Durable Goods Labelling

Labels + Packaging Compliance & Reference Guide Europe 2021



Materials tough enough for durables



Durables, meet your match Labelling durable goods like appliances, automotive components, and industrial equipment is challenging. Surfaces are varied and working conditions are punishing. To label durable goods well, you need materials engineered especially for the job.

At Avery Dennison, we offer a broad range of materials developed for one purpose: to meet the unique needs of durables manufacturers. We design them based on our decades of collaboration with the makers of durable goods, and we back them with the expertise of our global teams of materials scientists, whose innovations define labelling. The result? Labels that consistently stand up to some of labelling's most challenging applications.

Start with the right adhesive

The first challenge of labelling durable goods is understanding the substrate. That means the right adhesive is essential. We offer adhesives for virtually any durables surface, including plastics with low surface energy and lacquers.

Put your best face forward

Durables labels take a lot of abuse. In addition to holding fast, they have to look good and stay legible in spite of weather, chemical exposure, and countless other insults. Our filmic facestocks are engineered for outstanding printability and to stand up to the rough-and-tumble of everyday use.

Whatever the label, a material for the job

We offer materials for constructing branding labels, warning and instructional labels, labels for tracking and tracing, and more. We can also custom-design materials for unique or higher-end applications. All of our materials come with our signature support for choosing and testing the right label material for your application, and with the creative capabilities of our global research and development teams.

For electronics and appliances

UL and C-UL

UL (formerly Underwriters Laboratories, Inc.) is a U.S.-based safety consulting company. Goods and components to be sold in the U.S. must be UL-recognised for safety. UL not only tests and certifies products in its laboratories, but also defines standards and writes specifications. Converters supplying labels for use with a UL-recognised product in the U.S. must use materials that meet all relevant UL requirements.

For labels applied to smooth, flat surfaces, UL sets out requirements for labels in its standard called UL 969 ("Standard for Marking and Labeling Systems"). The standard focuses on the permanence of adhesion and legibility of the label after different exposure conditions.

Chemical rub test of printed labels

A marking durability rub test is often required for labels on electronic and electrical goods. The test involves rubbing a label for 15 seconds with a cloth soaked in water, drying it, and then rubbing it for another 15 seconds with a cloth soaked in n-hexane. We test labels made with our materials according to the widely used specification IEC 60335-1 (7.14). Labels for electric medical equipment are tested for chemical resistance according to IEC 60601-1. This test involves rubbing printed samples for 15 seconds with a cloth soaked in water, followed by 15 seconds of rubbing with methylated spirit, and a final 15-second rub with isopropyl alcohol. The table on pages 4–9 shows test results for thermal transfer printed labels printed with commonly used thermal transfer ribbons. More information is available from your Avery Dennison representative.

For automotive

Federal Motor Vehicle Safety Standards (FMVSS) are U.S. federal regulations. Standard FMVSS 302 relates to the burning behaviour of materials used inside passenger cars, trucks, buses and agriculture machinery. Most automotive OEMs require flammability testing of label materials based on FMVSS 302 and technically equivalent OEM standards. The test is conducted by holding the material horizontally in a U-shaped holder and exposing it to a flame for 15 seconds in a combustion chamber, to see if and when the flame extinguishes, and the time it takes for the flame to pass a defined distance. The burning rate per-minute is then calculated. For most automotive applications, a burning rate of no more than 100 mm/min is acceptable, although some manufacturers have tightened requirements.

Automotive industry specifications In addition to government regulations, automotive OEMs and tier suppliers have their own technical specifications for self-adhesive labels in dedicated applications. Among the most important requirements are for peel-adhesion forces after materials have been stored in defined conditions (including heat, cold, and humidity) and the resistance of printed labels to chemicals and abrasion.

We regularly test label materials against automotive specifications. The table below indicates which of our materials have passed testing against automotive industry specifications for peel-adhesion after exposure to defined environmental conditions on standard laboratory panels. Please contact your Avery Dennison sales representative for details about specific test results.

Compliance: we've got you covered

Durables labels must meet a dizzying array of standards and regulations that vary by segment. Our materials for durable labels are compliant with applicable standards and regulations and are pre-tested for fast approval by regulators and manufacturers.

