

APQP/PPAP

WORKBOOK V4.0

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Part Name	PVC Adhesive Tape
Customer Part Number	2702-19mm-GR
Original Part Number	178630 - 2702 19mm x 33m grey
Shown on Drawing Number	Rev.C
Engineering Change Level	ES-KU5T-1A303-AA
Engineering Change Level Date	16/02/2017
IMDS	1188297324
Supplier Name	SCAPA ITALIA SPA
Supplier Code	n.a.
Street Address	Via Vittorio Emanuele II, 27
City	GHISLARENCO
State	ITALY
Zip	13030
Phone Number	+39 0161 867422
Customer Name	Nursan
Division	
Application	FORD
File Name	FILE.XLS
Date	12/01/2023

For sales and technical support contact AIAG at 1-248-358-3570

THE FOLLOWING LEVELS OF DOCUMENTS WERE USED TO PREPARE THIS WORKBOOK.

DOCUMENT	EDITION	PRINTING
ADVANCED PRODUCT QUALITY PLANNING AND CONTROL PLAN REFERENCE MANUAL	First	feb-95
MEASUREMENT SYSTEM ANALYSIS	Third	mar-02
POTENTIAL FAILURE MODE AND EFFECTS ANALYSIS	Third	apr-01
PRODUCTION PART APPROVAL	Fourth	mar-06

	PRODUCT PLAN	Document Rev.	13	Document date	12/10/2022
	REFERENCE: 2702	Name and function:		Corrado Basile Laboratory Manager	

(A)	Width (mm)	see below
(B)	Lenght (m)	see below
(C)	Core characteristics	Scapa Core
(D)	Core diameter (mm)	see below
(E)	Roll diameter (mm)	see below
(F)	Kind of support	PVC film
(G)	Adhesive mass (g/m ²)	Rubber Based 20 ± 7
(H)	Total thickness (µ)	130 ± 25
(I)	Total weight (g/m ²)	143 ± 14

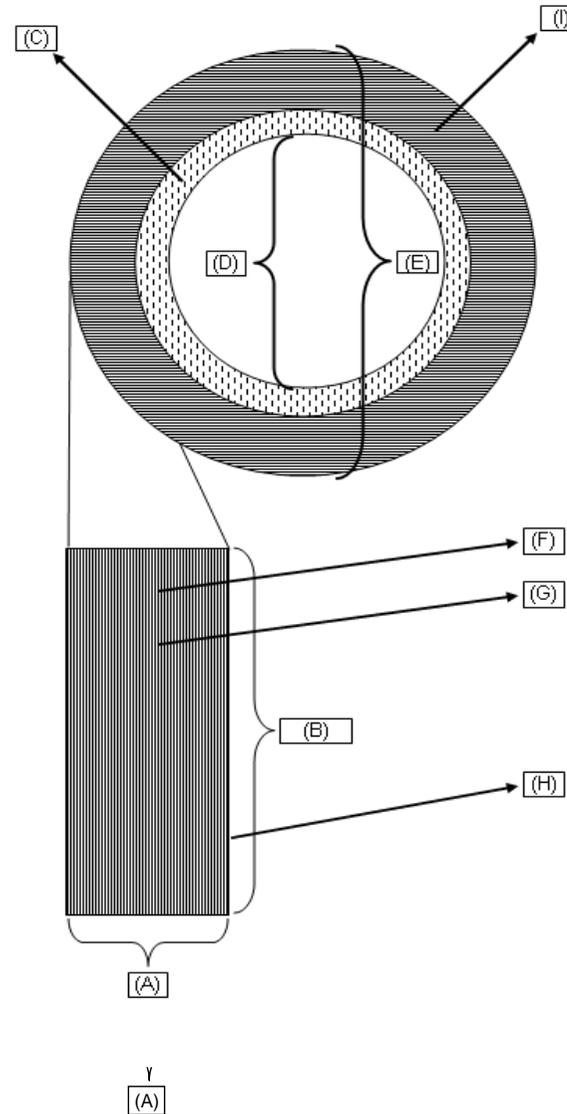
Other characteristics requested: Thermal Class T2
 Unwind Force AFERA 4013: ≥ 1,8 N/cm
 Adhesion to back FCA MS.90111: ≥ 2,0 N/cm
 Tensile Strenght AFERA 5004: ≥ 24 N/cm
 Elongation at break AFERA 5004: ≥ 180%

SAP code	Colour	Length	Width	∅ Core	Roll diameter (min)	Note
		m	mm	mm	mm	
178622	Orange	33 ≥	19 ± 1.0	38	81	
178641	Orange	33 ≥	15 ± 1.0	38	81	
178669	Orange	33 ≥	12 ± 1.0	38	81	
178650	Orange	33 ≥	9 ± 1.0	38	81	
178671	White	33 ≥	12 ± 1.0	38	81	
178652	White	33 ≥	9 ± 1.0	38	81	
178624	White	33 ≥	19 ± 1.0	38	81	
178670	Blue	33 ≥	12 ± 1.0	38	81	
178623	Blue	33 ≥	19 ± 1.0	38	81	
178630	Grey	33 ≥	19 ± 1.0	38	81	
178674	Green	33 ≥	12 ± 1.0	38	81	
178633	Green	33 ≥	19 ± 1.0	38	81	
178672	Yellow	33 ≥	12 ± 1.0	38	81	
178617	Yellow	33 ≥	15 ± 1.0	38	81	
178625	Yellow	33 ≥	19 ± 1.0	38	81	
178673	Red	33 ≥	12 ± 1.0	38	81	
178654	Violet	33 ≥	9 ± 1.0	38	81	
178651	Blue	33 ≥	9 ± 1.0	38	81	
178653	Green	33 ≥	9 ± 1.0	38	81	
178685	Yellow	33 ≥	9 ± 1.0	38	81	
178632	Red	33 ≥	19 ± 1.0	38	81	
178923	Red	33 ≥	9 ± 1.0	38	81	
178619	Red	33 ≥	15 ± 1.0	38	81	
178615	Blue	33 ≥	15 ± 1.0	38	81	
103338	Light Green	33 ≥	19 ± 1.0	38	81	
178631	Brown	33 ≥	19 ± 1.0	38	81	

The product is conform to the European Directives : 2000/53 (2002/525) -2011/65-2012/96-2013/11-2006/122. the product complies to REACH regulation.

Customer Validation		
Customer:	Name and function :	Date:

DRAWING



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	LABORATORY TEST REPORT	February 16 th , 2017
	ATR 2894 - Scapa 2702 FORD ES-KU5T- 1A303-AA Let.C specification (issue January 2017)	

1. OBJECTIVE Scapa 2702 in class B towards Ford ES-KU5T-1A303 AA LET C specification.

2. REFERENCE, DIMENSIONS AND BATCH NUMBER : 2702 black 33m x 19mm

3. TYPE OF ASSEMBLY : 50% overlap.

4. PART IDENTIFICATION : [ES-KU5T-1A303-AA \(B10Y00\)](#) .

5. EQUIPMENTS

Abrasion test machine according to ISO 6722-1 SCAPA N°1379.

