

ACA Standards Update

Welcome to the corrosion related standards report for November 2017.

The standards reporting for 2017 is scheduled against specific interests and as indicated below:

Issue 2017 Standards search for Specific Interests

February	Oil & Gas
May	Asset Management
August	Protective Coatings
November	Concrete & CP

This Standards report focuses on Concrete (corrosion related) and Cathodic Protection.

As previously this is in two stages, namely:

1. A global standards and publication focus at **21 September 2017**, searching through SAIGLOBAL Publications at <https://infostore.saiglobal.com/en-au/Search/Standard/?sortBy=productName-asc&productFamily=STANDARD>, for all current publications and standards relating to corrosion and its prevention for the topics of Concrete and Cathodic Protection.

These results are shown in Table 1a for 'Concrete and Corrosion' and Table 1b for 'Cathodic Protection'.

2. An SAI Global search at <https://infostore.saiglobal.com/en-au/Search/Standard/?sortBy=productName-asc&productFamily=STANDARD> for standards, published from 13 July - 21 September 2017, using the key words and key word groups:

- 'durability and corrosion'.
- 'corrosion' or 'corrosivity' or 'corrosive'; but not 'anodizing' or 'anodize(d)'.
- 'paint' or 'coating'; but not 'anodizing' or 'anodize(d)'.
- 'galvanize' or 'galvanized' or galvanizing'.
- 'electrochemical' or 'electrolysis' or 'electroplated' or 'anodizing' or 'anodize(d)'.
- 'cathode' or 'cathodic'.
- 'anode' or 'anodic'.
- 'corrosion' and 'concrete' or 'concrete' and 'coatings'.
- 'anodize' or 'anodizing'.

These results are shown in Table 2.

Stage 1 Report on SAIGLOBAL Publications at <https://infostore.saiglobal.com/en-au/Search/Standard>, for all current standards relating to 'Coatings or Paint or anodizing or anodize(d)' on 21 September 2017.

3. Summary

Through SAIGLOBAL for a search for current Standard Publications on:

- a. 'Concrete and corrosion', there was a total of 132 current citations for current standards with eight AS/ NZS and one NZS, five ASTM, one ACI, and seven NACE; see Table 1a.
- b. For "Cathodic Protection" (CP), there was a total of 200 citations with 10 AS/NZS, 1AGA, three API, two ASTM, one AWWA, two ISO and eight NACE; see Table 1b.

Across SAIGLOBAL online Standards Publications there was a total of 37 listings of new standards found that were issued from 13 July to 21 September 2017; two from AS AS/NZS;

- AS/NZS 4631.1:2017 Guide to hazardous paint management. Lead and other hazardous metallic pigments in industrial applications; and
- AS 5104:2017 General principles on reliability for structures.

All results are shown in Table 1b for 'Cathodic and protection' there were 200 standard citations with 10 AS/NZS, One AGA, three API, two ASTM, one AWWA, two ISO and eight NACE.

See Table 2 below.

Regards



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Table 1a for 'concrete and corrosion'; there was a total of 132 citations for current standards with 8 AS/ NZS and 1 NZS, 5 ASTM, 1 ACI, and 7 NACE.

AS/NZS & NZS		
AS/NZS 5131:2016 Structural steelwork - Fabrication and erection	AS 3730.22-2006 (R2016) Guide to the properties of paints for buildings Concrete and masonry sealer - Solvent-borne - Interior/exterior	AS 2832.3-2005 (R2016) Cathodic protection of metals Fixed immersed structures
AS/NZS 4548.2:1999 (R2013) Guide for long-life coatings for concrete and masonry Latex finish coatings - High-build, low profile	AS/NZS 4548.3:1999 (R2013) Guide to long-life coatings for concrete and masonry Latex - Textured coatings - Non-aggregate	AS/NZS 4548.1:1999 (R2013) Guide to long-life coatings for concrete and masonry Wall coatings - Latex extensible