POWER SUPPLY

PATENT PENDING

MODEL:HR30D12B

OUTPUT:12.6V 2.3A

SAFETY MARK:

CAUTION

prindoor use only Danger high voltage iside this case

otection Fuse T2.5A/250V

INPUT:100-240V~1.0A-0.5A 50-60HZ

Here's a simple guide to some of the most important standards and regulations, along with information about how our products measure up. Please contact your Avery Dennison sales representative if you need additional information or materials testing.

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C-UL is UL's mark of approval in Canada. Labels used in Canada must comply with Canadian Safety Association standard 22.2 no. 0.15 ("Adhesive Labels").

The FMVSS 302 flammability standard

Durables reference chart

			Product Characteristics									Application						1	Printabilit	y	Compliance							
		Code	Color	Topcoat (TC) / Print Treatment (PT)	Adhesive-Technology (Solv/EmAcrylic)	Adhesive coatweight (g/m²)	Thickness face material (µm)	Min. Application temp. (°C)	Min. Service temp. (°C)	Max. Service temp. (°C)		Polar surfaces (high surface tension)	Apolar surfaces (low surface tension)	Rough surfaces	Slightly dirty or oily surfaces	Curved substrates	Good UV resistance / outdoor exposure	Thermal transfer- printability resin ribbon	П-printability r/w ribbons	UV inkjet general (please refer to UV inkjet guide)	UV inkjet UL- approval * details available	UL	c-uL	Chemical rub test ICE 60335-1	Chemical rub test ICE 60601-1	Flammability FMVSS 302	Automotive specifications	
Gloss	white polyester materials																											
Good	Transfer PET white PT16 - S8007 - BG40wh	BD843	white	PT	Em.	19	50	5	-40	120		• • • •	•00					~		~		Indoor	Indoor	~				
	Transfer PET white PT - S8020 - BG42wh	AA639	white	PT	Em.	20	50	5	-40	150		• • •	•00					~		~		Indoor	Indoor	~	~			
	Transfer PET white TOP - S8020 - BG42wh	AA641	white	TC	Em.	20	50	5	-40	150		• • •	•00					~		~		In/Out	Indoor	~	~			
Better	Transfer PET white PT - S8002 - BG42wh	BL805	white	PT	Em.	27	50	5	-40	150		$\bullet \bullet \circ$	••0	•00				~		~		In/Out	In/Out	~	~			
	Transfer PET white TOP - S8002 - BG42wh	BJ330	white	TC	Em.	27	50	5	-40	150		$\bullet \bullet \circ$	••0	•00				~		~	In/Out	In/Out	In/Out	~	~			
	Transfer PET white TOP - S8030 - BG42wh	AD222	white	TC	Solv.	24	50	5	-40	150		$\bullet \bullet \circ$	••0					~		~		Indoor	Indoor	~	~			
Best	Transfer PET white PT - AL170 - BG42wh	AA640	white	PT	Solv.	24	50	0	-80	150		•••						~		~		Indoor		~	~			
	Transfer PET white TOP - AL170 - BG42wh	AA642	white	TC	Solv.	24	50	0	-80	150		•••						~		~		In/Out		~	~		м	
	Transfer PET white TOP - S8015 - BG42wh	AA670	white	TC	Solv.	32	50	7	-40	150		•••	••0	••0				~		~		In/Out	In/Out	~	~		мн	
	Transfer PET white TOP - S8029 - BG45wh	BN947	white	тс	Solv.	27	50	5	-40	150		•••	•••	•00	•00			~		~		In/Out	In/Out	~	~		MHL	