Dynamometer MTS 2/M N° 1201 with sensor 100N N° 1217.

Ventilated oven Climats XU250 N°1331 for fluid resistance tests.

Ventilated oven Climats XU250 n°1350 for heat ageing test.

Climatic chamber Excal 2213-HE N°1330.

Sound dampening machine n°1309

0011 Fog – Test hart scientific VA-04

6. TEST CONDITIONS : 23 ± 2°C, and 50±5% of relative humidity.

7. REMARKS

Fluid resistance test: The liquid C is replaced by “SP95” unleaded petrol, test made only on harness with FLRY PVC 0.35² Coficab.

All the tests “ Bundling performance and material compatibility” are realised with twisted wires :

- FLRY PVC Coficab 0.35²
- FLRY PVC Leoni 0.5² (instead of 0.35²)

Cold flexibility test made on twisted wires FLRY PVC 0.35² Coficab.

Flammability test made on harness with FLRY PVC 0.35² Coficab.

8. PERSONN IN CHARGE OF TEST AND FUNCTION Pierre Tissot, Senior Testing Specialist - Automotive.

9. RESULTS



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Test procedure	Performance criteria	Requirements	Time	Measures	Result	Approval	Observation
§ 7.4	Fluid resistance Brake fluid at 23°C	Bundling No cracking, melting, or degradation after bending around a 40mm diameter mandrel Flagging ≤ 10mm	24h at 23°C	Pass all the requirements	Bundling In accordance with the requirements Adhesion performance In accordance with the requirements	OK	
			48h at 23°C	Pass all the requirements			
			72h at 23°C	Pass all the requirements			
	Unleaded petrol “SP95” at 23°C	Adhesion performance the adhesive tape should still exhibit self-adhesive properties. Reduced adhesiveness as compared to the unaged sample is permitted; full hardening or adopting a paint-like condition is, however, not permitted. The aged sample wiring harness may be sticky; however, the adhesive shall not be transferred to clean fingers. Noticeable discoloration of the adhesive tape is not allowed.	24h at 23°C	Pass all the requirements	Bundling In accordance with the requirements Adhesion performance In accordance with the requirements	OK	
			48h at 23°C	Pass all the requirements			
			72h at 23°C	Pass all the requirements			
	Diesel at 23°C	Adhesion performance the adhesive tape should still exhibit self-adhesive properties. Reduced adhesiveness as compared to the unaged sample is permitted; full hardening or adopting a paint-like condition is, however, not permitted. The aged sample wiring harness may be sticky; however, the adhesive shall not be transferred to clean fingers. Noticeable discoloration of the adhesive tape is not allowed.	24h at 23°C	Pass all the requirements	Bundling In accordance with the requirements Adhesion performance In accordance with the requirements	OK	
			48h at 23°C	Pass all the requirements			
			72h at 23°C	Pass all the requirements			



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Test procedure	Tape criteria	units	Requirements Cloth tapes	Roll	Measures					Result	Approval	Observation
ASTM D1000	Tensile strength	N/cm	> 15	1	31,3					Min 26,7 Average 28,8N/cm	OK	
				2	27,3							
				3	26,7							
				4	27,3							
				5	31,4							
ASTM D1000	Elongation at break	%	> 125	1	247					Min 169 Average 200%	OK	
				2	190							
				3	169							
				4	179							
				5	215							
ASTM D1000	Adhesion to steel after 20min	N/cm	≥1,0	1	4,2					Min 4,0 Average 4,1N/cm	OK	
				2	4,1							
				3	4,2							
				4	4,2							
				5	4,0							
ASTM D1000	Adhesion to backing after 20min	N/cm	≥1,0	1	3,6					Min 3,4 Average 3,5N/cm	OK	
				2	3,6							
				3	3,4							
				4	3,4							
				5	3,5							
§ 7.11 ISO 6722-1	Abrasion resistance (5mm mandrel)	Cycles	Report class	1						< 10cycles	Class 0	< 100 : Class 0 100 – 499 : Class 1 500 – 999 : Class 2 1000 – 4999 : Class 3 5000 -14999 : Class 4 15000-29999: Class 5 >29999 : Class 6
				2								
§ 7.10	Noise dampening (A)	dB	Report class	1	79,4	79,3	79,3	79,5	79,2	Sound level without tape 79,8dB Average 79,3 A = 0,5dB	Class 0	≤ 2 : Class 0 >2 to ≤ 5 : Class 1 >5 to ≤ 10 : Class 2 >10 to ≤ 15 : Class 3 > 15 : Class 4
				2	79,3	79,1	79,3	79,6	79,2			
				3	79,2	79,3	79,3	79,4	79,4			
				4	79	79	79,1	79	79,1			
				5	79,4	79,7	79,7	79,5	79,4			



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Test procedure	Performance criteria	Requirements	Sample	Measures	Result	Approval	Observation
Bundling performance and compatibility : Twisted wires FLRY wires from Coficab							
§ 7.3.1	Initial testing	No cracking or flagging after bending around a 40mm diameter mandrel	1	Pass all the requirements	In accordance with the requirements	OK	
			2				
§ 7.3.2 7.3.5 6.1	Environmental cycling <i>1 Specimen tested immediately after 7 exposure cycles. 4 specimens tested 4 at 23°C after 7 exposure cycles.</i>	<p>Bundling No cracking, melting, or degradation after bending around a 40mm diameter mandrel (environmental cycling) or 20mm (thermal overload) Flagging < 10mm Noticeable discoloration is not allowed</p> <p>Compatibility One wire from the specimen is then wrapped at least two times tightly around a mandrel with diameter of 10 mm and is visually evaluated. If requested, wrap the wires around a 2 mm mandrel and evaluate; this test shall be for information only. The wire shall not exhibit any cracks, fractures or brittleness and shall not be swollen or shrunken. The original color shall still be visible, identifiable and recognizable</p> <p>Adhesion performance the adhesive tape should still exhibit self-adhesive properties. Reduced adhesiveness as compared to the unaged sample is permitted; full hardening or adopting a paint-like condition is, however, not permitted. The aged sample wiring harness may be sticky; however, the adhesive shall not be transferred to clean fingers. Noticeable discoloration of the adhesive tape is not allowed.</p>	1	<p>Bundling Pass all the requirements without flagging Compatibility Pass all the requirements on 10 and 2mm mandrels Adhesion performance Pass all the requirements</p>	In accordance with the requirements	OK	
			2				
			3				
			4				
			5				
§ 7.3.4 7.3.5 6.1	Thermal overload 6h at 150°C (service t° + 50°C)	<p>Bundling the adhesive tape should still exhibit self-adhesive properties. Reduced adhesiveness as compared to the unaged sample is permitted; full hardening or adopting a paint-like condition is, however, not permitted. The aged sample wiring harness may be sticky; however, the adhesive shall not be transferred to clean fingers. Noticeable discoloration of the adhesive tape is not allowed.</p> <p>Adhesion performance the adhesive tape should still exhibit self-adhesive properties. Reduced adhesiveness as compared to the unaged sample is permitted; full hardening or adopting a paint-like condition is, however, not permitted. The aged sample wiring harness may be sticky; however, the adhesive shall not be transferred to clean fingers. Noticeable discoloration of the adhesive tape is not allowed.</p>	1	<p>Bundling Pass all the requirements without flagging Compatibility Pass all the requirements on 10 and 2mm mandrels Adhesion performance Pass all the requirements</p>	In accordance with the requirements	OK	
			2				
			3				
			4				
			5				



