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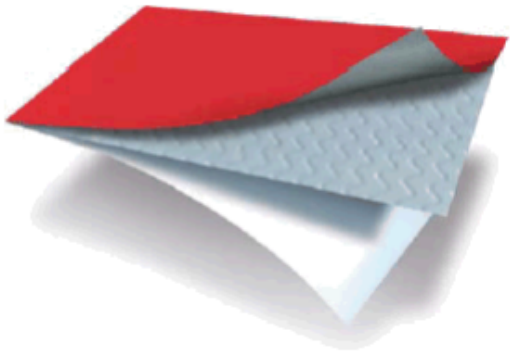
Fasson ®

PET50 BLACK LASER ETCH S8029-BG45WH FSC



PET 50 BLACK LASER ETCH	
S8029	
BG45WH FSC	

Facestock

A white heat-stabilised polyester film with a black laser-etchable coating.

Basis Weight	74 g/m²	ISO 536
Caliper	55 µm	ISO 534

Adhesive

S8029 is a rubber hybridised acrylic (RHA) adhesive.

Liner

BG45 white FSC is a supercalendered glassine paper.

The liner is made from FSC® certified paper (FSC Mix Credit, chain-of-custody number: CU-COC-807907, Licence Code: FSC-C004451).

Basis Weight	70 g/m²	ISO 536
Caliper	61 µm	ISO 534

Laminate

Total Caliper	144 µm±10%	ISO 534

Performance Data

Initial Tack	20 N/25mm	FTM 9 glass FINAT FTM 9 (vidro)
Peel Adhesion 90°	21 N/25mm	FTM2 st.st. 24 hr
Min. Application Temp.	5 °C	
Service Temperature	-40 °C to 130 °C	
Adhesive Coat Weight	27 g/m²	FTM12
Adhesive Type	rubber hybridised acrylic	

Adhesive Performance

S8029 combines extremely high final adhesion on a wide variety of surfaces including low surface energy substrates with excellent chemical, UV and temperature resistance.

Applications and Use

This product was specially developed for laser marking and cutting applications. The black coating of the white polyester film can be ablated with a laser, creating a white image. The emission is non-corrosive.

The main area of application is labeling of durable goods. Examples in the automotive market include under-the-hood applications, electric vehicle battery cells and modules. This material can also be used on heavy machinery, powertools, solar panels, air condition units and other electric devices.

This is a premium product for the automotive industry, using Avery Dennison RHA (rubber hybridised acrylic) adhesive technology. It is designed primarily for creating labels to be applied onto low surface energy plastic automotive parts and lacquers. The adhesive is also used in other segments, for example in the appliance and electronics industry, when high peel adhesion on low surface energy substrates is required. S8029 products are engineered to be resistant to - also harsh - chemicals commonly found in the automotive and electronics industry.

FSC
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Conversion and Printing

This product was specially developed for laser marking applications, using fiber and Nd-YAG lasers. High marking speeds of 6000 mm/sec and cutting speeds (390 mm/sec) can be achieved. Good performance has been confirmed by machine manufacturers CAB, Cajo, Cartes, Coherent, Foba, and Tootech. For marking with CO_2 lasers, a PET liner is recommended.

Marking and cutting parameters (power, speed and pulse rate) have to be set at the individual marking equipment to obtain results matching the requirements.

Compliance and Approvals

This product is UL and C-UL recognized (UL 969, CSA C22.2 No. 0.15). The UL file number is MH27538.

Shelf Life

To obtain optimal performance, use this product within two years of the date of manufacture, under storage conditions as defined by FINAT (20-25°C; 40-50%RH). Prolonged storage outside these conditions might reduce the shelf life.

Appendix

UL and CSA recognition

This product meets the requirements as stated in UL 969 and CSA C22.2 No. 0.15 for indoor and outdoor use. The UL file number is MH27538. For specific information on approved conditions, see appendix.

Performance Data

Note: the following technical data should be considered representative or typical only and should not be used for specification purposes.

