ACA BRANCH
NEW ZEALAND BRANCH

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"MATERIALS PROTECTION FOR THE FUTURE"

CALL FOR PAPERS

The Australasian Corrosion Association's Corrosion & Prevention conference will be held in Melbourne from 9-13 November 2025.

As always, the conference will be a platform for industry field practitioners who combat corrosion on a daily basis, and researchers working in corrosion-related fields to share and exchange ideas.

The call for abstracts is now open for technical papers and case studies on all subjects related to corrosion and its control. We welcome papers from university, government, private enterprises, asset owners, consultants, contractors and manufacturers to share the latest developments and information in our industry.

Case studies, such as reports on field trials and the use of new and/or novel technologies for corrosion prevention and protection are an important part of knowledge exchange for the corrosion industry.

All papers (technical/research papers and case studies) will be subject to the standard paper review process. Case studies, such as reports on field trials and the use of new and/or novel technologies for corrosion prevention and protection are an important part of knowledge exchange for the corrosion industry.

To submit your abstract before the March 31 deadline, go to the ACA website for the paper submission procedure

ACANZ would like to gratefully acknowledge this month's sponsor…

VALE: Keith Lichti

We have recently been notified of the passing of ACA NZ's former Branch President and internationally recognised geothermal corrosion expert, Keith Lichti.

In 1977, Keith completed his master's degree in Materials Science and Professional Engineer certification in Canada, and emigrated to NZ to join the DSIR Industrial Processing Division as a research scientist. His initial work investigating the mechanisms of corrosion in fluids containing CO2, H2S and NH3 was vital for selection of materials for the Ohaaki Geothermal Power Station that was commissioned in 1989.

In his 48-year professional career with the DSIR (that became Industrial Research Ltd, then MPT Solutions, then Quest Integrity NZL Ltd), he specialised in different aspects of geothermal fluid corrosion but was also involved with a wide range of projects covering corrosion and corrosion monitoring, product development, condition assessment and asset management.

Keith joined the Wellington Division of ACA NZ when it was formed in 1980, and was an instructor for the Corrosion Technology Certificate courses held in 1985. He became the ACA NZ Branch President in 1992/93 and served the following two years as Branch Secretary. As Branch Technical Officer, Keith was part of the organising committee for the ACA Conference when it was held in Wellington in 2008. He also delivered the 2008 PF Thompson Memorial Lecture titled 'Accelerated Corrosion Testing'.

He was also actively involved in AMPP (NACE International) as chairman for conferences and symposiums, and a technical paper reviewer. He was invited chairman of AMPP technical group TEG 182X geothermal systems scaling and corrosion from 2011 to 2022.

Publications

Keith published over 100 technical papers, many presented to local and international conferences in countries including Australia, England, Indonesia, Italy, Japan, The Philippines, Taiwan, Turkey and the USA.

Their topics included:

Corrosion Monitoring in geothermal systems; on-line monitors

Scaling and Corrosion – vessels, heat exchangers, turbines and pipelines

Corrosion Control – acidic geothermal wellbore production facilities

Asset Management Systems- geothermal energy plant vessels and pipelines

Risk Assessment- energy conversion plants geothermal and motive fluid

Risk Assessment- CO2 removal plant and CO2 purification processes

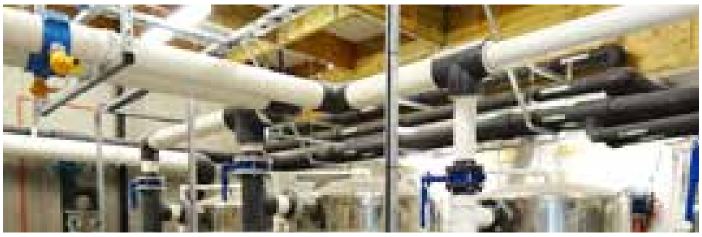
High Temperature Corrosion – flue gas and process gas corrosion

Remaining Life prediction – conductors and electrical components, and

Computers in Corrosion Control -Expert Systems and database developments.

Submitted by Willie Mandeno with assistance from Soroor Ghaziof

Q & A CORNER



Older ACA NZ members have probably seen a number of situations that may never have made it to a textbook.

If you have a question you'd like clarification on, email it to the Editor at lesboultonrust@gmail.com. We'll pose it to our panel of experts who will answer it in another Bulletin, so everyone can improve their knowledge.

Q:

What is a self-healing coating ?

& A:

Self-healing coatings are coatings that possess the ability to repair damage by themselves or with some outside stimulation. Many self-healing coatings are produced by the addition of substances to existing materials – this is called extrinsic healing. Polymer self-healing coatings have the ability to sense cracks and a repair is initiated when microcapsules of a resin contained within the coating rupture and react.

The self-healing coating repairs both surface scratches and micro-crack damage. The healing is a two stage process - gap closure followed by healing. The self-healing functionality allows for a high degree of scratch repair and gloss recovery of a coating.

Self-healing coatings use:

- polymer layers
- silica-organic layers
- metallic layers
- ceramic layers

These self-healing coatings intelligently respond to mechanical or chemical damage caused by the external environment and reproduce their original properties, including adhesion to the substrate.

Self-healing anti-corrosion coatings are produced using:

- ceramics
- metals
- composites
- macro-molecular compounds

The properties of such coatings are activated by appropriate stimuli, such as:

- temperature changes
- radiation
- pH changes
- pressure changes
- mechanical action

The self-healing ability is a particularly vital property for coatings designed to protect a material of construction against corrosion. They are also used in automotive refinishing and for coatings on smartphones.

