CORROSION, CRACKS AND CATASTROPHES

3 CPD POINTS

SAIChE 421



Presented By: John Broli of Engineers for Africa (E4A)

Course Outline

The main objective is to provide engineers with the fundamentals of design and management of the three greatest risk subjects of the Course and to thereby limit failure and avoid the excessive costs and downtime stemming from such failure.
Economic benefits are also achieved through optimisation of the design and a deeper understanding of how design approaches and parameters can be leveraged to greater savings and profits, whilst not compromising any safety factors or EHS considerations.

This extensive new Course covers an in-depth review of the three greatest risks in Engineering Design at a level beneficial to all engineering disciplines. The range of topics covered is immense and the course provides attendees with many basic principles, design guidelines and checklists.
This high-grade course enables engineers and scientists involved in design, projects and plant operations to assess the design requirements for addressing corrosion, crack avoidance and hazards at a first level of professional design.

This Course focusses firstly on corrosion and sets out many aspects of the various corrosion types and mechanisms. It compares the way in which materials are selected for service in various corrosive environments.
The second main section involves training attendees to apply the E4A design algorithm and analytical methods. We discuss in detail the variables stemming from these analyses and how these should be considered in all engineering designs. We also ‘drill down’ on the critical variables of corrosion types. The use of the variables listings and E4A selected corrosion charts, paves the way to the first level of choice of materials for industry applications.

The Course then sets out various crack types and mechanisms . It shows how materials are selected while limiting the crack prone services and thus the next level of material selection for industry. The Course especially addresses those aspects of risk that initiate cracks and crack propagation, as well as important critical variables such as stress corrosion cracking (SCC) and embrittlement, notably hydrogen embrittlement.

The third main section of the Course addresses those areas of risk that are particularly hazardous in most industries with the main emphasis on fire and explosion hazards avoidance by design. The topics addressed are centred on the identification of critical variables in the total system analyses.

The final summary is prepared as a series of design stages or steps in the E4A master chart manner with control checklists and the appropriate design approaches. We include in the Course interesting and unusual case studies and factual examples of materials selection and application.

Who should attend?

All engineers, technologists and technicians who want to fully understand the modern design and operational approaches to limiting and avoiding Corrosion, Cracks and Catastrophes including Fires and Explosion Risks. All Course participants will improve their design skills across many areas of engineering work related to these Risk topics.

Requirements?

All E4A courses are live, on-line and extend over two days.

Quantity discounts are available for group attendances or multiple bookings paid in advance.

All courses include:
a. Interesting pre-reading material is sent to attendees normally two days prior to the start.
b. Course materials are emailed ahead to you for the course, and your personal library.
c. ZOOM links are sent to you 2 days prior to the course start date.
d. The Course framework and time-plan is sent ahead to attendees as an Excel Document enabling easy tracking.
e. Workshops, which include case studies and worked examples, are interspersed with tea and lunch breaks and all materials are sent ahead to attendees for these exercises.
f. A Certificate of Attendance, with CPD points reflected, is provided at the end of the event

There is a full scope of reading material that extends the Course to enable the award of 3 CPD points and we will provide those details and discuss with attendees how these details can be addressed, at the time of your registration for the Course. The full live on-line attendance remains at 2 days.

Register?

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