Peel Adhesion:

FTM1: 180°, 300 mm/min, dwell time: 48 hours

Surface	N/25mm
ABS	25,5
Aluminium	22,0
Automotive lacquered panels	24,5
Glass	25,0
HDPE	12,5
LDPE	11,0
PA6	23,5
Polycarbonate (PC)	25,5
Polyethylenetherephthalate (PET)	26,5
Stainless Steel	24,0

Chemical Resistance:

The performance results are based on 4 hours immersions at room temperature unless otherwise noted. Samples were applied to the test panel and conditioned for 24 hours before immersion and evaluated immediately upon removal. Peel adhesion was measured according to FTM1.

Chemical	Test Substrate	N/25mm	Visual appearance	Edge Penetration
Ad Blue	Aluminium	11,0	No change	0 mm
Biodiesel	Glass	25,5	No change	0 mm
Bioethanol E85	Glass	23,0	No change	2 mm
Brake Fluid	Glass	27,0	No change	0 mm
Diesel	Glass	24,0	No change	0 mm
Engine Oil	Glass	23,0	No change	0 mm
Gasoline	Glass	21,5	No change	3 mm
Heptane	Glass	21,0	No change	4 mm
Water, distilled	Aluminium	10,0	No change	0 mm

Chemicals: Ad Blue: Aral, Bioethanol E85: CropEnergies CropPower85, Brake Fluid: DOT 4 Synthetic (One Way) Diesel: TOTAL, Engine Oil: TOTAL quartz 700, 10 W 40, Gasoline: TOTAL Euro 95

Appendix

Laser Marking

Laser marking parameters were evaluated using different laser marking machines.
The following settings were used to give optimum results:

cab “XENO 1, 20 Watt”

For character marking: v = 3,900mm/s, p = 10% - 50%, f = 20 - 60Khz

Cajo “20W FiberPlus 175”

For character marking: v = 7000 mm/s, p = 100%, f = 100 kHz, linewidth = single line
For cutting: v = 110 mm/s, p = 100 %, f = 25 kHz

Coherent “LabelMarker Advanced, PowerLine F 30-1064”

For hatching: v = 6000 mm/s, p = 95%, f = 90 kHz, linewidth = 0.100 mm
For character marking: v = 6000 mm/s, p = 44%, f = 100 kHz
For kiss cutting: v = 390 mm/s, p = 100 %, f = 30 kHz

FOBA “Y.0200”

For character marking: v = 3,900 mm/s, p = 40% - 60%, f = 25 - 400Khz

Tootech “TTE-72 series”

For character marking: v = 4,000mm/s, p = 20% - 35%, f = 50 - 200Khz

Marking and cutting parameters (power, speed and pulse rate) have to be set at the individual marking equipment to obtain results matching the requirements.

Temperature Resistance

Samples were marked, applied onto aluminum panels and stored at +130°C for 72 hours.

Visual examination: no change
Shrinkage: no shrinkage

Climate Change Resistance

Unmarked label material was applied onto steel panels and exposed to an environmental cycle test as described in the Volkswagen PV 1200 with +80°C and 80% relative humidity as maximum and -40°C as minimum setting.

Visual examination: no change
Shrinkage: no shrinkage

Weathering Resistance

Unmarked label material was tested for the weathering resistance as described in the Volkswagen PV 3930 for 1600 hours. The color change ΔE and Gloss 60° were measured. The barcode quality was rated before and after the exposure.

Duration	ΔE	Gloss 60°
before exposure	-	80
500 hours	0,4	79
1000 hours	0,7	77
1600 hours	1,3	77

The color change and change in gloss are only minor and hardly detectable with a human eye. Barcode readability and quality are excellent after the accelerated weathering test (ANSI Grade A, 4,0 after the exposure).

Appendix

Abrasion Resistance

Laser marked samples were tested for their abrasion resistance using a Taber abraser, CS10 wheel, 500 g weight. A visual examination and barcode quality rating were performed after 200 cycles.

