



# CERTIFICATE OF ACCREDITATION

LP-747-IDN

Date of issue : 8 November 2021

Granted to

Date of expiry : 24 Oktober 2026

**PT Bredero Shaw Laboratory-Indonesia**

at

**Kabil Industrial Estate, Jl. Hang Kesturi 1 No. 14  
Kel. Batu Besar, Kec. Nongsa, Batam**

which has shown its competence as

**TESTING LABORATORY**

by implementing consistently

**SNI ISO/IEC 17025:2017 (ISO/IEC 17025:2017)**

**General Requirements for the Competence of Testing and Calibration Laboratories**

for the scope of accreditation as specified in the annex

**KOMITE AKREDITASI NASIONAL**

**Drs. KUKUH S. ACHMAD, M.Sc**

**CHAIRMAN**

*This certificate entitles the laboratory to use the Mark illustrated herein on issued certificates/reports, letter heads, advertisement and other promotion purposes in accordance with determined regulation.*

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**ANNEX TO ACCREDITATION LABORATORY CERTIFICATE NO. LP-747-IDN - SNI ISO/IEC 17025:2017 (ISO/IEC 17025:2017)**

Name of Laboratory : PT Bredero Shaw Laboratory-Indonesia Address : Kabil Industrial Estate, Jl. Hang Kesturi 1 No.14, Kel. Batu Besar, Kec. Nongsa, Batam Telp. (0778) 403900 Email : helen. sihombing@shawcor.com				Issued on: 8 November 2021 s/d 24 October 2026
Scope of Accreditation				
Testing fields	Material or product to be tested	Type of testing or characteristic to be measured	Specification, test method, technique to be used	Remarks
Mechanical	Polyolefine coating (Polyethylene / Polypropylene / Injection Molded Polypropylene / Heat Shrink Sleeve / Polypropylene Foam)	Elongation	DIN EN ISO 527-2 : 2012; DIN 30670 : 2012 (Annex F) DIN 30678 : 2013 (Annex F) ASTM D 638 : 2014; I.S. EN ISO 527-1:2019	
	Polyolefine coating (Polyethylene/ Polypropylene/ Injection Molded Polypropylene/ Heat Shrink Sleeve/ Polypropylene Foam)	Tensile strength	DIN EN ISO 527-2 : 2012; DIN 30670 : 2012 (Annex F) DIN 30678 : 2013 (Annex F) ASTM D 638 : 2014; I.S. EN ISO 527-1:2019	
	Polyolefine coating (Polyethylene / Polypropylene / Injection Molded Polypropylene / Heat Shrink Sleeve)	Indentation resistance	DIN 30670 : 2012 (Annex I) DIN 30678 : 2013 (Annex I) I.S. EN ISO 21809-1:2018 (Annex F) I.S. EN ISO 21809-3:2016&A1:2020 (Annex E)	
	Polyolefine coating (Polyethylene / Polypropylene / Multilayer Polypropylene / Heat Shrink Sleeve / Injection Molded Polypropylene / Fusion Bonded Epoxy)	Hardness shore D	ISO 868 : 2003, ASTM D 2240 : 2015	
	Polyolefine coating on Steel (3Layer Polypropylene / 3Layer Polyethylene / Multi Layer Polypropylene / Fusion Bonded Epoxy Coating)	Flexibility / bend test	CSA Z 245 20 : 2018 Clause 12.11 CSA Z 245 21 : 2018 Clause 12.11 CSA Z 245 20 : 2018 I.S. EN ISO 21809-1:2018 (Annex I) NACE SP 0394 : 2013 (Appendix F) AS 3862 : 2020 (Appendix L) BGC PS CW 6 : 1985 (Appendix F) I.S. BS EN ISO 21809-2 : 2014 Clause	
	Fusion Bonded Epoxy Coating, Plastics - Polyolefine coating (Polyethylene/ Polypropylene/ Injection Molded Polypropylene/ Polypropylene Foam/Adhesive)	Density	I.S. EN ISO 1183-1:2019&LC:2019; ASTM D792 : 2020	
	Plastics - Polyolefine Coating (Polyethylene / Polypropylene / Injection Molded Polypropylene / Heat Shrink Sleeve / Polypropylene Foam / Multi Layer Polypropylene)	Water absorption (aging test)	ASTM D 570 : 98 :2018; I.S. EN ISO 62:2008	

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Mechanical	Fusion Bonded Epoxy coating, Enamel coating, Polyurethane coating, Polyolefine coating on steel (3Layer Polypropylene/ 3Layer Polyethylene/ Heat Shrink Sleeve/ Injection Molded Polypropylene)	Hot water adhesion	CSA Z 245 20 : 2018 Clause 12.14 CSA Z 245 21 : 2018 Tabel 1 (Clause 12.14 Of CSA Z 245 20 2018) NACE SP 0394 : 2013 (Appendix J) AS 3862 : 2020 (Appendix K) I.S EN ISO 21809-1 : 2018 (Annex L) I.S EN ISO 21809-2 : 2014 (Annex A.16) I.S. EN ISO 21809-3:2016&A1:2020 (Annex I)	
	Fusion Bonded Epoxy coating, Enamel Coating, Polyurethane coating, Polyolefine coating on steel(3Layer Polypropylene/ 3Layer Polyethylene/ Heat Shrink Sleeve/ Injection Molded Polypropylene)	Cathodic Disbondment (Disbondment resistance under negative polarization)	CSA Z 245 20 : 2018 Clause 12.8 & 12.13 CSA Z 245 21 : 2018 Clause 12.3 NACE SP 0394 : 2013 (Appendix F & Appendix N) AS 3862 : 2020 Tabel B.1 (Continued) I.S EN ISO 21809-1 : 2018 (Annex H) BG PS CW 6 : 1985 (Appendix A) I.S EN ISO 21809-2 : 2014 Clause A.9,A.10 & A15 DIN 30670 : 2012 (Annex C) DIN 30678 : 2013 (Annex C) I.S. EN ISO 21809-3:2016&A1:2020 (Annex G) ASTM G 95-07 : Reapproved 2013.	
	Fusion Bonded Epoxy, Polyethylene, Polypropylene, Adhesive	Density of material	CSA Z 245 20 : 2018 Clause 12.6 NACE SP 0394 : 2013 (Appendix A) AS 3862 : 2020 (Appendix D) I.S EN ISO 21809-1 : 2018 (Annex M) I.S EN ISO 21809-2 : 2014 Clause A.7	

