

Curriculum Vitae

Dr Robert Jeffrey

Qualifications Doctor of Philosophy
Newcastle University, 2004

Bachelor of Engineering (Chemical)
Newcastle University, 1992

Welding Technology Certificate 1985

Non-Destructive Testing Certificate 1976

Metallurgy Certificate 1972

Present Positions Research Associate – The University of Newcastle

Principal - Pacific Testing Pty Ltd.

The company was established in 1998 and its core activities include Corrosion consulting, Failure investigation, Laboratory testing, Environmental exposures, Plant audits and Expert witness.

Previous Experience

Research Engineer BHP Wire Products, 1989 – 1998

Chemist Tomago Aluminium Smelter, 1983 – 1989

Foundry Metallurgist A. Goninan & Co, 1981 – 1982

Pipeline
Inspector (Metlab Mapel, 1978 –1981
Teacher Of Department of TAFE Newcastle, 1977 – 1978
Metallurgy
Metallurgist B.H.P. Newcastle, 1969 - 1977

Awards and other Distinctions Awarded the prestigious T P Hoar Award for outstanding research published in the journal “Corrosion Science”.(2004)

Twice awarded a substantial Australian Research Council grants (2004, 2007)

Past president of the Australasian Corrosion Association. (2001)

Twice the recipient of the ACA Marshall Fordham Research Award for corrosion research in Australia (1999 , 2002)

Authored or co-authored over 50 technical papers dealing with corrosion (details below)

Patents Gripfast Trellis Post, (used in vineyards worldwide)
Gripfast sink-resistant plate

Contribution to Australian Standards

Member of the Australian Standards Committee *M-014 since– Corrosion of Metals (1998 – 2008)*

AS 4312: 2008 Atmospheric corrosivity zones in Australia

AS 2309 -2008 Durability of galvanized and electrogalvanized zinc coatings for the protection of steel in structural applications - Atmospheric

AS/NZS2728:2007 Prefinished /prepainted sheet metal products for interior/ exterior building applications - Performance requirements

Affiliations

Institution of Engineers Australia	Member
Australasian Corrosion Association	2000-2001 ACA President 1999- 2000 ACA Vice-President 1991-2001 Secretary – Newcastle Branch 1998 – present - Sustaining Member (Pacific Testing) 1991-1998 Company Representative (BHP Wire Products)
Australian Institute of Steel Construction	Member
Hunter Institute of Environmental Engineers	Member

Legal Consulting and Expert Witness Experience

2008 Grace lawyers	Expert witness regarding suitability of render beading.
2008 Diagnostech	Expert advice on corrosion of render beading in Sydney
2007 - 2008 Coors Chambers Westgarth	Expert evidence on corrosion of fuel storage tanks in city and rural NSW
2007 Mount Townsend Solutions	Expert advice on premature failure of galvanized lintels Newcastle
2006 Deacons	Expert advice on premature failure of galvanized water tank in Combat-Armour factory Brisbane
2005 King Gerrard Partners	Expert witness and failure investigation of premature corrosion water piping in an apartment in Auckland

2005
QBE Insurance Appointed to carry out a factual investigation and report on the circumstances and cause of the corrosion of a set of embossing rolls on the NSW Central Coast.

2003
Allens Arthur Robinson Expert advice on corrosion on the failure of roof and side sheeting of a fertilizer plant, Port Kembla

Journal Papers

Melchers RE and Jeffrey R (2008) The critical involvement of anaerobic bacterial activity in modelling the corrosion behaviour of mild steel in marine environments, *Electrochimica Acta*

Melchers RE and Jeffrey R (2007) Modelling of long-term corrosion loss and pitting for chromium-bearing and stainless steels in seawater, *Corrosion (NACE)* accepted 7 Nov 2007.

Jeffrey R and Melchers RE (2007), Effect of Orientation and Shielding in the Early Corrosion of Mild Steel in Tidal Marine Conditions, (*NACE*) *Corrosion* 63 (9): 872-879.

Jeffrey R and Melchers RE (2007), The changing topography of corroding mild steel surfaces in seawater, *Corrosion Science* 49, 2270-2288.

Melchers RE and Jeffrey R (2007) Probabilistic models for steel corrosion loss and pitting of marine infrastructure, *Reliability Engineering and System Safety* 93: 428-432.

Jeffrey R and Melchers RE (2007), Influence of Migration of Iron Particles, Ions and Compounds during Long-Term Marine Immersion Corrosion, *Corrosion Engineering Science and Technology*, 42 (2) 145-151.