	Transfer PET white TOP - S8049 - BG42wh BSS	AJ059	white	тс	Solv.	45	50	5	-40	150		•••	•••	•••	••0			~		~		In/Out	In/Out	~	~		MHL	
Matt w	hite polyester materials																											
Good	Transfer PET matt white - S8020 - BG42wh	AA643	white	тс	Em.	20	55	5	-40	150		• • • •	•00					~	~			In/Out		~	~			
	Transfer PET matt white TC20 - S8002 - BG42wh	BU455	white	TC	Em.	27	50	5	-40	150		$\bullet \bullet \circ$	••0	•00				~	~			In/Out	In/Out	~	~			
Better	Transfer PET matt white TC20 - S8030 - BG42wh	BW197	white	TC	Solv.	24	50	5	-40	150		$\bullet \bullet \circ$	••0					~	~			Indoor	Indoor	~	~			
	Transfer PET matt white - S8030 - BG42wh	AD223	white	TC	Solv.	24	55	5	-40	150		$\bullet \bullet \circ$	••0					~	~			Indoor	Indoor	~	~			
Best	Transfer PET matt white - AL170 - BG42wh	AA145	white	TC	Solv.	24	55	0	-80	150		•••						~	~			In/Out	Indoor	~	~		м	
	Transfer PET 75 matt white - AL170 - BG42wh	AI397	white	TC	Solv.	24	82	0	-80	150		•••						~	~			Indoor	Indoor	~	~		м	
	Transfer PET matt white - S8015 - BG42wh	AA672	white	TC	Solv.	32	55	7	-40	150		•••	$\bullet \bullet \circ$	$\bullet \bullet \circ$				~	~			In/Out		~	~		мн	
	Transfer PET 75 matt white - S8015 - BG42wh	AI399	white	TC	Solv.	32	82	7	-40	150		•••	••0	••0				~	~			Indoor	Indoor	~	~		мн	
	Transfer PET matt white - S8029 - BG45wh	BN949	white	тс	Solv.	27	55	5	-40	150		•••	•••	•00	• • • •			~	~			In/Out	In/Out	~	~		MHL	
	Transfer PET matt white - S8049 - BG42wh BSS	AL854	white	TC	Solv.	45	55	5	-40	150		 •••	•••	•••	••0			~	~			In/Out	In/Out	~	~		MHL	
Chrom	e noluester materials																											
		A = 7 ((a kur		0.1	0.0	50		40	150															<u> </u>			
Good	Transfer PET bright chrome TOP - 58030 - BG42Wh	AE366	cnrome	IC DT	Solv.	24	50	5	-40	150		 •••						~		~		Indoor	Indoor		~			
		BL090	silver		Em.	19	50	5	-40	120		 •00	•00					~				Indoor	Indoor					
	Transfer PET matt chrome TOP - \$8020 - BG42Wh	AA644	silver		Em.	20	50	5	-40	150		 ••••						~		~	la (Quit	In/Out	In (Out	~	×			
Deller	Transfer PET matt chrome TOP - 56002 - 6642wh	AD221	silver		EIII.	21	50	5	-40	150				•00				×		v	in/Out	In/Out	In/Out	×	×			
Best	Transfer PET matt chrome TOP - S0030 - BG42Wh	ΔΔ645	silver	то	Solv.	24	50	0	-40	150								~		~			Indoor	~			M	
2031	TR PET platinum TC19 - ΔI 170 - BG42wh	BS912	platinum		Solv	24	50	0	-80	150								~		~		Indoor	Indoor	~	· ·		M	
	Transfer PET matt chrome TOP - \$8015 - BG42wh	ΔΔ674	silver	TC	Solv.	32	50	7	-40	150		 						~		~		In/Out	In/Out	~			мн	
	Transfer PET matt chrome TOP - S8029 - BG45wh	BH781	silver	тс	Solv	27	50	5	-40	150		 		• • • •	• 0 0			~		· ·		In/Out	In/Out				мні	
	TR PET platinum TC19 - S8029 - BG42wh	BS913	platinur	n TC	Solv	27	50	5	-40	150		 •••	•••	•00	•00			~		✓		Indoor	Indoor	~			MHL	
	Transfer PET matt chrome TOP-S8049-BG42wh BSS	AL852	silver	TC	Solv.	45	50	5	-40	150		 •••	•••		••0			~		~		In/Out	In/Out	~	~		MHL	
														1														