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Mechanical	Fusion Bonded Epoxy Coating / 3Layer Polypropylene coating / 3Layer Polyethylene coating	Cross-section and interface porosity test	CSA Z 245 20 : 2018 Clause 12.10 CSA Z 245-21 : 2018 Clause 12.10 Of CSA Z 245 20 2018 AS 3862 : 2020 (Appendix I) I.S EN ISO 21809-2 : 2014 Clause A.12 NACE SP 0394 : 2013 (Appendix G)	
	Fusion Bonded Epoxy Coating	Interface contamination	CSA Z 245 20 : 2018 Clause 12.9 NACE SP 0394 : 2013 (Appendix G) AS/NZS 3862 : 2002 (Appendix R) I.S EN ISO 21809-2 : 2014 Clause A.11	
	Fusion Bonded Epoxy Coating, Enamel Coating, Polyolefine coating on steel (3Layer Polypropylene / Heat Shrink Sleeve / 3Layer Polyethylene)	Impact resistance	CSA Z 245 20 : 2018 Clause 12.12 CSA Z 245 21 : 2018 Tabel 1 (Concluded) I.S EN ISO 21809-1 : 2018 (Annex E) NACE SP 0394 : 2013 (Appendix I) AS 3862 : 2020 Tabel B.1 (Refer to ASTM G14) DIN 30670 : 2012 (Annex H) DIN 30678 : 2013 (Annex E) ASTM G14 : 04 : Reapproved 2018; I.S EN ISO 21809-2 : 2014; Clause A.14 I.S. EN ISO 21809-3:2016&A1:2020 Clause A.12.54	
	Fusion Bonded Epoxy Coating, Enamel Coating, Polyolefine coating on steel (3Layer Polypropylene / 3 Layer Polyethylene)	Gouge resistance	CSA Z 245 20 : 2018 Clause 12.15 CSA Z 245 21 : 2018 Clause 12.7	
	Fusion Bonded Epoxy Powder	Gel time	CSA Z 245 20 : 2018 Clause 12.2 CSA Z 245 21 : 2018; Tabel 4 (Concluded) Clause 12.2 Of CSA Z 245 20 2018 I.S EN ISO 21809-1 : 2018 (Annex J) I.S EN ISO 21809-2 : 2014 (Butir A.3) AS 3862 : 2020 (Appendix E) NACE SP 0394 : 2013 (Appendix C)	

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Mechanical	Fusion Bonded Epoxy Powder	Moisture content	CSA Z 245 20 : 2018 Clause 12.4 CSA Z 245 21 : 2018; Clause 12.4 Of CSA Z 245 20 2018 I.S EN ISO 21809-1 : 2018 (Annex K) AS 3862 : 2020 (Appendix G)	
	Polyethylene/ Polypropylene/ Adhesive material	Melt flow rate (MFR)	ASTM D 1238 : 2020; ISO 1133-1 : 2011	
	Fusion Bonded Epoxy Powder, Fusion Bonded Epoxy Coating	Thermal Characteristics (Tg1, Tg2, Delta H) and Cure test (DSC Analysis)	CSA Z 245 20 : 2018 Clause 12.7 CSA Z 245 21 : 2018 Tabel 1 Clause 12.7 Of CSA Z 245 20 2018 NACE SP 0394 : 2013 (Appendix D) AS 3862 : 2020 (Appendix H) I.S EN ISO 21809-1 : 2018 (Annex D) DIN 30670 : 2012 (Annex B) DIN 30678 : 2013 (Annex B) I.S EN ISO 21809-2 : 2014	
	Plastics - Polyolefine Coating (Polyethylene/ Polypropylene/ Injection Molded Polypropylene/ Polypropylene Foam)	Oxidative induction time	ASTM D 3895 : 2019, I.S EN ISO 11357-6 : 2018	
	Plastics - Polyolefine Coating (Polyethylene/ Polypropylene/ Injection Molded Polypropylene/ Polypropylene Foam)	Specific heat capacity	I.S EN ISO 11357-4 : 2014	
	Fusion Bonded Epoxy Powder	Sieve analysis - Particle size test	CSA Z-245 20 : 2018 Clause 12.5 AS 3862 : 2020 (Appendix F) I.S EN ISO 21809-2 : 2018	
	Plastics - Polyolefine Coating Material (Polyethylene / Polypropylene, Adhesive)	Vicat softening point test	ASTM D 1525 : 2017, I.S EN ISO 306 : 2013	
	Plastics - Polyolefine Coating Material (Polyethylene / Polypropylene / Adhesive)	Water content of plastics	I.S EN ISO 15512 : 2019	