Melchers RE and Jeffrey R, (2005), Early corrosion of mild steel in seawater, *Corrosion Science*, 47, 1678-1693.

Melchers RE and Jeffrey R (2004), Influence of water velocity on marine immersion corrosion of mild steel, (*NACE*) *Corrosion* 60 (1): 84-94

Melchers RE and Jeffrey R (2004), Surface "Roughness" Effect on Marine Immersion Corrosion of Mild Steel, *Corrosion*, 60 (7) 697-703.

Jeffrey R and Melchers RE (2003) Bacteriological influence in the development of iron sulphide species in marine immersion environments, *Corrosion Science*, 45(3) 693-714.

Jeffrey R and Melchers RE (2002), Shape and size effects for marine immersion coupons, British Corrosion Journal, 37(2) 99-104.

Cole I.S.; Paterson D.A.; Ganther W.D.; Neufeld A.; Hinton B.; McAdam G.; McGeachie M.; Jeffery R.; Chotimongkol L.; Bhamornsut C.; Hue N.V.; Purwadaria S, (2003), Holistic model for atmospheric corrosion: Part 3 - Effect of natural and man made landforms on deposition of marine salts in Australia and south-east Asia, Corrosion Engineering, Science and Technology, 38,(4), 267-274.

Conference papers

R Jeffrey and R E Melchers (2008), Three year observations of corrosion losses for steels at a severe marine atmospheric site, Proceedings Australasian Corrosion Congress, Wellington, November, (CD-ROM paper 039).

Jeffrey R and Melchers RE (2008), Corrosion profiles of mild steel in varying tidal seawaters, Proceedings Australasian Corrosion Congress, Wellington, November, (CD-ROM paper 030).

Jeffrey R (2008) Corrosion of galvanized potable water piping –a report of a chain of avoidable events, Proceedings Australasian Corrosion Congress, Wellington, November, (CD-ROM paper 038)

Jeffrey R (2008) Tubercles and rust layers observed on mild steel exposed in seawater, 14th International Congress on Marine Corrosion and Fouling, Kobe, Japan, July, (Paper 29A-3-2)

Jeffrey R (2007), Correlation between Water Temperature and Corrosion of Mild Steel in Different Waters, Proceedings Australasian Corrosion Congress, Sydney, November, (CD-ROM paper 51).

Jeffrey R and Melchers RE (2007), Tidal Corrosion of Mild Steel in Tropical Waters, Proceedings Australasian Corrosion Congress, Sydney, November, (CD-ROM paper 52).

Jeffrey R (2007) MIC in galvanized potable water piping, Second World Congress on Corrosion in the Military, Naples, September.

Jeffrey R and Melchers RE (2007), Corrosion Profiles of Mild Steel In Varying Tidal Seawaters, Second World Congress on Corrosion in the Military, Naples, September.

Jeffrey R and Melchers RE (2007), New data for verification of a phenomenological model for corrosion of steels in seawater, 1st International Conference Corrosion and Material Protection Prague, October, Paper 1.

Jeffrey R (2007), Analysis of tubercles and rust layers formed on mild steel exposed in seawater, 1st International Conference Corrosion and Material Protection, Prague, October, Paper 2.

Melchers RE and Jeffrey R (2007), The critical involvement of anaerobic bacterial activity in modelling the corrosion behaviour of mild steel in marine environments, BIOCORYS 2007, Paris,

Melchers RE and Jeffrey R (2007), The involvement of anaerobic bacteria in the corrosion of mild steel in seawater, Proceedings MIC An International Perspective, Corrosion Congress, Perth , February.

PA Farinha and Jeffrey R (2007), MIC in Ports and Harbours – An Overview of ALWC Phenomena in Australia, Proceedings MIC An International Perspective, Corrosion Congress, Perth, February.

Jeffrey R and Melchers RE (2006), Observations of Corrosion Losses for Steels Exposed in Tidal Seawaters, Proceedings Australasian Corrosion Congress, Hobart, November (CD-ROM paper 29).

Jeffrey R and Melchers RE (2006), Early observations of corrosion losses for steels at a severe marine atmospheric site, Proceedings Australasian Corrosion Congress, Hobart, November (CD-ROM paper 29)

Jeffrey R and Melchers RE (2005), Corrosion field trials – case studies of unsuccessful atmospheric and marine immersion studies, Proceedings Australasian Corrosion Congress, Gold Coast, November (CD-ROM paper 63).

