



Data sheet Vehicle Wrapping VWS 1 K88000 / K89000 Series

Product Description

KPMF's original and classic vehicle wrap products, available in a range of gloss and matt colours. These 100 micron materials are superior quality soft hybrid PVC films formulated by using the latest advances in PVC and pigment technology to offer exceptional dimensional stability and excellent long-term durability.

They are suitable for long term applications in outdoor and indoor environments, with the 100 micron thickness offering excellent cutting and weeding properties. The combination of soft vinyl formulation and specific adhesive design offers excellent conformability and adhesion which allows the film to be removed without leaving adhesive transfer.

Typical applications include total vehicle cover, vehicle graphics, signs and decal applications which require exterior exposure of 5 to 7 years. The material is designed to be removable, under controlled conditions, up to a period of three years. White VWS is particularly recommended for all types of digital printing (except water based ink-jet).

Products available

K88001 Gloss Clear	K89002 Matt Clear
K88011 Gloss White - AR	K89011 Matt White - AR
K88016 Gloss Dark Grey* - AR	K89015 Matt Grey - AR
K88021 Gloss Black - AR	K89021 Matt Black - AR
K88331 Gloss Yellow Sunrise - AR	K89441 Matt Sunset Orange - AR
K88032 Gloss Primrose - AR	K89053 Matt Red - AR
K88441 Gloss Sunset Orange - AR	K89063 Matt Sky Blue - AR
K88551 Gloss Dragon Red - AR	K89073 Matt Lime Green - AR
K88053 Gloss Bright Red - AR	K89077 Matt Green - AR
K88061 Gloss Dark Blue - AR	K89081 Matt Brown - AR
K88063 Gloss Sky Blue - AR	K89929 Matt Grey Anthracite - AR
K88064 Gloss Ultramarine - AR	
K88069 Gloss Marina - AR	
K88771 Gloss Pine Green - AR	
K88772 Gloss Jungle Green - AR	
K88075 Gloss Mid Green - AR	
K88519 Gloss Deep Red - AR	
K88823 Gloss Beige - AR	
K88911 Gloss Silver - AR	
K88931 Gloss Gold - AR	

Physical Characteristics

	TEST METHOD	TYPICAL VALUE
Film Thickness	ISO 4591:1992	100µm
Elongation	ISO 527:1996	>150%
Dimensional Stability (150 x 150mm/48 hours/70°C)	FTM14/Aluminium	<0.5mm
Gloss 60°	ASTM 523-89	Gloss >85 Matt <20 *K88016 Gloss Dark Grey >50



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Adhesive

Clear semi-permanent Cross-Linking Acrylic solvent based adhesive.
White Permanent Cross-Linking Acrylic solvent based adhesive.

Adhesive properties

Adhesive Type	Clear	White
Adhesive Thickness	18 / 25g/m ²	25/29g/m ²
Adhesion to painted steel 20 Mins/180°	>440 N/m	>400 N/m
Adhesion to painted steel 24 Hrs/180°	>535 N/m	>535 N/m

Release Liner

120gsm Single Sided PE Printed Black VWS
130gsm Double Sided PE printed Airelease

Widths

1524 mm

Durability

Flammability	Self-Extinguishing	Self- Extinguishing
Artificial Weathering *K89929	Atlas Xenon Arc Atlas Xenon Arc	>1000 hours Raw materials >3000 hours Finished product testing in process
Weathering Black/White/Clear Colours	Vertical Exposure/Mid Europe Atlas Xenon Arc	7 Years 5 Years >1000 hours

Durability is based on middle European exposure conditions.

Service Temperature -20°C to +90°C

Resistance to various liquids after application of a 25mm strip of vinyl to stainless steel and conditioned for 24 hours at 23°C prior to immersion. Results examined 1 hour after test.

Humidity	24 hours at 38°C and 100%	No Effect
Water (Distilled)	24 hours at 32°C	No Effect
Diesel Fuel	1 hour at 23°C	No Effect
Antifreeze/Water (1:1)	24 hours at 23°C	No Effect
Hydraulic Oil	24 hours at 23°C	No Effect



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Product Usage guide

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.

Products that have the metallic finish are considered to be special products in view of their pigmentation. In order to achieve the metallic effect, special pigments must be used. The pigmentation causes the surface sheen to be generally more uneven. The stability of these products on weathering tests also varies, depending on the pigmentation. However, in general results are much less stable than the other no metallic products in same series. Depending on the type of application (i.e. horizontal or vertical base) the life expectation of the film is lower, particularly in the case of higher atmospheric temperatures. The reduction in stability during weathering tests becomes noticeable as it causes increasing discoloration and the loss of mechanical characteristics. Care should be taken when completing applications using metallic finished products, if the adhesive side of the vinyl is allowed to overlap and make contact with the face of the film this could result in aluminium particles being lifted from the face of the film leading to a slight change to the perceived colour and finish being observed.

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

Specific techniques must be used when applying "VWS K88000 Series" to vehicles, specialised training is available. It is the responsibility of the applicator to ensure that the paint system is suitable for the application of "VWS K88000 Series" vinyl and that it is in a fit condition for the application and removal of self-adhesive vinyl. A separate application guide is available upon request. Kay Premium Marking Films do not accept any liability for paint failures incurred during the application or removal of "VWS K88000 Series" vinyl.

Storage

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



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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.