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Test procedure	Performance criteria	Requirements	Time	Measures	Result	Approval	Observation
Twisted wires FLRY wires from Coficab							
§ 7.3.3 7.3.5 6.1	Heat ageing after 3000h at 100°C (service t°)	<p>Bundling No cracking, melting, or degradation after bending around a 20mm diameter mandrel Flagging ≤ 10mm Noticeable discoloration is not allowed</p>	1500h (5 samples)	<p>Bundling Pass all the requirements without flagging</p> <p>Compatibility Pass all the requirements on 10 and 2mm mandrels</p> <p>Adhesion performance Pass all the requirements</p>	In accordance with the requirements	CLASS B	
		<p>Compatibility One wire from the specimen is then wrapped at least two times tightly around a mandrel with diameter of 10 mm and is visually evaluated. If requested, wrap the wires around a 2 mm mandrel and evaluate; this test shall be for information only. The wire shall not exhibit any cracks, fractures or brittleness and shall not be swollen or shrunken. The original color shall still be visible, identifiable and recognizable</p>	2000h (5 samples)	<p>Bundling Pass all the requirements without flagging</p> <p>Compatibility Pass all the requirements on 10 and 2mm mandrels</p> <p>Adhesion performance Pass all the requirements</p>	In accordance with the requirements		
		<p>Adhesion performance the adhesive tape should still exhibit self-adhesive properties. Reduced adhesiveness as compared to the unaged sample is permitted; full hardening or adopting a paint-like condition is, however, not permitted. The aged sample wiring harness may be sticky; however, the adhesive shall not be transferred to clean fingers. Noticeable discoloration of the adhesive tape is not allowed.</p>	2500h (5 samples)	<p>Bundling Pass all the requirements without flagging</p> <p>Compatibility Pass all the requirements on 10 and 2mm mandrels</p> <p>Adhesion performance Pass all the requirements</p>	In accordance with the requirements		
			3000h (5 samples)	<p>Bundling Pass all the requirements without flagging</p> <p>Compatibility Pass all the requirements on 10mm mandrel</p> <p>Adhesion performance Pass all the requirements</p>	In accordance with the requirements		



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Test procedure	Performance criteria	Requirements	Sample	Measures	Result	Approval	Observation
Bundling performance and compatibility : Twisted wires FLRY wires from Leoni							
§ 7.3.1	Initial testing	No cracking or flagging after bending around a 40mm diameter mandrel	1	Pass all the requirements	In accordance with the requirements	OK	
			2				
§ 7.3.2 7.3.5 6.1	Environmental cycling <i>1 Specimen tested immediately after 7 exposure cycles. 4 specimens tested 4 at 23°C after 7 exposure cycles.</i>	<p>Bundling No cracking, melting, or degradation after bending around a 40mm diameter mandrel (environmental cycling) or 20mm (thermal overload) Flagging < 10mm Noticeable discoloration is not allowed</p> <p>Compatibility One wire from the specimen is then wrapped at least two times tightly around a mandrel with diameter of 10 mm and is visually evaluated. If requested, wrap the wires around a 2 mm mandrel and evaluate; this test shall be for information only. The wire shall not exhibit any cracks, fractures or brittleness and shall not be swollen or shrunken. The original color shall still be visible, identifiable and recognizable</p> <p>Adhesion performance the adhesive tape should still exhibit self-adhesive properties. Reduced adhesiveness as compared to the unaged sample is permitted; full hardening or adopting a paint-like condition is, however, not permitted. The aged sample wiring harness may be sticky; however, the adhesive shall not be transferred to clean fingers. Noticeable discoloration of the adhesive tape is not allowed.</p>	1	<p>Bundling Pass all the requirements without flagging Compatibility Pass all the requirements on 10 and 2mm mandrels Adhesion performance Pass all the requirements</p>	In accordance with the requirements	OK	
			2				
			3				
			4				
			5				
§ 7.3.4 7.3.5 6.1	Thermal overload 6h at 150°C (service t° + 50°C)	<p>Bundling The wire shall not exhibit any cracks, fractures or brittleness and shall not be swollen or shrunken. The original color shall still be visible, identifiable and recognizable</p> <p>Adhesion performance the adhesive tape should still exhibit self-adhesive properties. Reduced adhesiveness as compared to the unaged sample is permitted; full hardening or adopting a paint-like condition is, however, not permitted. The aged sample wiring harness may be sticky; however, the adhesive shall not be transferred to clean fingers. Noticeable discoloration of the adhesive tape is not allowed.</p>	1	<p>Bundling Pass all the requirements without flagging Compatibility Pass all the requirements on 10 and 2mm mandrels Adhesion performance Pass all the requirements</p>	In accordance with the requirements	OK	
			2				
			3				
			4				
			5				



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Test procedure	Performance criteria	Requirements	Time	Measures	Result	Approval	Observation
Twisted wires FLRY wires from Leoni							
§ 7.3.3 7.3.5 6.1	Heat ageing after 3000h at 100°C (service t°)	<p>Bundling No cracking, melting, or degradation after bending around a 20mm diameter mandrel Flagging ≤ 10mm Noticeable discoloration is not allowed</p>	1500h (5 samples)	<p>Bundling Pass all the requirements without flagging</p> <p>Compatibility Pass all the requirements on 10 and 2mm mandrels</p> <p>Adhesion performance Pass all the requirements</p>	In accordance with the requirements	CLASS B	
		<p>Compatibility One wire from the specimen is then wrapped at least two times tightly around a mandrel with diameter of 10 mm and is visually evaluated. If requested, wrap the wires around a 2 mm mandrel and evaluate; this test shall be for information only. The wire shall not exhibit any cracks, fractures or brittleness and shall not be swollen or shrunken. The original color shall still be visible, identifiable and recognizable</p>	2000h (5 samples)	<p>Bundling Pass all the requirements without flagging</p> <p>Compatibility Pass all the requirements on 10 and 2mm mandrels</p> <p>Adhesion performance Pass all the requirements</p>	In accordance with the requirements		
		<p>Adhesion performance the adhesive tape should still exhibit self-adhesive properties. Reduced adhesiveness as compared to the unaged sample is permitted; full hardening or adopting a paint-like condition is, however, not permitted. The aged sample wiring harness may be sticky; however, the adhesive shall not be transferred to clean fingers. Noticeable discoloration of the adhesive tape is not allowed.</p>	2500h (5 samples)	<p>Bundling Pass all the requirements without flagging</p> <p>Compatibility Pass all the requirements on 10 and 2mm mandrels</p> <p>Adhesion performance Pass all the requirements</p>	In accordance with the requirements		
			3000h (5 samples)	<p>Bundling Pass all the requirements without flagging</p> <p>Compatibility Pass all the requirements on 10 and 2mm mandrels</p> <p>Adhesion performance Pass all the requirements</p>	In accordance with the requirements		