AS/NZS 4548.4:1999 (R2013) Guide to long-life coatings for concrete and masonry Latex - Textured coatings - Aggregate filled	AS/NZS 4548.5:1999 (R2013) Guide to long-life coatings for concrete and masonry Guidelines to methods of test	NZS 3404.1:2009 Steel structures Standard - Materials, fabrication, and construction
ASTM		
ASTM STP906-86 Corrosion Effect of Stray Currents and the Techniques For Evaluating Corrosion of Rebars in Concrete	ASTM STP1399-00 Marine Corrosion in Tropical Environments	ASTM STP713-80 Corrosion of Reinforcing Steel In Concrete
ASTM STP1056-90 The Measurement And Correction of Electrolyte Resistance in Electrochemical Tests	ASTM STP1137-92 Corrosion Forms and Control for Infrastructure	
ACI		
ACI 222.3R:2011 Guide To Design And Construction Practices to Mitigate Corrosion of Reinforcement in Concrete Structures		
NACE		
NACE SP 01 00:2014 Cathodic Protection to Control External Corrosion of Concrete Pressure Pipelines and Mortar-Coated Steel Pipelines for Water or Waste Water Service	NACE 01110:2010 Stray-Current-Induced Corrosion In Reinforced and Prestressed Concrete Structures	NACE SP 03 90:2009 Maintenance And Rehabilitation Considerations for Corrosion Control of Atmospherically Exposed Existing Steel-reinforced Concrete Structures
NACE SP 03 08:2008 Inspection Methods for Corrosion Evaluation of Conventionally Reinforced Concrete Structures	NACE 05107:2007 Report on Corrosion Probes in Soil or Concrete	NACE 01102:2002 State-of-the-art Report: Criteria for Cathodic Protection of Prestressed Concrete Structures
NACE 11100:2000 Use Of Reference Electrodes For Atmospherically Exposed Reinforced Concrete Structures		

Table 1b for 'Cathodic and protection' there were 200 standard citations with 10 AS/NZS, 1AGA, 3 API, 2 ASTM, 1 AWWA, 2 ISO and 8 NACE

AS/NZS & NZS		
AS 2832.1:2015 Cathodic protection of metals Pipes and cables	AS/NZS 4853:2012 Electrical hazards on metallic pipelines	AS 2832.5-2008 Cathodic protection of metals Steel in concrete structures
AS 2832.4-2006 (R2016) Cathodic protection of metals Internal surfaces	AS 2832.3-2005 (R2016) Cathodic protection of metals Fixed immersed structures	AS 4352-2005 (R2016) Tests for coating resistance to cathodic disbonding
AS 1580.481.5-2004 Paints and related materials - Methods of test Coatings - Durability and resistance to fouling - Marine underwater paint systems	AS 2239-2003 (R2016) Galvanic (sacrificial) anodes for cathodic protection	AS 2832.2-2003 (R2016) Cathodic protection of metals Compact buried structures
AS/NZS 1518:2002 (R2016) External extruded high-density-polyethylene coating system for pipes		
AGA		
AGA XY0186 Geop Series: Book 1, Vol. 6, Corrosion Control/system Protection		
API		
API 1650 Ed. 1 (1989) Set Of Six Api Recommended Practices On Underground Petroleum Storage Tank Management	API 651 Ed. 4 (2014) Cathodic Protection Of Aboveground Petroleum Storage Tanks	API 1632 Ed. 3 (1996/R2010) Cathodic Protection Of Underground Petroleum Storage Tanks And Piping Systems
ASTM		
ASTM STP1399-00 Marine Corrosion in Tropical Environments	ASTM STP1370-99 Designing Cathodic Protection Systems for Marine Structures and Vehicles	
AWWA		
AWWA D104:2011 Automatically Controlled, Impressed-Current Cathodic Protection For The Interior Submerged Surfaces Of Steel Water Storage Tanks		
ISO		
ISO 15589-1:2015 Petroleum, petrochemical and natural gas industries - Cathodic protection of pipeline systems Part 1: On-land pipelines	ISO 15589-2:2012 Petroleum, petrochemical and natural gas industries - Cathodic protection of pipeline transportation systems Part 2: Offshore pipelines	

