



Data sheet K86135 Clear Paint Protection Film – Aliphatic Polyurethane with Flexible Clear Coat

Product Description

This premium quality extruded aliphatic polyurethane film has been specially developed for use in the automotive and other industries which require a self-adhesive material to reduce corrosion, stone chipping and scratching.

The film is transparent and has a specially developed High Tack adhesive system which makes it suitable for use over painted surfaces.

Following an extensive development program KPMF are pleased to introduce an advanced flexible clear coating on the top surface of this polyurethane paint protection film. The flexible clear coating offers an outstanding and trouble-free application process, together with the outstanding gloss and enhanced exterior durability.

The film protects painted surfaces of the vehicle from minor scuffs, scratches, damage caused by stone chips and environmental elements. Suitable for use on specific exposed areas including car bonnets, bumpers, or for full vehicle coverage.

Due to the nature of the clear coat, it is unlikely that any printing inks will adhere to the surface.

This product can be supplied with or without a PET carrier; the PET carrier protects the surface whilst the product is in roll form in order to provide the highest gloss level prior to installation.

Products available

K86135 Top coated 137µm polyurethane

Physical Characteristics

	TEST METHOD	TYPICAL VALUE
Film Thickness	ISO 4591:1992	137µm polyurethane with 20µm top coat
Tensile	ISO 527:1996	20 N/mm ²
Elongation	ISO 527:1996	270%
Gloss	60°	90 gloss units

Adhesive

Self-Cross-Linking Acrylic 50 g/m²

Issue 2 Date: 04/07/2019	PRODUCT DATA SHEET K86000 Series Flexible Clear Coated Aliphatic Polyurethane © Kay Premium Marking Films Ltd	Page 1 of 4
--------------------------------	--	----------------



**Data sheet K86135 Clear Paint Protection Film
– Aliphatic Polyurethane with Flexible Clear Coat**

Adhesive properties

Adhesion to painted panel 20 mins/180°	400 N/m
Adhesion to painted panel 24 hours/180°	600 N/m
Adhesion to painted panel 72 hours/180°	900 N/m

Release Liner

75 µm Matt polyester to aid application.

Ease of Release (T-Peel) 21 N/m

PET Carrier

75 µm Ultra clear polyester

Widths

137 Micron – 1524mm

Durability

Resistance to various liquids after application and conditioned for 24 hours at 23°C. Results examined 1 hour after test.

Fuel Resistance	No blistering visible shrinkage or edge lifting
Resistance to Soap and Water Spotting	No blistering, permanent stain, change of colour or gloss (FLTM BI 113-01).
Acid Resistance	No blistering, permanent stain, change of colour or gloss (FLTM BI 113-02).
Water Resistance (240 hours)	No blistering, permanent stain, change of colour or gloss (FLTM BI 104-01).
Environmental Resistance	Environmental Cycle is 10 cycles consisting of: 4 hours at 70°C 4 hours at 38°C and 95-100% RH 16 hours at -30°C

After exposure to environmental test samples shall show no evidence of cracking, blistering, lifting, or colour change in excess of 3.5 Delta E on a CMC 2:1 colorimeter scale compared with an exposed white painted panel and no gloss change greater than 15%.



Data sheet K86135 Clear Paint Protection Film – Aliphatic Polyurethane with Flexible Clear Coat

Abrasion resistance 1000 Cycles, 500g load, CS-17 Wheel - No blistering visible shrinkage or edge lifting

Gravel Resistance (K82200) 48 Hrs at 23°C - Shall not exceed approved sample
SAE J400 2.4L of Gravel 48 Hrs at 23°C & 4 Hrs at -30°C – shall not exceed approved sample
4 Hrs at -30°C two cycles GM 950SP-F – shall not exceed approved sample

Type of TPU to Shore D Clear coat measures 85 Shore D

Product Usage guide

Typical application for outdoor durability, for graphics on original equipment identification, building signage and vehicle graphics to include trucks, recreational vehicles and automobiles. They are also widely used for train liveries, boats and as temporary livery on aircraft.

The materials are very conformable, being able to be used on smooth, textured and contoured surfaces, and are available in a wide range of colours including metallic.

KPMF films should not be applied to unsound surfaces or to surfaces which may subsequently crack, peel, outgas or are of low surface energy. It is recommended that any application surface should have an energy level in excess of 40 dyne/cm. (Polyolefins should be in excess of 45 dyne/cm).

Prolonged exposure to high and low temperatures in the presence of chemicals such as solvents, acids etc. may eventually cause deterioration. Actual performance will depend on substrate preparation, exposure conditions and application of marking.

Although we have good control of the colour production of KPMF products at our multiple locations, as with all other manufacturer's products, customers should be aware that there may be subtle variances between samples, swatches and production materials, so therefore it is advisable to avoid using different batches of material for the same end application to avoid possible colour shifts between the batches.

Application temperature onto clean, dry surface min +10°C

Storage

Shelf life (before application) Two years, out of direct sunlight between 15°C and 23°C and 30 to 70 % relative humidity

Where the film is supplied without either protective film attached, the shelf life under the same conditions above is reduced to three months.

Issue 2 Date: 04/07/2019	PRODUCT DATA SHEET K86000 Series Flexible Clear Coated Aliphatic Polyurethane © Kay Premium Marking Films Ltd	Page 3 of 4
--------------------------------	--	----------------



Data sheet K86135 Clear Paint Protection Film – Aliphatic Polyurethane with Flexible Clear Coat

Product Warranty

Kay Premium Marking Films are produced under stringent manufacturing conditions. The information and typical values shown are based upon research believed to be reliable and are provided without guarantee and do not constitute a warranty. The values are not for use in specifications. Ink and paint systems can affect the performance of film and also the adhesive properties, as can application techniques. Users are advised to ensure that performance and reliability are not compromised by determining the suitability of each product prior to its intended use.

Kay Premium Marking Films are produced under careful quality control and are warranted to be fit for the purpose and free from defect in material and workmanship. Any material shown to be defective to our satisfaction at the point of sale shall be replaced free of charge. Kay Premium Marking Films Limited liability to the purchaser shall in no circumstances exceed the cost of the amount of the defective material supplied. This product has been warranted to provide clean removability, under controlled conditions, up to a period of three years from a range of substrates. Clean removability is deemed with less than 30% adhesive residue when using heat and chemical removal methods. Exceptions to the removal warranty are those applied to the following: pre-existing graphics, paint which is not properly bonded to the substrate and custom paint applications. There is no guarantee made for; ease or speed of graphic removal, removal from improperly cured paint, removal from oxidized or chalked substrates, or from horizontally exposed outdoor applications. Due to the large variety of available paint finishes, it is advisable to fully evaluate small areas particularly after printing prior to complete applications.

The data included on the Data sheet shows typical properties and should not be taken as a guarantee for performance.

ISO 9001 · IATF 16949

Issue 2 Date: 04/07/2019	PRODUCT DATA SHEET K86000 Series Flexible Clear Coated Aliphatic Polyurethane © Kay Premium Marking Films Ltd	Page 4 of 4
--------------------------------	--	----------------