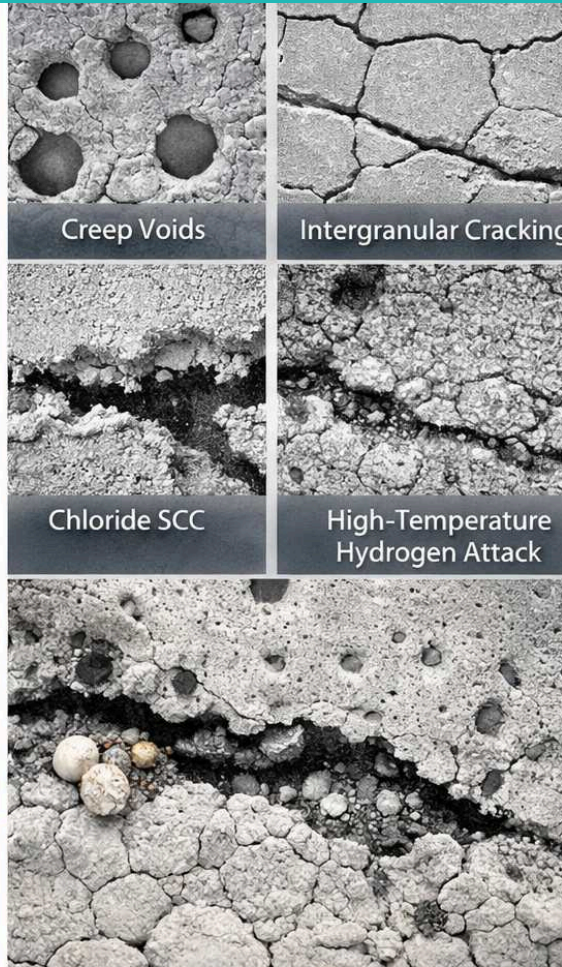


SERVICE INDUCED ADVANCED DAMAGE MECHANISMS IN FERTILIZER AND REFINERY

1-DAY TRAINING PROGRAM ON
Fertilizer | Refinery



In today's demanding process industries, unplanned failures pose serious risks to safety, reliability, and profitability, making a clear understanding of damage mechanisms essential. This 1-day intensive program by TCR Evolve, built on insights from 9500+ real failure investigations, bridges the gap between theory and practical application by helping participants understand how materials degrade under actual service conditions. Through case-driven learning and real microstructural evidence, engineers gain practical knowledge of high-temperature damage, corrosion, hydrogen-related issues, and failure mechanisms, enabling them to make informed decisions on inspection, prevention, and asset reliability.

Why This Training Important?

This intensive program is designed to equip engineers and industry professionals with deep understanding of damage mechanisms across process industries. Leveraging decades of real-world failure investigations, TCR Advanced delivers unmatched practical insights into degradation, root cause analysis, and prevention strategies.

A New Era of Engineering Judgment

Key Learning Outcomes:

- Identification of critical damage mechanisms in fertilizer and refinery environments
- Understanding metallurgical degradation using real failure case studies
- Microstructural interpretation and lab-based insights
- Linking process conditions to material damage
- Practical inspection strategies and prevention techniques
- Root cause failure analysis methodologies

Coverage Areas:

- High Temperature Damage (Creep, Oxidation, Carburization)
- Corrosion Mechanisms (SCC, HIC, MIC, Pitting)
- Fertilizer Industry Specific Damage (Ammonia, Urea, Carbamate corrosion)
- Refinery Damage (Sulphidation, Hydrogen attack, Wet H₂S damage)
- Mechanical Failures (Fatigue, Brittle fracture)
- Case Studies from 9500+ Investigations

A New Era of Engineering Judgment

1-Day Intensive Program Outline:

- (09:30 – 10:30) Industry Failure Landscape & Damage Mechanism Framework
- (10:30 – 11:30) Metallurgy for Engineers (Only What Matters in Practice)
- (11:45 – 13:00) High Temperature & Hydrogen Damage (Critical Mechanisms)
- (13:45 – 15:00) Corrosion & Environment-Assisted Cracking
- (15:00 – 16:00) Industry-Specific Damage (Fertilizer + Refinery Focus)
- (16:00 – 16:45) Inspection, NDT & Damage Detection Strategy
- (16:45 – 17:45) Failure Analysis Masterclass (Case-Based Learning)
- (17:45 – 18:15) Engineering Decision-Making & Prevention Strategy

Key Value Proposition:

- **8+ hours of high-density, practical learning**
- **Based on 9500+ real failure investigations**
- **Combines field experience + lab evidence + metallurgy**
- **Directly applicable to day-to-day engineering decisions**
- **Ideal for engineers, inspectors, and consultants**

Who Should Attend This Program?