A self-healing coating uses sunlight to repair scratches on a car finish

Acknowledgement: Corrosionpedia

Key considerations to prevent corrosion – a refresher

There are many different ways that the risk of corrosion on structures and components can be reduced. Five key considerations to control corrosion, or prevent it almost entirely, are outlined here

Stress

Stress is known to increase the risk and rate of corrosion of materials. Both applied and residual stresses should be considered and monitored to prevent corrosion from happening. Stress relieving a material is a good way to remove residual stresses. Applied stresses may be eliminated or dispersed over a wide area with proper design techniques.

Environment

The environment that the material is in has a large effect on the corrosion performance. It is important to evaluate the corrosive effect of the atmospheric environment on a structure or component and take appropriate action to mitigate potential corrosion. Temperature is another environmental factor that can have a catalytic effect on corrosion. Higher temperatures will cause increased oxidation rates of materials. Care should be taken to avoid placing materials near heat sources to prevent increased corrosion rates.

Geometry

Structure or component geometry can play a role in corrosion and corrosion rate. The shape of a material may encourage a localised collection of corrosive substances, such as chlorides. For example, if undercut occurs in a weld the sharp groove may present an area where corrodents accumulate and initiate crevice corrosion. To prevent corrosion due to geometrical features proper drainage of any liquids must be allowed for in the design. Differences in protective coating coverage, such as at sharp edges, should be avoided when designing for corrosion avoidance.

Protective coatings

Coating a material is a common option to prevent corrosion because of its relative affordability. Coatings make it possible to prevent corrosion by placing a protective layer on a more affordable material which may be more susceptible to corrosion. There are many substances that protective coatings can be made of; popular coating materials include polymers, metals and ceramics.

Material compatibility

Reactive metals are more prone to undergo oxidation than less reactive metals especially if they are in contact with one another, due to dissimilar metal corrosion (also called galvanic corrosion). Therefore it is crucial not to place a reactive metal (e.g. steel) in contact with a less reactive metal (e.g. stainless steel) without some form of insulation between the metal surfaces to isolate them. On the other hand, a reactive metal (e.g. zinc) can be used in a sacrificial manner to protect a less reactive metal (steel); this is called cathodic protection.

Corrosion, if not accounted for, can leave the best designs compromised when a structure or component is in service. With proper consideration, corrosion can be prevented almost entirely.

Acknowledgement: Corrosionpedia

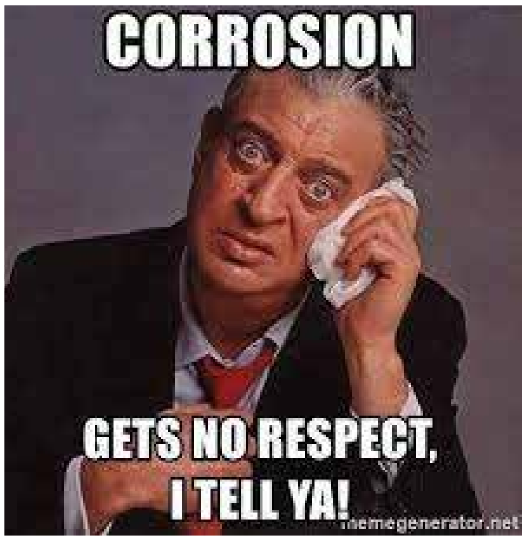
Roadshow Three: Monday 21st July 2025, Auckland

Roadshow Four: Thursday 24th July , Christchurch

The ACA Applicator and Coatings Technical Groups are excited to hit the road! Their annual Roadshow is heading to Sydney, Perth, Auckland, and Christchurch for an epic tour across Australasia, with roadshows three and four in New Zealand.

These events will include a variety of engaging presentations by expert speakers, an exhibition featuring our corporate partners in the coatings industry, and live outdoor demonstrations of the latest equipment designed for coatings professionals.

For more information and to reserve your place, go to
https://www.corrosion.com.au/events/upcoming-events/



SYNTECH and GRACO The perfect partnership

Advertorial

With the cost of coatings today, it is more important than ever to ensure you have the right spraying equipment.

The choice of spraying equipment has a significant impact on both the quality of the coating and the efficiency of the application process. Here are a few key factors to consider when selecting the right spraying equipment:

1. Type of Coating: Different coatings (e.g., paints, primers, stains, specialized coatings) may require specific types of sprayers, such as airless, HVLP (high volume low pressure), or conventional spray guns.
2. Application Area: The size and complexity of the area to be coated can influence your choice. For large surfaces, airless sprayers are often more efficient, while smaller jobs might be suited for handheld HVLP sprayers.
3. Material Viscosity: Thicker coatings may require more powerful sprayers that can handle higher pressure, whereas thinner materials can be sprayed with less powerful equipment.
4. Finish Quality: If a smooth finish is crucial, choosing an HVLP sprayer can help reduce overspray and improve control over the application.
5. User Skill Level: More complicated equipment may require a higher skill level to operate effectively. It's essential to choose equipment that matches the experience level of the operator.
6. Cost Efficiency: Investing in quality equipment can lead to savings in materials and time. Quality sprayers can reduce overspray and waste, making them more cost-effective in the long run.
7. Maintenance: Consider the maintenance requirements of the equipment. Some sprayers may require more frequent cleaning and parts replacement than others.
8. Environmental Considerations: If working in areas with strict environmental regulations, it may be necessary to choose equipment that minimizes VOC (volatile organic compounds) emissions.

Ultimately, the right spraying equipment can optimize the application process, minimize waste, and produce high-quality results, making it a critical consideration for any project involving coatings.

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The new Graco Electric E-Mix available now for trial

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Email: acanz.mail@gmail.com