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Test procedure	Performance criteria	Requirements	Time	Measures	Result	Approval	Observation
§ 7.4	Fluid resistance Battery acid at 23°C	<p>Bundling No cracking, melting, or degradation after bending around a 40mm diameter mandrel Flagging ≤ 10mm</p> <p>Adhesion performance the adhesive tape should still exhibit self-adhesive properties. Reduced adhesiveness as compared to the unaged sample is permitted; full hardening or adopting a paint-like condition is, however, not permitted. The aged sample wiring harness may be sticky; however, the adhesive shall not be transferred to clean fingers. Noticeable discoloration of the adhesive tape is not allowed.</p>	Harness with FLRY Coficab				
			24h at 23°C	Pass all the requirements	<p>Bundling In accordance with the requirements Adhesion performance In accordance with the requirements</p>	OK	
			48h at 23°C	Pass all the requirements			
	72h at 23°C		Pass all the requirements				
	Windshield washer at 23°C		24h at 23°C	Pass all the requirements	<p>Bundling In accordance with the requirements Adhesion performance In accordance with the requirements</p>	OK	
			48h at 23°C	Pass all the requirements			
			72h at 23°C	Pass all the requirements			
	Engine coolant at 90°C		24h at 23°C	Pass all the requirements	<p>Bundling In accordance with the requirements Adhesion performance In accordance with the requirements</p>	OK	
			48h at 23°C	Pass all the requirements			
72h at 23°C		Pass all the requirements					



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Test procedure	Performance criteria	Requirements	Time	Measures	Result	Approval	Observation
§ 7.4	Fluid resistance Ethanol 85 at 23°C	Bundling No cracking, melting, or degradation after bending around a 40mm diameter mandrel Flagging ≤ 10mm	24h at 23°C	Pass all the requirements	Bundling In accordance with the requirements Adhesion performance In accordance with the requirements	OK	
			48h at 23°C	Pass all the requirements			
			72h at 23°C	Pass all the requirements			
	Transmission fluid at 90°C	Adhesion performance the adhesive tape should still exhibit self-adhesive properties. Reduced adhesiveness as compared to the unaged sample is permitted; full hardening or adopting a paint-like condition is, however, not permitted. The aged sample wiring harness may be sticky; however, the adhesive shall not be transferred to clean fingers. Noticeable discoloration of the adhesive tape is not allowed.	24h at 23°C	Pass all the requirements	Bundling In accordance with the requirements Adhesion performance In accordance with the requirements	OK	
			48h at 23°C	Pass all the requirements			
			72h at 23°C	Pass all the requirements			
	Power steering fluid at 90°C	Adhesion performance the adhesive tape should still exhibit self-adhesive properties. Reduced adhesiveness as compared to the unaged sample is permitted; full hardening or adopting a paint-like condition is, however, not permitted. The aged sample wiring harness may be sticky; however, the adhesive shall not be transferred to clean fingers. Noticeable discoloration of the adhesive tape is not allowed.	24h at 23°C	Pass all the requirements	Bundling In accordance with the requirements Adhesion performance In accordance with the requirements	OK	
			48h at 23°C	Pass all the requirements			
			72h at 23°C	Pass all the requirements			



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Test procedure	Performance criteria	Requirements	Time	Measures	Result	Approval	Observation
§ 7.4	Fluid resistance Engine oil at 90°C	Bundling No cracking, melting, or degradation after bending around a 40mm diameter mandrel Flagging ≤ 10mm	24h at 23°C	Pass all the requirements	Bundling In accordance with the requirements Adhesion performance In accordance with the requirements	OK	
			48h at 23°C	Pass all the requirements			
			72h at 23°C	Pass all the requirements			
	Engine cleaner at 23°C	Adhesion performance the adhesive tape should still exhibit self-adhesive properties. Reduced adhesiveness as compared to the unaged sample is permitted; full hardening or adopting a paint-like condition is, however, not permitted. The aged sample wiring harness may be sticky; however, the adhesive shall not be transferred to clean fingers. Noticeable discoloration of the adhesive tape is not allowed.	24h at 23°C	Pass all the requirements	Bundling In accordance with the requirements Adhesion performance In accordance with the requirements	OK	
			48h at 23°C	Pass all the requirements			
			72h at 23°C	Pass all the requirements			
	Salt spray at 23°C	Adhesion performance the adhesive tape should still exhibit self-adhesive properties. Reduced adhesiveness as compared to the unaged sample is permitted; full hardening or adopting a paint-like condition is, however, not permitted. The aged sample wiring harness may be sticky; however, the adhesive shall not be transferred to clean fingers. Noticeable discoloration of the adhesive tape is not allowed.	24h at 23°C	Pass all the requirements	Bundling In accordance with the requirements Adhesion performance In accordance with the requirements	OK	
			48h at 23°C	Pass all the requirements			
			72h at 23°C	Pass all the requirements			