NACE		
NACE 30105:2005 Electrical Isolation/continuity And Coating Issues For Offshore Pipeline Cathodic Protection Systems	NACE 1E100:2012 Engineering Symbols Related To Cathodic Protection	NACE 01210:2010 Cathodic Protection For Masonry Buildings Incorporating Structural Steel Frames
NACE SP 01 00:2014 Cathodic Protection To Control External Corrosion of Concrete Pressure Pipelines and Mortar-Coated Steel Pipelines For Water or Waste Water Service	NACE SP 06 07:2007 Petroleum and Natural Gas Industries - Cathodic Protection of Pipeline	NACE 10A392:2006 Effectiveness of Cathodic Protection on Thermally Insulated Underground Metallic Structures
NACE 01105:2005 Sacrificial Cathodic Protection Of Reinforced Concrete Elements - A State-of-the-art-report		NACE 01102:2002 State-of-the-art Report: Criteria For Cathodic Protection Of Prestressed Concrete Structures

Table 2 Standards for AS, AS/NZS, EN, ANSI, ASTM, BSI, DIN, ETSI, JSA, NSAI and Standards and Amendments for ISO & IEC PUBLISHED from 13 July - 21 September 2017

New standards, amendments or drafts for PUBLISHED between 13 July - 21 September 2017.

Key word search on 'durability'- 5 citations with 1 corrosion related AS citations found.

AS 5104:2017	General principles on reliability for structures
Key word search on 'corrosion' or 'corrosivity' or 'corrosive'; but not 'anodizing' or 'anodize(d)' - 19 citations found; 9 from ISO, 7 from DIN, 2 from ASTM, 1 from MIL with 0 from AS/ASNZS.	
ISO 2063-1:2017	Thermal spraying - Zinc, aluminium and their alloys Part 1: Design considerations and quality requirements for corrosion protection systems
ISO 19280:2017	Corrosion of metals and alloys - Measurement of critical crevice temperature for cylindrical crevice geometries in ferric chloride solution
ISO 11997-1:2017	Paints and varnishes - Determination of resistance to cyclic corrosion conditions Part 1: Wet (salt fog)/dry/humid
ISO 9455-15:2017	Soft soldering fluxes - Test methods Part 15: Copper corrosion test
ISO/DIS 4623-1	Paints and varnishes - Determination of resistance to filiform corrosion Part 1: Steel substrates
ISO/DIS 16151	Corrosion of metals and alloys - Accelerated cyclic test with exposure to acidified salt spray, dry and wet conditions
ISO/DIS 14993	Corrosion of metals and alloys - Accelerated testing involving cyclic exposure to salt mist, dry and wet conditions
ISO/DIS 20769-2	Non-destructive testing - Radiographic inspection of corrosion and deposits in pipes by X- and gamma rays Part 2: Double wall radiographic inspection
ISO/DIS 20769-1	Non-destructive testing - Radiographic inspection of corrosion and deposits in pipes by X- and gamma rays Part 1: Tangential radiographic inspection
DIN EN ISO 14713-1 (2017-08)	Zinc coatings - Guidelines and recommendations for the protection against corrosion of iron and steel in structures Part 1: General principles of design and corrosion resistance (ISO 14713-1:2017)
ASTM 03.02 (2017)	Metals Test Methods And Analytical Procedures - Corrosion Of Metals - Wear And Erosion
DIN 4753-3 (2017-08)	Water Heaters, Water Heating Installations And Storage Water Heaters For Drinking Water - Part 3: Corrosion Protection On The Water Side By Enamelling And Cathodic Protection - Requirements and Testing
DIN EN ISO 14713-3 (2017-08)	Zinc coatings - Guidelines and recommendations for the protection against corrosion of iron and steel in structures Part 3: Sherardizing (ISO 14713-3:2017)
ASTM G73-10(2017)	Standard Test Method for Liquid Impingement Erosion Using Rotating Apparatus
DIN EN ISO 20769-2 (2017-09)	Non-destructive testing - Radiographic inspection of corrosion and deposits in pipes by X- and gamma rays Part 2: Double wall radiographic inspection (ISO/DIS 20769-2:2017); German and English version prEN ISO 20769-2:2017
DIN EN ISO 20769-1 (2017-09)	Non-destructive testing - Radiographic inspection of corrosion and deposits in pipes by X- and gamma rays Part 1: Tangential radiographic inspection (ISO/DIS 20769-1:2017); German and English version prEN ISO 20769-1:2017

