

Product Description

Application	Foil Plates for Laser Engraving		
Product	Color Laser Film 2 Black/White (20-152 / 39-38)	PrBe-No.	1294/4
		Valid as of	Aug 28 th , 2024
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1. Product Description

Color Laser Film 2 comprises a high-quality polyester film composite material for zero-emission laser-engraving in an emission-free process. Underneath a transparent laminate film, the product features a laser-active layer, which is activated by the laser beam during engraving, thus revealing the white color reference layer.

Since engraving is carried out without ablating the foil particles (emission-free), the foil surface remains intact (unengraved) and is thus extremely resistant to environmental influences. This Color Laser Film has a very strongly adhering modified acrylic adhesive that exhibits excellent adhesive strength values on various material substrates. The film can be supplied either as continuous material for individual laser cutting by the customer or as foil plates die-cut to individual sizes.

This foil-adhesive combination is particularly suitable for applications in rough industrial environments or under extreme environmental conditions (e.g. labels for engine compartments of cars)

The product is available with glossy or matt surface, a tamperproof security die-cut can also be implemented.

2. Product features

- Dimensionally stable, tear-proof laser film for the production of resistant foil plates used in rough industrial environments
- Can be engraved with most standard Nd:YAG, Vanadat and fiber laser systems
- Excellent black/white contrast
- Very high resistance to chemicals, temperature fluctuations and mechanical abrasion
- Emission-free engraving by laser beam
- The film is free from halogens and silicones and plasticizer-resistant. It meets the technical requirements for label applications in the automotive industry.

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3. Physical Data

3.1 Material Composition

CLF 2	PET black/white	Thickness	0.065 mm +/- 5 µm
Adhesive	Modified acrylic adhesive	Thickness	0.040 mm +/- 4 µm
Carrier material	Glassine	Thickness	0.080 mm +/- 8 µm
Total thickness (films + adhesives + liner):			0.185 mm +/- 17 µm

3.2 Adhesive Properties

Modified acrylic adhesive with excellent weather, solvent and plasticizer resistance. A significantly thicker adhesive coating than with standard versions achieves outstanding tack force even on rough and structured surfaces.

3.3 Tack Force Values

(Test results according to FINAT FTM 1 after 24 h)

<u>Substrate</u>	<u>Tack force in N/25mm</u>
Glass	26
Steel	21
Aluminium	18

Above mentioned tack force values are guide values on standard surfaces. Final tack force is achieved app. 72 h after application.

3.4 Climatic and Weather Resistance

	<u>Result</u>
▪ Humidity storage DIN EN ISO 6270-2:2018-04; 240 h at 100% rel. humidity and 40° C	No concern*
▪ Behavior when exposed to changing climatic conditions (4h bei -30° C; 16h bei 90° C; 4h bei 23° C), 5 Zyklen	No concern*
▪ Salt spray test DIN EN ISO 9227:2017-07, NSS, 168 h	No concern*

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- Temperatur resistance -40 - +120°C permanent service temperature No concern*

3.5 Resistance to chemicals and solvents

<u>Immersion in test fluid following</u> <u>ISO 16750-5</u>	<u>Exposure period in h</u>	<u>Result</u>
Gasoline ROZ 95	0,5	No concern*
Brake Fluid	1	No concern*
Engine Oil	1	No concern*
Preservative	1	No concern*
Cold cleaner	1	No concern*
Diesel fuel	1	No concern*

3.6 Abrasion Resistance

	<u>Result</u>
Crockmeter test acc. DIN EN ISO 105-X12:2016:11, 500 strokes	No concern*

* „No concern” means that no constraints exist for readability of information of functional attributes (e.g. like tack or dimensions). In specific applications minimal color change or reversible changes might be possible.

4. Approvals

UL/CSA Approvals

Color Laser Film 2 black-white is UL-listed under UL-File No. MH 25118 as Color Laser Film 2 Black/White. The approval refers to pressure-sensitive unprinted laser inscribed label material.

The approval refers to the following substrates and temperature ranges:

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UL

Application surface

- Aluminum (AL)
- Glass
- Acrylic paint (AC PT)
- Acrylic powder paint (AC PDR PT)
- Alkyd paint (AK PT)
- Epoxy paint (EP PT)
- Epoxy powder paint (EP PDR PT)
- Galvanized steel (GS)
- Polyester paint (PER PT)
- Polyester powder paint (PER PDR PT)
- Polyurethane powder paint (PUR PDR PT)
- Polyvinyl fluoride (PVF)
- Porcelain (PRCLN)
- Stainless steel (SS)
- Acrylic (AC)
- Acrylonitrile butadienestyrene (ABS)
- Melamine (ME)
- Nylon - polyamide (PA)
- Phenolic – Phenol Formaldehyde (PH)
- Polycarbonate (PC)
- Polyethylene (PE)
- Polyphenyleneoxide/ether (PPOX)
- Polypropylene (PP)
- Polystyrene (PS)
- Polyvinyl chloride (PVC)
- Unsaturated polyester-thermoset (UP)

Temperature range

- 40°C bis +125°C (indoor/outdoor)
- 40°C bis +125°C (indoor/outdoor)
- 40°C bis +100°C (indoor/outdoor)
- 40°C bis +100°C (indoor/outdoor)
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CSA

Application surface

	maximum temperature
Metals	125°C (indoor/outdoor)
Glass	125°C (indoor/outdoor)
Polyvinyl Fluoride (PVF)	100°C (indoor/outdoor)
Electrostatic coated metal A	100°C (indoor/outdoor)
Electrostatic coated metal B	100°C (indoor/outdoor)
Electrostatic coated metal C	100°C (indoor/outdoor)
Electrostatic coated metal D	100°C (indoor/outdoor)
Plastic Group I	80°C (indoor/outdoor)
Plastic Group II	80°C (indoor/outdoor)
Plastic Group III	80°C (indoor/outdoor)
Plastic Group IV	80°C (indoor/outdoor)
Plastic Group V	80°C (indoor/outdoor)
Plastic Group VI	80°C (indoor/outdoor)
Plastic Group VII	80°C (indoor/outdoor)
Plastic Group VIII	80°C (indoor/outdoor)

5. Processing Instructions

The surface to which the adhesive is applied must be dry and free of dirt, grease and release agents. Loose surface particles or oxidation layers reduce durability.

Recommended cleaning agents: grease-free solvents, like heptan, isopropyl-alcohol or alcohol. In case of potential incompatibilities between the cleaning agents and the bonding substrate a different cleanser should be chosen.

Firm application of contact pressure generally improves contact between the adhesive and the bonding substrate. If necessary, apply controlled pressure, using a plastic doctor blade or a rubber roller. The temperature at which the adhesive is applied and the resulting flow of the adhesive influence the required reaction time until final tack force is reached. Ideally, adhesive applications should not be performed at temperatures below +10°C

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6. Transport and storage instructions

Please refer to the latest version of our transport and storage instructions for downloading at the bottom of our homepage under www.schreiner-group.com.

7. Warranty

The warranty period is 12 month from the date of delivery.

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