		Product Characteristics									Application							1	Printabilit	ty		Compliance							
		Code	Color	Topcoat (TC) / Print Treatment (PT)	Adhesive-Technology (Solv/EmAcrylic)	Adhesive coatweight (g/m²)	Thickness face material (µm)	Min. Application temp. (°C)	Min. Service temp. (°C)	Max. Service temp. (°C)		Polar surfaces (high surface tension)	Apolar surfaces (low surface tension)	Rough surfaces	Slightly dirty or oily surfaces	Curved substrates	Good UV resistance / outdoor exposure	Thermal transfer- printability resin ribbon	TT-printability r/w ribbons	UV inkjet general (please refer to UV inkjet guide)	UV inkjet UL- approval * details available	٦٢	C-UL	Chemical rub test ICE 60335-1	Chemical rub test ICE 60601-1	Flammability FMVSS 302	Automotive specifications		
Silverp	olyester materials																												
Good	Transfer PET matt silver - S8020 - BG42wh	AA646	silver	TC	Em.	20	55	5	-40	150	•	00	•00					~	~			In/Out		~	~				
Better	Transfer PET matt silver - S8030 - BG42wh	AD224	silver	тс	Solv.	24	55	5	-40	150	•	••	$\bullet \bullet \circ$					~	~			Indoor		~	~				
Best	Transfer PET matt silver - AL170 - BG42wh	AA146	silver	тс	Solv.	24	55	0	-80	150	•	•••						~	~			In/Out	Indoor	~	~		м		
	Transfer PET 75 matt silver - AL170 - BG42wh	AI398	silver	тс	Solv.	24	82	0	-80	150	•	•••						~	~			Indoor	Indoor	~	~		м		
	Transfer PET matt silver - S8015 - BG42wh	AA676	silver	тс	Solv.	32	55	7	-40	150	•	•••	$\bullet \bullet \circ$	$\bullet \bullet \circ$				~	~			In/Out		~	~		мн		
	Transfer PET matt silver - S8029 - BG45wh	BN950	silver	тс	Solv.	27	55	5	-40	150	•		•••	•00	• • • •			~	~			In/Out	In/Out	~	~		MHL		
	Transfer PET matt silver - S8049 - BG42wh BSS	AJ060	silver	тс	Solv.	45	55	5	-40	150			•••	•••	••0			~	~			In/Out	In/Out	~	~		MHL		
Transp	arent polyester materials																												
Good	Transfer PET trans TOP - S8020 - BG42wh	AC397	trans	тс	Em.	20	50	5	-40	150	•	00	•00					~		~	<u> </u>	In/Out		~	~				
Better	Transfer PET trans TOP - S8002 - BG42wh	BL806	trans	тс	Em.	27	50	5	-40	150	•	•••	$\bullet \bullet \circ$	•00				~		~		In/Out		~	~		ļ		
Best	Transfer PET trans TOP - AL170 - BG42wh	AC393	trans	тс	Solv.	24	50	0	-80	150	•	•••						~		~		In/Out	<u> </u>	~	~		м		
Overla	nination films																												
Glossy	Overlaminating PET 25 - S8020 - BG42wh	AE407	trans	PT	Em.	20	23	5	-40	150		00	•00			•00		~				Indoor	Indoor				i		
	Overlaminating PET 25 - AL170 - HF80	AA647	trans	PT	Solv.	20	23	0	-80	150	•					•00		~			'	Indoor		<u> </u>			i		
	Overlam PET 23 UV - \$8020 - PET23	AS675	trans	PT	Em.	20	23	5	-40	150	•	00	•00			•00	• • • •	~				In/Out	In/Out	<u> </u>		ļ!	i		
	Overlam PET 23 UV - AL170 - PET23	AS674	trans	PT	Solv.	20	23	0	-40	150	•					•00	•00	~			!	In/Out	In/Out				i		
	Overlam PET 23 UV Plus - S8021 - HF140	BR850	trans	-	Solv.	21	23	10	-40	150	•	•••	$\bullet \bullet \circ$			•00	$\bullet \bullet \circ$				<u> </u>	In/Out	In/Out	<u> </u>			<u> </u>		
Matt	Overlam PET 25 matt - S8020 - BG42wh	AI573	trans	-	Solv.	20	25	0	-80	150		00	•00			•00		~			/	Indoor	<u> </u>						
	Overlam PET 25 matt - AL170 - HF80	AC747	trans	-	Solv.	20	25	0	-80	150						•00		~				In/Out							
PVC pr	oducts for extra outdoor durability	AB702	trans	-	Em.	20	50	5	-40	125		00	•00									Indoor							
Calend-	PVC outdoor white - AI 170 - BG42wh	00648	white	-	Solv	24	80	0	-40	110												In/Out	In/Out			1			
ered	PVC outdoor white = \$8029 = BG42wh	BP635	white	_	Solv	27	80	5	-40	110				• • • •	• • • •			· ./				In/Out	In/Out			×			
films	PVC outdoor with e - Al 170 - BG42wh	A A 9/18	white		Solv	24	80	0	-40	110			•••	• • • •	••••			· ./				In/Out				· ·			
	PVC outdoor matt white - \$8020 - BC42wh	RD636	white		Solv	24	80	5	-40	110				• • • •	• • • •			• ./				In/Out	In/Out			×			
	PVC outdoor silver - Al 170 - BG42wh	AH753	silver		Solv.	24	80	5	-40	110			•••	••••				• •				In/Out	In/Out			~			
	PVC outdoor silver - \$8029 - BG42wh	RD637	silver		Solv	24	80	5	-40	110					• • • •			• ./				In/Out	In/Out			×			
	PVC outdoor clear - Al 170 - RG42wb	Δ <u>S880</u>	trane	_	Solv	24	80	0	-40	110				-00				· ✓				In/Out				-			
	PVC outdoor matticlear - Al 170 - BG42wh	Δ₩627	trane	_	Solv.	24	80	0	-40	110								~				Indoor			+'	· · · · · · · · · · · · · · · · · · ·			
	PVC outdoor uellow - Al 170 - RG42wh	ΔF402	uellow	_	Solv.	24	80	0	-40	110								· ✓						+	+'	· ·			
Cast	Transfer PVC 50 cast white - AL 170 - BG55wh	BO643	white	-	Solv	24	50	0	-40	120								· ✓				In/Out		+			\square		
films	Transfer PVC 50 cast white _ \$2039 - BC55wh	BO6/1	white	_	Solv	35	50	5	-40	120								~				In/Out					\square		
	Transfer PVC 50 cast silver - \$8039 - BC55wh	B0958	silver	_	Solv.	35	50	5	-40	120								~				In/Out				· · · · · · · · · · · · · · · · · · ·			
	Transfer PVC 50 cast yellow - S8039 - BG55wh	BO946	yellow	-	Solv.	35	50	5	-40	120			•••	•••	••0	•••	•••	~				In/Out	In/Out	+		~			