Mr. Paresh Haribhakti, MD

- He holds a post-graduate degree in Materials Technology from M.S. University, providing him with a solid academic foundation in metallurgy and materials science. With a leadership role at TCR Advanced Engineering Services, he has accumulated extensive experience in metallurgical engineering, and has solved over 9,500+ industrial challenges. He is expert in risk mitigation and management. He has also developed innovative tools for asset management and reliability enhancement, specifically tailored to the needs of critical infrastructure in the fertilizer and chemical industries.
- Paresh has authored 'Failure Investigation of Boiler Tubes: A Comprehensive Approach', published by ASM International, USA. His commitment to advancing knowledge and expertise is evident through his active participation in global conferences and contributions to leading metallurgical journals. He is an acclaimed expert for damage mechanism of oil & gas, refinery, petrochemicals, power, fertilizers. He holds expertise in inspection of fertilizer and petrochemical tanks

Mr Gopul Patel

- RBI Specialist and Advanced Materials Characterization Expert at TCR Advanced Engineering Pvt. Ltd., with over 15 years of experience in risk-based inspection, asset integrity management, and advanced analytical techniques. An API 580 certified professional, he contributes to digital solutions integrating FFS, API 581 risk analysis, IOW, and predictive maintenance.
- With a postgraduate background in Electronics, his expertise includes SEM/EDS, TEM, XRD, ICP-OES, and thermal analysis (DSC, TGA). Trained internationally in the Netherlands and Korea, he has played a key role in advanced microscopy applications, including Environmental SEM-based investigations.
- He also holds NDT Level II certifications (MT, PT, UT, Leak Testing) and specializes in failure analysis, microstructural diagnostics, and bridging lab-scale insights with real-world engineering applications.



Mr. Ketan Upadhyaya

- BE in Metallurgical engineering, PGD in computer science. He has experience of 35+ years in the field of NDE, Acoustic emission techniques, Vibration measurement and signature analysis, Failure Investigations, microstructure interpretation, Scanning electron microscopy and digital imaging system.
- He is a qualified level II for Acoustic Emission testing (IISC Bangalore), Vibration Analyst VT-II (Entec IRD) and Ultrasonic Flaw Detection (EEC Mumbai) techniques. He has expertise in Engineering Critical Analysis, high-temperature degradation of materials, Remaining Life Assessment (RLA), and Fitness-for-Service (FFS) evaluations. He has investigated over 1,000 failure cases related to petrochemical and oil & gas plants. With 35+ years of expertise in ammonia storage tank inspection and structural integrity assessment.

Mr. Nikhil Sabhaya

- He is a post graduate in Metallurgy. He has over 5 years of hands-on industrial experience in the field of Boiler Remaining Life Assessment (RLA) and Non-Destructive Testing (NDT). He is an ASNT Level III certified professional in ET, UT, PT, and MT. Additionally, he holds API 510 certification as a Pressure Vessel Inspector and is a CSWIP 3.1 Certified Welding Inspector. His deep practical experience, combined with his knowledge of various national and international codes and standards, enables him to effectively formulate and validate test procedures for diverse NDT applications.
- He has working experience in NDT testing at various Power projects, Petrochemicals, Refineries, Structural and Automobile Industries. He has an expertise in NDT and the application of various NDT methods for solving problems of Industry.



Who Should Attend This Program?

Ideal for professionals involved in inspection, design, maintenance, and asset integrity decision-making across process industries:

- Inspection Engineers (2–10 years experience)
- Mechanical Engineers
- Design Engineers
- Technical Service Engineers
- Freelancers & Consultants in Asset Integrity
- Reliability & Maintenance Professionals



Program Details:

- **Duration:** 1 Day
- **Dates:** 05th Jan, 2026
- **Venue:** EvolvebyTCR. 215, Pancham Icon, vasna road, near D-Mart, Vadodara, Gujarat 390007.

For registration or more details, please contact:

[Vice President of Evolve]

Mr. Deepak Chandrana - 9909035325

Website: www.evolveptr.com

Registration Fee: Rs. 10,000/- +18% GST per candidate.

10% Discount on total amount of invoice for 03 or more nominations from the same organization.



Email: evolve@evolveptr.com

For NFET/ RTGS/ Bank transfer:

Account No: 05730400000034

IFSC: BARBOINDMAK (5th letter is zero)

Bank: BOB, Makarpura Branch

Merchant Name : TCR ADVANCED

ENGINEERING PVT LTD

UPI ID : tcrad93762@barodampay

QR code for payment