Visual examination:	The whiteness of the marked areas increased after the abrasion, the contrast improved.
Barcode rating:	The higher contrast resulted in a higher barcode quality after the abrasion test (before: ANSI Grade B, 3,1, after: ANSI Grade A, 4,0)

Scratch Resistance

The scratch hardness test of unmarked material was tested using an Erichsen Scratch Pencil, force setting 5N.

Directly after test:	no abrasion on the surface, but visible indentation of the material
24 hours after test:	no abrasion on the surface, but visible indentation of the material

Chemical Resistance

Rub Test

Samples were marked using a Coherent F30 Label Marker. The chemical resistance was tested in a Crockmeter, using wetted cotton cloth to rub against the samples. After rubbing 10 cycles a visual examination took place and the ANSI grade of a barcode was determined.

Chemical	Visual examination	ANSI Grade	
		before	after
Acetone	++*	B (2,9)	A (4,0)
Bioethanol E85	++*	B (3,0)	A (4,0)
FAM B	++*	B (2,9)	A (4,0)
Gasoline	++*	B (2,9)	A (3,9)

*: The whiteness of the marked areas increased, as residue of the laser marking was removed by rubbing. No damage of the black lines or the label material was detected

Higher ANSI grade rating after the rubbing tests are based on higher contrasts of the barcodes.

Immersion Test

Samples of unmarked label material were applied onto aluminum panels and immersed into different chemicals. A visual examination of the label surface took place.

Chemical	Duration	Temperature	Visual examination
Diesel	24 h	+20°C	label surface not changed
Engine Oil	24 h	+70°C	label surface not changed
Fuel Mixture	30 min	+20°C	label surface not changed
Gasoline	30 min	+20°C	label surface not changed
Plastic Cleaner	1 h	+20°C	label surface not changed

Appendix

Compliance Data

UL – Underwriters Laboratories (UL 969, Category PGJI2)

File Number: MH27538, Category PGJI2

This material is UL recognized for indoor and outdoor use where exposed to high humidity or occasional exposure to water.

Application Surface	Max Temp (°C)	Min Temp (°C)
Acrylic paint	150	-40
Acrylic powder paint	150	-40
Alkyd paint	150	-40
Aluminum	150	-40
Epoxy paint	150	-40
Epoxy powder paint	150	-40
Galvanized steel	150	-40
Polyester paint	150	-40
Polyester powder paint	150	-40
Polyurethane powder paint	150	-40
Stainless steel	150	-40
Nylon – Polyamide	100	-40
Phenolic – Phenol Formaldehyde	100	-40
ABS	80	-40
Polyphenylene oxide/ether (PPOX)	80	-40
Polypropylene	80	-23
Polystyrene (PS)	80	-40
Unsaturated polyester - thermoset	60	-23
Polycarbonate	60	-40

The UL certification includes laser engraved (white image) labels.

CSA – Canadian Standards Association

UL has tested this product according to the requirements described in CSA C22.2 No. 0.15.
This product is C-UL recognized for indoor and outdoor use.
The details are listed in the UL file number MH27538, Category PGJI8.

Group	Application Surface	Max. Temperature (°C)
Metals	Bare, plated or enamelled steel; bare, anodized or enamelled aluminium	+150
Powder coated metal Group A	Polyester powder coat paint	+150
Powder coated metal Group B	Acrylic powder coat paint	+150
Powder coated metal Group C	Epoxy powder coat paint	+150
Powder coated metal Group D	Polyurethane powder coat paint	+150
Plastic Group I	Phenolic, melamine, urea formaldehyde	+100
Plastic Group II	Polyphenylene oxide, polyphenylene sulphide	+80
Plastic Group III	Polycarbonate, acetates, acrylic	+80
Plastic Group IV	Polyethylene, polypropylene, polybutylene	+80
Plastic Group V	Polyamide, polyimide	+100
Plastic Group VI	Polystyrene, styrene acrylonitrile, ABS	+80
Plastic Group VIII	Glass-filled polyester, epoxy plastic, PET, PBT	+80

The C-UL certification includes laser engraved (white image) labels.

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Warranty
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