Jeffrey R and Melchers RE (2005), The changing surface topography of corroding mild steel in subtropical coastal waters, Proc. 16th Int. Corrosion Congress, Beijing, Int. Corrosion Conference, CD-Rom Paper 5-A-18.

Jeffrey R and Melchers RE (2005), Morphology of the corrosion products of mild steel immersed in temperate seawaters, Proc. 16th Int. Corrosion Congress, Beijing, Int. Corrosion Conference, CD-Rom Paper 5-A-19.

Dockrill BJ and Jeffrey R, (2005), Corrosion rates in a fertilizer plant and the structural failure of a conveyor gantry, Proceedings Australasian Corrosion Congress, Gold Coast, November, (CD-ROM paper 66).

Jeffrey R, Farinha P, Hutchinson C ,Vallini D, (2005) Investigation of Accelerated Low Water Corrosion in Fremantle Harbour, Proc. 16th Int. Corrosion Congress, Beijing, Int. Corrosion Conference, CD-Rom Paper 5-A-20.

Dockrill BJ and Jeffrey R, (2005), Relationship between Corrosion Coupons and Structural Failure of A Corroded Conveyor Gantry in A Fertilizer Plant, Proceedings Australian Structural Engineering Conference, Newcastle.

Jeffrey R and Melchers RE (2004) , Migration of iron particles, ions and compounds during long-term marine immersion corrosion, Proceedings Australasian Corrosion Congress, Perth, November (CD-ROM paper # 039).

Jeffrey R and Melchers RE (2004), Influence of tidal movement on marine immersion corrosion of mild steel – preliminary results, Proceedings Australasian Corrosion Congress, Perth, November (CD-ROM paper # 089).

Jeffrey R and Melchers RE (2003), An XRD Study of the products of corrosion of mild steel immersed in coastal conditions, Proceedings Australasian Corrosion Congress, Melbourne, November (CD-ROM paper # 020).

- Melchers RE and Jeffrey R (2003), Observations on the surface “roughness” in the marine corrosion of mild steel coupons, Proceedings Australasian Corrosion Congress, Melbourne, November (CD-ROM paper # 023).
- Melchers RE and Jeffrey R (2002) Variability in corrosion of mild steel coupons in seawater, Proc Aust Corrosion Congress, Adelaide, November, (CD-ROM paper # 055).
- Jeffrey R and Melchers RE (2002) Effect of seawater velocity on immersion corrosion of mild steel, Proc Aust Corrosion Congress, Adelaide, November, (CD-ROM paper # 052).
- Jeffrey R and Melchers RE (2002) Images of bacteriological influence in the development of iron sulphide in marine immersion environments, Proc. 15th Int. Corrosion Congress, Granada, Int. Corrosion Council, CD-Rom Paper 069.
- Jeffrey R and Melchers RE (2002) Influence of edge effect on marine immersion corrosion measurement for mild steel coupons, Proc. 15th Int. Corrosion Congress, Granada, Int. Corrosion Council, CD-Rom Paper 056
- Jeffrey R and Melchers (2001), Observations of the influence of some environmental factors on the corrosion rate of mild steel in coastal seawater, Proceedings IMEA Conference, Melbourne, September.
- Jeffrey R and Melchers RE (2001) Bacteriological influence in the development of iron sulphide species in marine immersion environments, Newcastle, November, (CD-ROM paper # 41).
- Jeffrey R and Melchers RE (2000), Boundary conditions of marine immersion coupons, Proc Aust Corrosion Congress, Auckland, New Zealand, November, (CD-ROM paper# 62).
- Jeffrey, R and Melchers RE (1999) Influence of environmental factors on the early corrosion of steel in coastal seawater, Proc Aust Corrosion Congress, Sydney, Australia, November (CD-ROM-paper #32).
- Jeffrey R, King G and Summers W, (1998), Corrosion Rates of Metallic Coated Steel Wires and Coupons in Atmospheric Environments, Proc Aust Corrosion Congress, Hobart , Australia, November (paper 57).
- Jeffrey R, (1998), Corrosion Rates of Buried Galvanized Wires, Proc Aust Corrosion Congress, Hobart, Australia, November (paper #58)
- Jeffrey R, (1996), Variability of CLIMAT units as Environmental Monitoring Devices, Proc. 13th Int. Corrosion Congress, Melbourne, Int. Corrosion Council, Paper 047
- Jeffrey, R (1991) A Study of the Recovery of Hydrochloric Acid form Spent Pickle Liquor using Dialysis Membranes, Proc Chemica Conference, Newcastle.