				Produc	t Charact	eristics						Applie	cation			I	Printabilit	y	Compliance							
	Code	Color	Topcoat (TC) / Print Treatment (PT)	Adhesive-Technology (Solv/EmAcrylic)	Adhesive coatweight (g/m ²)	Thickness face material (µm)	Min. Application temp. (°C)	Min. Service temp. (°C)	Max. Service temp. (°C)	Polar surfaces (high surface tension)	Apolar surfaces (low surface tension)	Rough surfaces	Slightly dirty or oily surfaces	Curved substrates	Good UV resistance / outdoor exposure	Thermal transfer- printability resin ribbon	Π-printability r/w ribbons	UV inkjet general (please refer to UV inkjet guide)	UV inkjet UL- approval * details available	٨٢	C-UL	Chemical rub test ICE 60335-1	Chemical rub test ICE 60601-1	Flammability FMVSS 302	Automonve specifications	
Polypropylene films																										
Transfer PP 50 white TOP - S8022 - BG42wh	BU600	white	тс	Em.	26	49	10	-40	120	••0	••0			••0		~										
Transfer PP TR 75 matt white - S8020 - BG42wh	AC463	white	тс	Em.	20	75	5	-40	100	•00	•00					~	~	~		Indoor		~				
Transfer PP TR 75 matt white - S8002 - BG42wh	BN104	white	тс	Em.	27	75	5	-40	100	••0	••0	•00				~	~	~		Indoor		~				
Polyimide films																										
Polyimide I Wh TC14 - S8088 - BG50wh	BB810	white	тс	Solv.	27	46	10	-40	260	•00			•00			~				Indoor						
Polyimide II Wh TC14 - S8088 - BG50wh	BC133	white	тс	Solv.	27	71	10	-40	260	•00			•00			~				Indoor						
Polyimide I matt white - S8088 - 50#SCK	AI300	white	тс	Solv.	27	43	10	-40	280	•00						~				Indoor	Indoor					
Polyimide II matt white - S8088 - 50#SCK	AH415	white	тс	Solv.	27	68	10	-40	280	•00						~				Indoor	Indoor					
POLYIMIDE II WH TC14 S8095SD-BG50wh	BL945	white	тс	Solv.	27	71	10	-40	300	•00						~				Indoor	Indoor					
Polyimide I matt green - S8088 - BG50wh	BU718	green	TC	Solv.	27	32	10	-40	260	• • • •			•00			~				Indoor	Indoor					
Products for special applications																										
Transfer PET white CR - S8015 - BG42wh	BB815	white	тс	Solv.	32	52	7	-40	150	•••	••0	$\bullet \bullet \circ$				\checkmark				Indoor	Indoor			MI	.1	
Transfer PET 40 Wh TOP FR - AL170 - BG40wh LR	BN142	white	тс	Solv.	24	40	0	-80	150	•••				•00		~								~		
ESD PET white TOP - S8087 - BG55wh	AU978	white	тс	Solv.	24	52	4	-40	150	•00						~				Indoor						
Transfer PET 36 white TOP - S8092 - PET75	AS191	white	тс	Silicone	50	36	5	-80	150	$\bullet \bullet \circ$	•••	•••		•00		\checkmark										
PET50 black laser etch – S8029 – BG45wh	BU300	black	тс	Solv.	27	55	5	-40	130	•••	•••	• • • •	•00													
PET void check matt chrome - S8015 - BG42wh	AB048	silver	TC	Solv.	26	53	7	-40	120	•••	••0	$\bullet \bullet \circ$				~				Indoor	Indoor			М	н	
PVC semi gloss white UD - S690 - BG50wh	AW451	white	-	Solv.	32	60	10	-40	110	$\bullet \bullet \circ$	•00					~				In/Out	In/Out					
Transfer Tape BG50wh - S8049 - BG50wh BSS	AO530	-	-	Solv.	45	-	5	-40	150	•••	•••	•••	$\bullet \bullet \circ$													