DIN EN ISO 16151 (2017-09)	Corrosion of metals and alloys - Accelerated cyclic tests with exposure to acidified salt spray, dry and wet conditions (ISO/DIS 16151:2017); German and English version prEN ISO 16151:2017
DIN EN ISO 4623-1 (2017-09)	Paints and varnishes - Determination of resistance to filiform corrosion Part 1: Steel substrates (ISO/DIS 4623-1:2017); German and English version prEN ISO 4623-1:2017
MIL DTL 83296 Revision B Amendment 1	Fittings, Corrosion Resistant Steel, High Temperature, High Pressure (3000 Psi), Hydraulic And Pneumatic, General Specification For - Revision B
Key word search on 'paint' and or 'coating'; but not 'anodizing' or 'anodize(d)' or corrosion– 11 citations found, 2 from AS AS/NZS, 7 ISO related and 2 MIL spec.	
AS/NZS 4361.1:2017	Guide to hazardous paint management Lead and other hazardous metallic pigments in industrial applications
AS 3862-2002/Amdt 1-2017	External fusion-bonded epoxy coating for steel pipes
ISO 2360:2017	Non-conductive coatings on non-magnetic electrically conductive base metals - Measurement of coating thickness - Amplitude-sensitive eddy-current method
ISO 8179-2:2017	Ductile iron pipes, fittings, accessories and their joints - External zinc-based coating Part 2: Zinc-rich paint
ISO 8179-1:2017	Ductile iron pipes, fittings, accessories and their joints - External zinc-based coating Part 1: Metallic zinc with finishing layer
ISO/DIS 19277	Petroleum, petrochemical and natural gas industries - Qualification testing and acceptance criteria for protective coating systems under insulation
ISO/DIS 2100-509	Petroleum and Natural gas Industries - External Coatings for Buried or Submerged Pipelines Used in Pipeline Transportation Systems Part 5: External Concrete Coatings (iso 21809-5:2017)
ISO/DIS 2100-508	Aerospace elements of electrical and optical connection - Test methods Part 508: Measurement of thickness of coating on contacts
I.S. EN ISO 21809-5:2017	Aerospace elements of electrical and optical connection - Test methods Part 509: Adhesion of coating on contacts
DI ENVR 82153:2017	Option 1, 2, & 3 Coating Thinning Certification Report
DI ENVR 82154:2017	Coating Usage and Thinning Report
Key word search on 'galvanize' or 'galvanized' or galvanizing' (and the galvanise variants) –0 citations found, 0 from AS AS/NZS.	
Key word search on 'corrosion' and 'concrete' or 'concrete' and 'coatings' – 0 citations found.	
Key word search on 'anode' or 'anodes' or 'anodic' – 0 AS Standard Publications found.	
Keyword Search on 'electrochemical' or 'electrolysis' or 'electroplated' - 4 Standard Publications found, one from AS or AS/NZS.	
AS 2331.1.2-2001 (R2017)	Methods of test for metallic and related coatings Local thickness tests - Coulometric method
DIN EN ISO 4042 (2017-07)	Fasteners - Electroplated coating systems (ISO/DIS 4042:2017); German and English version prEN ISO 4042:2017
I.S. EN ISO 16773-4:2017	Electrochemical Impedance Spectroscopy (eis) on Coated and Uncoated Metallic Specimens Part 4: Examples of Spectra of Polymer-coated and Uncoated Specimens (iso 16773-4:2017)
ISO/DIS 2081.2	Metallic and other inorganic coatings - Electroplated coatings of zinc with supplementary treatments on iron or steel
Keyword Search on 'anodize' or 'anodized' or 'anodizing'– 3 Publications Found – 3 from DIN	
DIN EN ISO 8251 (2017-09)	Anodizing of aluminium and its alloys - Measurement of abrasion resistance of anodic oxidation coatings (ISO/DIS 8251:2017); German and English version prEN ISO 8251:2017
DIN EN ISO 7668 (2017-08)	Anodizing of aluminium and its alloys - Measurement of specular reflectance and specular gloss of anodic oxidation coatings at angles of 20 degrees, 45 degrees, 60 degrees or 85 degrees (ISO/DIS 7668:2017); German and English version prEN ISO 7668:2017
DIN EN ISO 10215 (2017-08)	Anodizing of aluminium and its alloys - Visual determination of image clarity of anodic oxidation coatings - Chart scale method (ISO/DIS 10215:2017); German and English version prEN ISO 10215:2017