MONASH University

SUMMARY REPORT

CORROSION PERFORMANCE TESTING

LPI SRIM PLUS

Description:

The linear polarisation resistance (LPR) method was used to assess the corrosion performance of LPI's earth enhancing compound called "SRIM PLUS". LPR testing was carried out over a suitable period of time on copper-coated steel electrodes embedded in SRIM PLUS. All LPR testing and analysis was carried out in accordance with IEC 62561-7 to obtain polarisation resistance values, R_p, as a function of time.

IEC 62561-7 Pass Criterion for Cu-plated steel:

- $R_p > 4\ \Omega m^2$ in non-aggressive environments
- $R_p > 8\ \Omega m^2$ in aggressive environments

LPR Test Results:

Sample	Start Date	Specimen	Copper Electrode LPR results, R_P ($\Omega.m^2$)							
			Day 1	Day 5	Day 8	Day 11	Day 19	Day 34	Day 68	Day 80
1	12/06/2019	Cu1	0.33	1.45	2.62	3.02	14.56	44.97	98.34	106.13
		Cu2	0.10	0.83	3.06	2.59	12.64	30.12	32.68	36.57
7		Cu1	0.22	1.78	5.44	8.18	7.31	10	11.25	12.17
		Cu2	0.32	1.09	1.97	9.29	5.78	22.86	65.43	~

Conclusions:

The corrosion performance of the earth enhancing compound "SRIM PLUS" meets the requirements of the LPR test criteria in IEC 62561-7 for both non-aggressive and aggressive environments.

Signed: N.Birbilis

Date: 24th Feb 2020

Testing performed by: Dr. Yao Qiu, Dr. Ruiliang Liu, Dr. Ruifeng Zhang and Prof. Nick Birbilis
Department of Materials Science and Engineering, Monash University, Clayton, VIC, 3800
Phone: +61 3 9905 4919