Key: • O O Good • • O Better • • • Best M: metals and some lacquers H: high surface energy plastics L: low surface energy plastics



Order materials your way	With manufacturing facilities worldwide and most durable labels dependably in stock, we're here with the materials you need, when you need them— in the way that makes sense for your business. With our Ready Width™ and EXACT™ services, you can order as little as 100 square meters at a time to help cut inventory and reduce waste. And our Mix & Match service lets you combine different adhesives, facestocks and liners to suit your application.
Labelling's leading innovators, at your service	Working with our technical teams means working with more than eight decades of industry-defining knowledge and innovation. Engineers at our application labs in Europe, Asia, and North America are ready to help you determine the right combination of materials to best make your label construction a success.

About Avery Dennison

We invented the pressure-sensitive label in 1935 and we remain the first name in labelling materials innovation. We combine R&D centers around the globe with strong local technical teams and manufacturing facilities to support converters and end-users worldwide, and to offer the broadest range of tested, compliance-ready labelling solutions for durables of all kinds.



Labelling durables can be hard. We'll make it easy.

To learn more about our materials and support services for durables labelling, visit <u>label.averydennison.com</u>. Or contact your Avery Dennison representative.

DISCLAIMER – All Avery Dennison statements, technical information, and recommendations are based on tests believed to be reliable but do not constitute a guarantee or warranty. All Avery Dennison products are sold with the understanding that purchaser has independently determined the suitability of such products for its purpose.



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Avery Dennison Corporate (NYSE: AVY) is a global materials science manufacturing company specializing in the design and manufacture of a wide variety of labeling and functional materials. The company's products, which are used in nearly every major industry, include pressure-sensitive materials for labels and graphic applications: tapes and other bonding solutions for industrial, medical, and retail applications; tags, labels, and embellishments for apparel: and radio frequency identification (RFID) solutions serving retail apparel and other markets. Headquartered in Glendale, California, the company employs approximately 30,000 employees in more than 50 countries. Reported sales in 2018 were \$7.2 billion.