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Test Report

Report No:	**NE13/0044**
Date of Issue:	27 September 2013
Job No.:	13/0132
Test Specifications:	AS/NZS 60079.0:2012 Clause 7.4 - Electrostatic charges on external non-metallic materials AS/NZS 60079.1:2007 Clause 19.3.2 - Flammability
Applicant/Customer Name:	Richmond Wheel and Castor Co. 590 Clayton Road CLAYTON SOUTH VIC 3169
Equipment Details:	Richmond 95A FRAS Polyurethane
Approved Signatory:	G Ross

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1.0 Scope

This report covers the flammability resistance and antistatic (FRAS) testing of the Richmond 95A FRAS Polyurethane material as supplied by Richmond Wheel and Castor Co. The test samples were a homogeneous mix of Erapol EHP95A with proprietary additives and were red in colour. The nominal apparent density of the material is approximately 1133 kg/m^3.

The antistatic properties of the Richmond 95A FRAS Polyurethane material was assessed to clause 7.4 of AS/NZS 60079.0:2012 (IEC 60079-0: 2011) *Explosive atmospheres Part 0: Equipment - General requirements* was applied. The material was tested in accordance with clause 26.13 of AS/NZS 60079.0:2012. The following acceptance criteria were applied.

10^9 Ω when measured at (50 ± 5) % relative humidity, or

10^{11} Ω when measured at (30 ± 5) % relative humidity

Flammability testing was conducted to clause 19.3.2 of AS/NZS 60079.1:2007 (IEC 60079-1:2007) *Explosive atmospheres Part 1: Equipment protection by flameproof enclosures'd'*. The test method and the acceptance criteria applied is Method V-2 as described in AS/NZS 60695.11.10:2001 (Incorporating Amendment 1).

2.0 Results

2.1 Surface resistance

The samples were conditioned for in excess of 24 hours at 22° C ± 2° C and (50 ± 5) % relative humidity.

The tests were conducted at 22° C and 53 % relative humidity.

The results for the surface resistance tests described in Section 1.0 are presented in Table 1.

Table 1 Surface resistance test results

Sample No.	Applied Voltage (Vdc)	Calculated Resistance (10^6 Ω)	Mean Calculated Resistance (10^6 Ω)
1	500	83.1	118.7
2	500	127	
3	500	146	

2.2 Flammability

The results of the flammability testing described in Section 1 are documented in Table 2 and Table 3.

Table 2 Flammability test results of conditioned samples

Test Results		Sample No.				
		1	**2**	**3**	**4**	**5**
Dimensions	Length (mm)	172	176	170	180	175
	Width (mm)	16.38	16.39	16.38	16.37	16.37
	Thick (mm)	16.41	16.41	16.38	16.37	16.37
Direction of Anisotropy		Nil				
Afterflame time t_1 (sec)		0	0	0	0	0
Afterflame time t_2 (sec)		1	2	2	1	2
Afterglow time t_3 (sec)		0	0	0	0	0
$t_2 + t_3$ (sec)		1	2	2	1	2
Particles fell onto cotton (Y/N)		Yes	Yes	Yes	Yes	Yes
Cotton ignited (Y/N)		No	No	No	No	No
Sample burnt to clamp (Y/N)		No	No	No	No	No
Total flame time t_f (sec)		8				

Table 3 Flammability test results of aged samples

Test Results		Sample No.				
		6	**7**	**8**	**9**	**10**
Dimensions	Length (mm)	179	179	176	170	179
	Width (mm)	16.26	16.23	16.26	16.35	16.27
	Thick (mm)	16.19	16.31	16.22	16.28	16.28
Direction of Anisotropy		Nil				
Afterflame time t_1 (sec)		0	0	0	0	0
Afterflame time t_2 (sec)		2	2	1	1	2
Afterglow time t_3 (sec)		0	0	0	0	0
$t_2 + t_3$ (sec)		2	2	1	1	2
Particles fell onto cotton (Y/N)		Yes	Yes	Yes	Yes	Yes
Cotton ignited (Y/N)		No	Yes	Yes	No	No
Sample burnt to clamp (Y/N)		No	No	No	No	No
Total flame time t_f (sec)		8				

3.0 Conclusion

3.1 The mean surface resistance value of 118.7 x 10^6 Ω for the Richmond 95A FRAS Polyurethane material complies with the acceptance criteria limit of 10^9 Ω as specified in clause 7.4.2 a) of AS/NZS 60079.0:2012 when measured at (50 ± 5) % relative humidity.

3.2 The flammability test results of the Richmond 95A FRAS Polyurethane material complies with the acceptance criteria for Category V-2 as specified in clause 19.3.2 of AS/NZS 60079.1: 2007.