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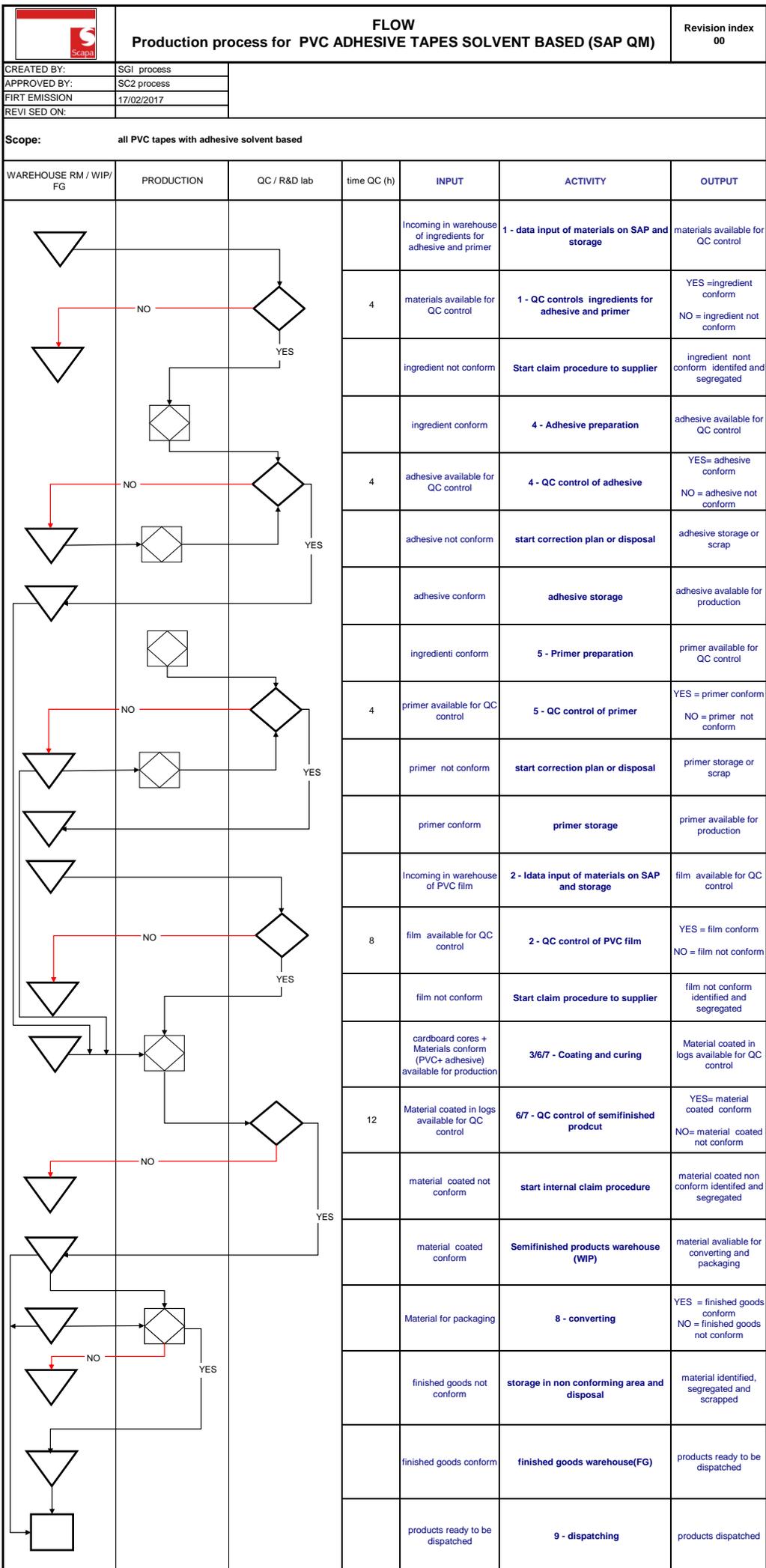
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Test procedure	Tape criteria	units	Requirements	Sample	Measures	Result	Approval	Observation
§ 7.5	Cold flexibility after 4h at -25°C (attach weight 0,5kg, diameter mandrel 20mm)	/	No cracking or degradation	1	No cracking or degradation	In accordance with the requirements	OK	
				2				
				3				
				4				
				5				
§ 7.6 SAE J1756	Fogging 3h at 100°C	/	> 20	6	24,0	Average 23,6	OK	
					27,1			
					19,8			
§ 7.7 ISO 3795 SAE J369	Flammability	mm/min	< 100	1	The combustion stops before the flame front as reached the first reference mark	Burn rate 0mm/min	OK	
				2				
				3				
				4				
				5				
§ 7.8 SAE J1351	Odor Dry Test on harness after 1h at 65°C	/	Maxi 2 for all interior applications	P1	1	Max 2	OK	SAE Classification 1: No noticeable odor 2: Slight, but noticeable odor 3: Definite odor, but no strong enough to be offensive 4: Strong offensive odor 5: Very strong offensive odor
				P2	2			
				P3	1			
§ 7.8 SAE J1351	Odor Wet Test on harness after 1h at 65°C	/	Maxi 2 for all interior applications	P1	1	Max 2	OK	
				P2	2			
				P3	1			
§ 7.12 SAE J2192 March 2015 §7.15 SAE J2302	Thermal effectiveness		Only required for tapes being used for thermal insulation		N/A			
§7.13 SAE 2192 §7.16	Dielectric performance	kV	Only required for splice tapes ≥ 5		N/A			





POTENTIAL FAILURE MODE AND EFFECTS ANALYSIS PROCESS - FMEA

Lingua E

Item/code	All PVC items with solvent based adhesive	Prepared by	Team F.M.E.A.	FMEA date (origin)	17/09/1999
Item Description	PVC ADHESIVE TAPE		S. Balzaretti- Quality, P. Rinaldi - Engineering , C. Basile - QC/R&D Lab, A.Leone- R&D, I.Mazzola- Production, P. Crepaldi - Production Planning	Revision	19
Application	Electrical and General Purpose			Revision date	21/10/2021
Product family	All PVC items with solvent based adhesive	Project Leader	A.Leone - R&D		

summary data	
nr of evaluated RPN	85
RPN ≥ 36 with SEV 9 or 10	0
RPN ≥ 50 with SEV ≥5 and ≤8	5
RPN ≥ 100 with SEV ≤4	0
RPN >0 and ≤36	69
RPN >36 and ≤50	9
RPN >50	7

Sever, Occur, detect score according to ANFIA - Failure Mode and Effects Analysis AQ 009 - 2nd edition



PIANO DI CONTROLLO / CONTROL PLAN No:01/B

<input type="checkbox"/> Prototipo/Prototype	x Produzione/Production	Persona di contatto / Telefono	BASILE Corrado +39 0161 867489	Data 1° emissione/Date (Orig) 20/07/99	Revisione/Date(Rev.)
<input type="checkbox"/> Pre-serie/Pre-launch		Key Contact / Phone			See below Revision History
Codice articolo / Ultimo indice di modifica Part Number / Latest Change Level	TUTTI PRODOTTI IN PVC CON ADESIVO BASE SOLVENTE X USO ELETTRICO E GENERALE / ALL PVC PRODUCTS WITH SOLVENT BASED ADHESIVE FOR ELECTRICAL AND GENERAL PURPOSE	Componenti Team / Core Team DEI -BALZARETTI - LEONE - BASILE - MAZZOLA		Approvazione Tecnica del Cliente (se richiesto) / Customer Engineering Approval/Date (if req'd)	
Descrizione dell'articolo Description	NASTRI ADESIVI PVC PLASTIFICATO X USO ELETTRICO E GENERALE/ PLASTICIZED PVC ADHESIVE TAPE X ELECTRICAL AND GENERAL PURPOSE	Approvazione piano / Data / Supplier / Plant Approval/Date Leone - 12/02/2021		Approvazione Qualità del Cliente (se richiesto)/ Customer Quality Approval/Date (if Req'd)	
Fornitore / Stabilimento - Supplier / Plant SITE DI GHISLARENGO (ITALIA)	Codice Fornitore/Supplier Code N.A.	Approvazione altri Enti/Data / Other Approval/Date N.A.		Approvazione di altri Enti del Cliente (se richiesto)/ Other Approval/Date(if Req'd) N.A.	

