Pharma Colorado	Hocol SA	Owens Corning	Taiyo Oil Co., Ltd.
Anupam Rasayan India Limited	Corteva Agriscience	Honeywell	Oxiquim	TATA Steel Limited
Aon Energy Risk Engineering	Cosmo Oil Co Ltd.	Hovione Farmaciencia S.A	Oxiten	TC Energy
Aperam Inox America Do Sul SA	Covestro LLC	Hunt LNG	Pan American Energy LLC	Teijin Aramid B.V.
Archer Daniels Midland	CP Kelco	Huntsman	Parkland Refining (BC) Ltd.	Telluride Engineering
Arkema Inc.	Croda	Idemitsu Kosan Co. Ltd.	Petro Rabigh	The Bahrain Petroleum Company (BAPCO)
Arlanxco	DASIS Corp	IESCO GROUP	Petrobras	The Chemours Company
ARPEL	Deccan Fine Chemicals (I) PVT. Ltd.	Incitec Pivot Limited/ Dyno Nobel	Petrochemical Corporation of Singapore (Pte) Ltd.	The Dow Chemical Company
ARPV Asesores en Riesgos de Procesos Cia Ltda.	DEKRA	India Glycols Limited	Petronas	The Lubrizol Corporation
Ascend Performance Materials	Dexco Polymers LP	Industry Risk Control, Ltd.	Phillips 66	The Mosaic Company
Ash Stevens	DNV	Ingenero	Phoenix Park Gas Processors Ltd.	The National Gas Company of Trinidad and Tobago Ltd.
Ashland	DOOC SA	Ingevity Corp.	Pluspetrol S.A.	Thermo Fisher Scientific
Asian Paint Ltd.	Dorf Ketal Chemicals (I Pvt. Ltd	Intel Corporation	Point Lisas Nitrogen Limited	TotalEnergies
Astron Energy	DuPont	Iomosaic Corporation	PPG	TPC
ATCO Energy Solutions Limited	Eastman Chemical Company	IRESA Inc.	PrefChem Pengerang Refining Company Sdn. Bhd.	Trans-Northern Pipelines, Inc.
avantior	Ecolab	Jensen Hughes	Process Improvement Institute, Inc.	Transpetro
Axalta	Ecopetrol	Johnson & Johnson	Process Safety Core Consulting, LLC	Trinseo
Baker Hughes, Inc.	Ecovyst	Jordan Engineers Association	Procter & Gamble	Tronox
BakerRisk	Elanco Animal Health	Kaypear Engineering LLP	Pryxida Tech	TÜV Rheinland (Taiwan) Co., Ltd.
BASF Corporation	Eli Lilly and Company	King Industries Inc.	PSRG Inc.	Ultrapar Participações S/A (Ultra Group)
Bazan Group	Emerald Energy PLC	Koch Industries	Qatar Energy	Uniphos Colombia Plant Ltd.
Bayer Corporation	Emerson Automation Solutions	Kraton Corporation	Reliance Industries Ltd.	Unwin Company
Beijing Strong Information System Co., Ltd.	Empirisys	Kuraray America Inc.	REPSOL	UPL Limited India
Berkshire Hathaway Specialty Insurance	ENEOS	Kuwait Integrated Petroleum Industries Company (KIPIC)	Rio Tinto	US EPA / OEM
Best Value Chem Pvt Ltd.	Engineers India Limited	Kuwait Oil Company	SABIC	Usiminas
Bharat Rasayan Limited (Bharat Group)	Engro Polymer and Chemical Ltd MS	L&T Hydrocarbon Engineering Limited	Sadara Chemical Co.	Vertellus Specialties Inc.
BP Corp North America	Engro Powergen	LanXess	Sahara International Petrochemical Co. (SipChem)	WACKER Americas
Braskem	Eni S.p.A.	Linde plc	Satyesh Brinechem Pvt. Ltd.	Wanhua Chemical Group Co., Ltd.
Bristol Myers Squibb	Equate Petrochemical Company	LiquidPower Specialty Products	Saudi Aramco Oil Company	Wesfarmers Chemicals Energy and Fertilisers
Brunei-Methanol Company	Ergon	LyondellBasell	Saudi Aramco Total Refining & Petrochemical (SATORP)	Western Midstream
Buckeye Partners, LP	Esentia S.A.	Mallinckrodt	Scientific Protein Labs	Woodside Energy
Buckman North America	Evonik Corporation	Map Ta Phut Tank Terminal	Shell	W. R. Grace & Co.
Burns and McDonnell	Exida	Massy Energy Engineered Solutions		Yashashvi Rasayan Pvt. Ltd.
BYK USA	Exponent Inc	Merck & Co., Inc.		YPF - Yacimientos Petrolíferos Fiscales
Cabinda Oil Refinery	ExxonMobil Chemical Co.	Merck KGaA Darmstadt, Germany		
	Fatima Fertilizer Company Ltd.	Michelman, Inc.		
	Finolex Industries Ltd.	Mistras Group, Inc.		

*Member list current as of January 2024