

RECORDED WEBINAR

CRACKING THE CODE: TACKLING CORROSION IN COOLING WATER SYSTEMS THROUGH WATER CHEMISTRY AND MATERIAL SELECTION

In Conjunction with World Engineering Day
Celebration from 2nd March to 6th March 2026

SPEAKER:
Ir. Ts. Irene Lock Sow Mei



3rd MARCH 2026
TUESDAY

11.0AM - 1.30PM



BEM Approved CPD: 2
Ref. No.: IEM25/HQ/347/T(w)

Registration Fees:

Student Members : Free

IEM Members : RM 15.00

IEM Non Members : RM 70.00

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SYNOPSIS

We rarely think about what keeps our buildings cool, our power plants running, or our factories operating seamlessly, but behind the scenes, cooling water systems play a vital role in making modern life possible. From ensuring smooth refinery operations to enabling the production of clean water and electricity, these systems are the unsung heroes of modern infrastructure.

Yet, just like rust creeping onto an old water pipe at home, corrosion can silently damage the vital arteries of these systems — pipes, pumps, and heat exchangers — until catastrophic failure forces everything to a halt. The impact? Unplanned shutdowns, spiralling maintenance costs, and reduced equipment lifespan.

In this dynamic session, we'll take you through the invisible but powerful process of corrosion — how it starts, why it worsens over time, and most importantly, how to mitigate it. We will discuss on how a specially designed chemical treatment program and material selection can prevent system degradation, safeguard performance and reliability.

Key Takeaways:

1. Understand the Root Causes of Corrosion
2. Learn how different types of corrosion (e.g., galvanic, pitting, MIC) originate and why cooling water systems are particularly vulnerable.
3. Recognize Early Warning Signs
4. Identify critical indicators of corrosion and fouling before they escalate into costly failures.
5. Design Effective Chemical Treatment Programs
6. Discover how tailored chemical dosing, including inhibitors, dispersants, and biocides can provide robust protection against corrosion and scaling.
7. Select the Right Materials for Longevity
8. Explore how material selection based on water chemistry and system conditions can significantly enhance asset durability and reduce maintenance frequency.
9. Leverage Monitoring and Diagnostic Tools
10. Understand how to use corrosion coupons, probes, and online analysers to monitor system health in real time and make data-driven decisions.

SPEAKER'S PROFILE

Ir. Ts. Irene Lock Sow Mei graduated from Universiti Teknologi Petronas with a Bachelor Degree in Chemical Engineering and she is the award recipient for UTP's Chancellor Gold Award, Vice Chancellor Gold Award, Best Final Year Project Gold Award and Capstone Award for Best Plant Design Project. She was also the winner for the Institution of Engineers Malaysia (IEM) Best Engineering Graduate Gold Award. Serving as a process engineer in Group Technical Solutions PETRONAS since 2015, Irene has 9 years of experience in the oil and gas industry. Her expertise and interest are in water technology and water treatment, whereby she oversees the development and implementation for technologies for effective water management and treatment. She is also the office bearer for the ASEAN Academy of Engineering and Technology (AAET) and Institution of Engineers Malaysia (IEM).

Irene is a certified Professional Engineer (BEM), Chartered Engineer (Engineering Council UK), and Professional Technologist (MBOT). Her achievements include the IChemE Malaysia Young Industrialist Award 2019, Ten Outstanding Young Malaysian Award 2020, and international recognitions such as the ASIAN Downstream Summit Young Engineer Award 2024 and ASIAWATER Young Career Award 2024. Irene also gained world recognition as the first south east Asian to emerge as winner for the International Young ADIPEC Technical Professional of The Year 2019 under the patronage of the President of the United Arab Emirates and Egypt Petroleum Show Nex-Gen Female of the Year 2022 Award.