Fase Step	Descrizione operazione Process Name/Operation Description	Macchine, attrezzature, controlli, Processo Fase Machine,device,jg,tools for Mfg, Process phase	Caratteristiche / Characteristics			Spec. Chart class	Metodi/Method				Piano di reazione - Reaction plan	
			N.ro	Prodotto / Product	Processo / Process		Specifiche/tolleranze del Prodotto/Processo - Product/Process Specification tolerance	Modalità di valutazione e/o misurazione - Evaluation/Measurement Technique	Campioni/Sample			Metodo di controllo - Control method
									Dim./Size	Freq.		
1	RAW MATERIAL (ADHESIVE INGREDIENTS)	WAREHOUSE INCOMING INSPECTION	10	5000001 - CONGRUENCE DDT / ORDER CONFIRMATION		Ⓟ	Sap Inspection plans 8381-8410-8378-8409-8411	VISUAL	ALL	100% ARRIVES	Sap method 5000001	CONTACT SUPPLIER
		WAREHOUSE INCOMING INSPECTION	20	5000002 - PACKAGING CONFORMITY			Sap Inspection plans 8381-8410-8378-8409-8411	VISUAL	ALL	100% ARRIVES	Sap method 5000002	CONTACT SUPPLIER
		QC INCOMING INSPECTION	10	5000010 - PRESENCE OF COA-COC			Sap Inspection plans 8381-8410-8378-8409-8411	VISUAL	ALL	100% ARRIVES	Sap method 5000010	INFORM LAB. RESPONSIBLE
		QC INCOMING INSPECTION	20	5000015 - DATA VERIFICATION ON COA-COC		Ⓟ	Sap Inspection plans 8381-8410-8378-8409-8411	VISUAL	ALL	100% ARRIVES	Sap method 5000015	INFORM LAB. RESPONSIBLE
1	RAW MATERIAL (PRIMER INGREDIENTS)	WAREHOUSE INCOMING INSPECTION	10	5000001 - CONGRUENCE DDT / ORDER CONFIRMATION		Ⓟ	Sap Inspection plans 8470-8471-8472-8473	VISUAL	1	100% ARRIVES	Sap method 5000001	CONTACT SUPPLIER
		WAREHOUSE INCOMING INSPECTION	20	5000002 - PACKAGING CONFORMITY			Sap Inspection plans 8470-8471-8472-8473	VISUAL	1	100% ARRIVES	Sap method 5000002	CONTACT SUPPLIER
		QC INCOMING INSPECTION	10	5000010 - PRESENCE OF COA-COC			Sap Inspection plans 8470-8471-8472-8473	VISUAL	1	100% ARRIVES	Sap method 5000010	INFORM LAB. RESPONSIBLE
		QC INCOMING INSPECTION	20	5000015 - DATA VERIFICATION ON COA-COC		Ⓟ	Sap Inspection plans 8470-8471-8472-8473	VISUAL	1	100% ARRIVES	Sap method 5000015	INFORM LAB. RESPONSIBLE
2	RAW MATERIAL (PVC film)	WAREHOUSE INCOMING INSPECTION	10	5000001 - CONGRUENCE DDT / ORDER CONFIRMATION		Ⓟ	several SAP inspection plans	VISUAL	ALL	100% ARRIVES	Sap method 5000001	CONTACT SUPPLIER
		WAREHOUSE INCOMING INSPECTION	20	5000002 - PACKAGING CONFORMITY			several SAP inspection plans	VISUAL	ALL	100% ARRIVES	Sap method 5000002	CONTACT SUPPLIER

Fase Step	Descrizione operazione Process Name/Operation Description	Macchine, attrezzature, controlli, Processo Fase Machine, device, jg, tools for Mfg. Process phase	Caratteristiche / Characteristics			Spec. Chart class	Metodi/Method					Piano di reazione - Reaction plan
			N.ro	Prodotto / Product	Processo / Process		Specifiche/tolleranze del Prodotto/Processo - Product/Process Specification tolerance	Modalità di valutazione e/o misurazione - Evaluation/Measurement Technique	Campioni/Sample		Metodo di controllo - Control method	
									Dim./Size	Freq.		
		QC INCOMING INSPECTION	10	5000010 - PRESENCE OF COA-COC			several SAP inspection plans	VISUAL	1	100% ARRIVES	Sap method 5000010	INFORM LAB. RESPONSIBLE
		QC INCOMING INSPECTION	20	5000015 - DATA VERIFICATION ON COA-COC			several SAP inspection plans	VISUAL	1	100% ARRIVES	Sap method 5000015	INFORM LAB. RESPONSIBLE
		QC INCOMING INSPECTION	30	5000044 - SELF EXTINGUISHING			several SAP inspection plans	BURNER + CHAMBER	1	Sap Dynamic Skip Z03	Sap method 5000044	INFORM LAB. RESPONSIBLE
		QC INCOMING INSPECTION	40	5000003 - THICKNESS			several SAP inspection plans	THICKNESS GAUGE (plate for PVC)	25	Sap Dynamic Skip Z03	Sap method 5000003	INFORM LAB. RESPONSIBLE
		QC INCOMING INSPECTION	50	5000017 - BREAKING STRENGTH			several SAP inspection plans	DYNAMOMETER	3	Sap Dynamic Skip Z03	Sap method 5000017	INFORM LAB. RESPONSIBLE
		QC INCOMING INSPECTION	60	5000018 - ELONGATION AT BREAK			several SAP inspection plans	DYNAMOMETER	3	Sap Dynamic Skip Z03	Sap method 5000018	INFORM LAB. RESPONSIBLE
		QC INCOMING INSPECTION	70	500042 - GLOSS FILM			several SAP inspection plans	GLOSSMETER	3	Sap Dynamic Skip Z03	Sap method 5000042	INFORM LAB. RESPONSIBLE
		QC INCOMING INSPECTION	80	500043 - ELASTIC MODULE			several SAP inspection plans	DYNAMOMETER	3	Sap Dynamic Skip Z03	Sap method 5000043	INFORM LAB. RESPONSIBLE
4	ADHESIVE MIXING	CONTROL IN LINE	10	5000009 - WEIGHING INGREDIENTS			Sap Inspection plan 8383	DEPT. BALANCE	1	100% BATCHES	IL-05	INFORM SHIFT LEADER
		CONTROL IN LINE	20		5000060 - DISSOLUTION TIME		Sap Inspection plan 8383	MIXER 1-2-3	1	100% BATCHES	IL-05	INFORM SHIFT LEADER
		CONTROL IN LINE	30		5000061 - DISSOLUTION TEMPERATURE		Sap Inspection plan 8383	MIXER 1-2-3	1	100% BATCHES	IL-05	INFORM SHIFT LEADER
		CONTROL IN LINE	40		5000062 - RETICULATION TEMPERATURE		Sap Inspection plan 8383	MIXER 1-2-3	1	100% BATCHES	IL-05	INFORM SHIFT LEADER
		QC LABORATORY	10	5000006 - % DRY INGREDIENTS			Sap Inspection plan 8383	LABORATORY THERMO BALANCE	1	100% BATCHES	Sap method 5000016	INFORM LAB. RESPONSIBLE
		QC LABORATORY	20	5000016-VISCOSITY BROOKFIELD			Sap Inspection plan 8383	BROOKFIELD VISCOSIMETER (ROTOR N°7)	1	100% BATCHES	Sap method 5000006	INFORM LAB. RESPONSIBLE
		QC LABORATORY	40	5000034 - ADHESION TO STEEL			Sap Inspection plan 8383	DYNAMOMETER	2	Sap Dynamic Skip Z05	Sap method 5000034	INFORM LAB. RESPONSIBLE
		QC LABORATORY	50	5000050 - ADHESIVE RETICULATION			Sap Inspection plan 8383	DYNAMOMETER	1	100% BATCHES	Sap method 5000050	INFORM LAB. RESPONSIBLE
5	PRIMER	CONTROL IN LINE	10	5000009 - WEIGHING INGREDIENTS			SAP inspection plan 8458	DEPT. BALANCE	1	100% BATCHES	Sap method 5000009	INFORM SHIFT LEADER
		QC INSPECTION	10	5000006 - % DRY INGREDIENTS			SAP inspection plan 8458	LABORATORY THERMO BALANCE	1	Sap Dynamic Skip Z03	Sap method 5000006	INFORM LAB. RESPONSIBLE
6-7	COATING + CURING	CONTROL IN LINE	10		5000013 - LINE PARAMETERS		several SAP inspection plans (one for each WIP)	VISUAL	1	BATCH STARTING	Sap method 5000013	INFORM SHIFT LEADER

