iQUE™ BY V-KOOL

78FG

A CLEARER VIEW. A COOLER WORLD.

Leading our range of spectrally-selective coatings in visible light transmittance is iQUE 78FG / V-KOOL 75. While looking deceptively clear, iQUE 78FG / V-KOOL 75 is a full-fledge, spectrally-selective coating with good solar heat rejection properties. The performance behind iQUE 78FG / V-KOOL 75 lies in its complex multi-layer thin coatings metallic substances, such s silver. Although the total heat rejection is not as high as iQUE 73FG / V-KOOL 70, the key advantage of iQUE 78FG / V-KOOL 75 is its high visible light transmission 77% which is higher than the requirement of Transport Department for Front Screen.

Typical applications for iQUE 78FG / V-KOOL 75 range from automobile, retail shopfronts, restaurants, art galleries to residential glass with very high visible light transmission requirements.

V-KOOL® is currently used in auto applications ranging from retrofit to OEM on Audi, Renault, BMW and Mercedes as well as retrofit OEM for Nissan and Jeep.

Spectrally Selective 78FG	
Colour	Neutral
Visible Light Transmission	78%
Visible Light Reflectance (Glass)	10%
Visible Light Reflectance (Film)	10%
Ultra-violet Rejection	99%
Total Solar Energy Rejection	42%
Luminous Efficacy	1.17
Solar Heat Gain Coefficient	0.58
Shading Coefficient	0.67
Emissivity	0.57
U-Value (btu/hr.ft^2.^{0}F)	0.89

* Film tested on standard 3mm clear annealed glass and specifications are subjected to variations under intervening conditions.

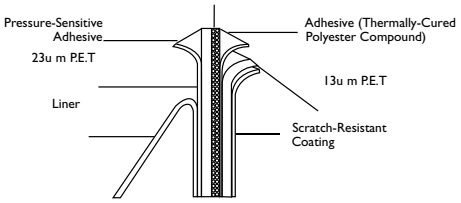
1. Purpose
This product specification provide the requirements for the iQUE 78G / V-KOOL 75 applied solar control window film

2. Related Documents
ASTM Test Methods and Standards

3. Product Specifications

3.1 Construction
The illustration below shows the standard construction of the **V-KOOL®** applied film.

V-KOOL® Multi-Layered Sputter Coating



3.2 Substrate
a. Sputtered PET - Typically 0.92g clear biaxially oriented PET.
b. Sputtered PET - A 0.42g clear biaxially oriented PET.

3.3 Sputtered Coating
Metallized on the non-slip coated side with pure silver/indium-oxide coating stacks designed to reduce solar heat transmission and to meet exacting performance standards.

3.4 Lamination Adhesive
Typically a PET type.

3.5 Mounting Adhesive
1.5 micron - Acrylic pressure sensitive (PS)

3.6 Hard Coat☆
a. Ultraviolet cross linked acrylic clear coating.
b. Abrasion resistance must meet performance standards:

3.7 Release Liner
Clear silicon coated PET (<2% haze) liner placed over the mounting adhesive.

3.8 Physical Defects
Physical defects, such as scratches, spots, coating inclusions, wire lines, gravure lines, coating voids and creases which are visible under normal lighting conditions in final laminated product are not acceptable.

3.9 Roll Configuration
a. Length: 100' rolls or as specified on purchase order (PO)

b. Width: 60"

3.10 Nominal Physical Properties

a. Tensile Strength : 18 Kg/mm^2 (26Kpsi) - (TD)
18 Kg/mm^2 (26Kpsi) - (MD)

b. Melting Point : 254°C Celsius

c. Expansion Coefficient : 1.7 x 10^{-5} mm/mm/°C

3.11 Typical Optical Performance

Refer to the table at the left side

* The performance of **V-KOOL®** film alone is tested by the Singapore Institute of Standards and Industrial Research (SSIR)
* Data collected on a Perkin Elmer Lambda 9 spectrophotometer.
* All performance values calculated using Lawrence Berkeley Laboratories Window 4.1 Fenestration Program.

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Abrasion Resistance @ 100 cycles and under 500g weight	<6% after abrasion	ASTM D-1044