Fase Step	Descrizione operazione Process Name/Operation Description	Macchine, attrezzature, controlli, Processo Fase Machine, device, jg, tools for Mfg. Process phase	Caratteristiche / Characteristics			Spec. Chart class	Metodi/Method					Piano di reazione - Reaction plan
			N.ro	Prodotto / Product	Processo / Process		Specifiche/tolleranze del Prodotto/Processo - Product/Process Specification tolerance	Modalità di valutazione e/o misurazione - Evaluation/Measurement Technique	Campioni/Sample		Metodo di controllo - Control method	
									Dim./Size	Freq.		
		CONTROL IN LINE	20	5000020 - VISUAL ASPECT			several SAP inspection plans (one for each WIP)	VISUAL	1	BATCH STARTING	Sap method 5000020	INFORM SHIFT LEADER
		CONTROL IN LINE	30	5000021 - ADHESIVE QUANTITY			several SAP inspection plans (one for each WIP)	LINE ANALYTICS BALANCE (CAPACITY MAX 0.5 Kg)	3	BATCH STARTING	Sap method 5000021	INFORM SHIFT LEADER
		CONTROL IN LINE	40	5000041 - ADHESIVE ANCHORAGE (FACE TO FACE)			several SAP inspection plans (one for each WIP)	VISUAL	1	BATCH STARTING	Sap method 5000041	INFORM SHIFT LEADER
		CONTROL IN LINE	50		5000055 - CURING OVEN TEMPERATURE		several SAP inspection plans (one for each WIP)	THERMOMETER ON OVEN	1	BATCH STARTING	Sap method 5000055	INFORM SHIFT LEADER
		CONTROL IN LINE	60		5000056 - CURING OVEN CYCLE TIME		several SAP inspection plans (one for each WIP)	CLOCK ON OVEN	1	BATCH STARTING	Sap method 5000056	INFORM SHIFT LEADER
		CONTROL IN LINE	70		5000059 - IDENTIFICATION OF CURING OVEN		several SAP inspection plans (one for each WIP)	OVEN 1-2-3-4-6	1	BATCH STARTING	Sap method 5000059	INFORM SHIFT LEADER
		QC INSPECTION ON WIP	10	5000047 - TELESCOPING AT 50°C			several SAP inspection plans (one for each WIP)	LABORATORY STOVE	1	100% BATCHES	Sap method 5000047	INFORM LAB. RESPONSIBLE
		QC INSPECTION ON WIP	20	5000046 - TELESCOPING AT 70°C			several SAP inspection plans (one for each WIP)	LABORATORY STOVE	1	100% BATCHES	Sap method 5000046	INFORM LAB. RESPONSIBLE
		QC INSPECTION ON WIP	30	5000034 - ADHESION TO STEEL EN60454			several SAP inspection plans (one for each WIP)	DYNAMOMETER	2	Sap Dynamic Skip Z03	Sap method 5000034	INFORM LAB. RESPONSIBLE
		QC INSPECTION ON WIP	40	5000035 - ADHESION TO BACK EN60454			several SAP inspection plans (one for each WIP)	DYNAMOMETER	2	Sap Dynamic Skip Z03	Sap method 5000035	INFORM LAB. RESPONSIBLE
		QC INSPECTION ON WIP	50	5000039 - UNWIND FORCE EN60454			several SAP inspection plans (one for each WIP)	DYNAMOMETER	1	Sap Dynamic Skip Z03	Sap method 5000039	INFORM LAB. RESPONSIBLE
		QC INSPECTION ON WIP	60	5000050 - ADHESIVE RETICULATION			several SAP inspection plans (one for each WIP)	VISUAL	1	100% BATCHES	Sap method 5000018	INFORM LAB. RESPONSIBLE
		QC INSPECTION ON WIP	70	5000048 - ADHESIVE ANCHORAGE (FACE TO FACE) AT 23°C			several SAP inspection plans (one for each WIP)	VISUAL	1	Sap Dynamic Skip Z03	Sap method 5000048	INFORM LAB. RESPONSIBLE
		QC INSPECTION ON WIP	80	5000049 - MANUAL UNWIND AT 23°C			several SAP inspection plans (one for each WIP)	VISUAL	1	Sap Dynamic Skip Z03	Sap method 5000049	INFORM LAB. RESPONSIBLE
		QC INSPECTION ON WIP	90	5000044 - SELF EXTINGUISHING EN 60454			several SAP inspection plans (one for each WIP)	BURNER + CHAMBER	5	Sap Dynamic Skip Z03	Sap method 5000044	INFORM LAB. RESPONSIBLE
		QC INSPECTION ON WIP	100	5000064 - DIELECTRIC STRENGTH DRY			several SAP inspection plans (one for each WIP)	HIGH VOLTAGE GENERATOR	3	Sap Dynamic Skip Z03	Sap method 5000064	INFORM LAB. RESPONSIBLE
		QC INSPECTION ON WIP	110	5000065 - DIELECTRIC STRENGTH WET			several SAP inspection plans (one for each WIP)	HIGH VOLTAGE GENERATOR	3	Sap Dynamic Skip Z03	Sap method 5000065	INFORM LAB. RESPONSIBLE
		QC INSPECTION ON WIP	120	5000012 - TOTAL THICKNESS			several SAP inspection plans (one for each WIP)	THICKNESS GAUGE (plate for PVC)	3	Sap Dynamic Skip Z03	Sap method 5000012	INFORM LAB. RESPONSIBLE
		QC INSPECTION ON WIP	130	5000017 - BREAKING STRENGTH			several SAP inspection plans (one for each WIP)	DYNAMOMETER	1	Sap Dynamic Skip Z03	Sap method 5000017	INFORM LAB. RESPONSIBLE

Fase Step	Descrizione operazione Process Name/Operation Description	Macchine, attrezzature, controlli, Processo Fase Machine,device,jg,tools for Mfg, Process phase	Caratteristiche / Characteristics			Spec. Chart class	Metodi/Method					Piano di reazione - Reaction plan
			N.ro	Prodotto / Product	Processo / Process		Specifiche/tolleranze del Prodotto/Processo - Product/Process Specification tolerance	Modalità di valutazione e/o misurazione - Evaluation/Measurement Technique	Campioni/Sample		Metodo di controllo - Control method	
									Dim./Size	Freq.		
		QC INSPECTION ON WIP	140	5000018 -ELONGATION			several SAP inspection plans (one for each WIP)	DYNAMOMETER	1	Sap Dynamic Skip Z03	Sap method 5000018	INFORM LAB. RESPONSIBLE
		QC INSPECTION ON WIP	150	5000063 -ROLLING BALL TACK (exane)			several SAP inspection plans (one for each WIP)	INCLINED PLAN	1	Sap Dynamic Skip Z03	Sap method 5000063	INFORM LAB. RESPONSIBLE
		QC INSPECTION ON WIP	160	5000021 - ADHESIVE QUANTITY			several SAP inspection plans (one for each WIP)	LABORATORY ANALYTICS BALANCE (CAPACITY MAX 0.5 Kg)	1	Sap Dynamic Skip Z03	Sap method 5000021	INFORM LAB. RESPONSIBLE
8	FINISHED PRODUCT	CONTROL IN LINE	10	5000014 - VISUAL ASPECT			several SAP inspection plans (one for each FG)	VISUAL	3	START-MIDDLE-END OF BATCH	Sap method 5000014	INFORM SHIFT LEADER
		CONTROL IN LINE	20		5000013 - LINE PARAMETERS		several SAP inspection plans (one for each FG)	VISUAL	1	BATCH STARTING	Sap method 5000013	INFORM SHIFT LEADER
		CONTROL IN LINE	30	5000024 - LABEL-BOX-PALLET CHECK			several SAP inspection plans (one for each FG)	VISUAL	1	BATCH STARTING	Sap method 5000024	INFORM SHIFT LEADER
9	SHIPMENT	WAREHOUSE SHIPPING	-		CONGRUENCE ARTICLE TO SEND		Packing list	Batch Management	-	100% Shipment	-	INFORM LOGISTIC MNG

nr	date	reason
15	12/02/2021	General revision based on FMEA update + new characteristic classification

Part Submission Warrant

Part Name PVC Adhesive Tape Cust. Part Number 2702-19mm-GR
 Shown on Drawing Number Rev.C Orig. Part Number 178630 - 2702 19mm x 33m grey
 Engineering Change Level ES-KU5T-1A303-AA Dated January 2017
 Additional Engineering Changes _____ Dated _____
 Safety and/or Government Regulation Yes No Purchase Order No. _____ Weight (kg) _____
 Checking Aid Number _____ Checking Aid Eng. Change Level _____ Dated _____

ORGANIZATION MANUFACTURING INFORMATION**CUSTOMER SUBMITTAL INFORMATION**

SCAPA ITALIA SPA
 Organization Name & Supplier/Vendor Code

Nursan
 Customer Name/Division

Via Vittorio Emanuele II, 27 n.a.
 Street Address

Buyer/Buyer Code

GHISLARENGO 13030 ITALY
 City Region Postal Code Country

Application

MATERIALS REPORTING

Has customer-required Substances of Concern information been reported? Yes No n/a
 Submitted by IMDS or other customer format: 1188297324

Are polymeric parts identified with appropriate ISO marking codes? Yes No n/a

REASON FOR SUBMISSION (Check at least one)

- | | |
|---|--|
| <input checked="" type="checkbox"/> Initial submission | <input type="checkbox"/> Change to Optional Construction or Material |
| <input type="checkbox"/> Engineering Change(s) | <input type="checkbox"/> Sub-Supplier or Material Source Change |
| <input type="checkbox"/> Tooling: Transfer, Replacement, Refurbishment, or additional | <input type="checkbox"/> Change in Part Processing |
| <input type="checkbox"/> Correction of Discrepancy | <input type="checkbox"/> Parts produced at Additional Location |
| <input type="checkbox"/> Tooling Inactive > than 1 year | <input type="checkbox"/> Other - please specify |

REQUESTED SUBMISSION LEVEL (Check one)

- Level 1 - Warrant only (and for designated appearance items, an Appearance Approval Report) submitted to customer.
 Level 2 - Warrant with product samples and limited supporting data submitted to customer.
 Level 3 - Warrant with product samples and complete supporting data submitted to customer.
 Level 4 - Warrant and other requirements as defined by customer.
 Level 5 - Warrant with product samples and complete supporting data reviewed at organization's manufacturing location.

SUBMISSION RESULTS

The results for dimensional measurements material and functional tests appearance criteria statistical process package
 These results meet all design record requirements: Yes NO (If "NO" - Explanation Required)
 Mold / Cavity / Production Process _____

DECLARATION

I affirm that the samples represented by this warrant are representative of our parts, which were made by a process that meets all Production Part Approval Process Manual 4th Edition Requirements. I further affirm that these samples were produced at the production rate of 25000/_8_ hours. I also certify that documented evidence of such compliance is on file and available for your review. I have noted any deviation from this declaration below.

EXPLANATION/COMMENTS: The reference is conform to European Directives: 2000/53 - 2002/95 - 2003/11
the reference is DOP free and complies to REACH regulation

Is each Customer Tool properly tagged and numbered? Yes No n/a

Organization Authorized Signature  Date 12/01/2023

Print Name Sara Balzaretto Phone No. +39 0161 867422 Fax No. +39 0161 860503

Title Quality Manager E-mail sara.balzaretto@scapa.com

FOR CUSTOMER USE ONLY (IF APPLICABLE)

PPAP Warrant Disposition: Approved Rejected Other _____

Customer Signature _____ Date _____

Print Name _____ Customer Tracking Number (optional) _____