Addison Clear Wave
3555 Legacy Blvd
St. Charles, IL 60174 USA

Phone: +1 630 444 1658
Fax: +1 630 444 1683
www.Addisoncw.com

HC-5619

Optically Clear UV-curable Hard Coat

Features

- Anti-fingerprint, anti-scratch and anti-fog
- High Tg
- Excellent steel wool scratch resistance
- Fast UV-curable
- High hardness

Description

- UV-curable hard coat

Properties of cured HC-5619 on plastic

Test parameters	HC-5619
Process	
Solid content (%)	30
Solvent use and %	MIBK, 70
Viscosity of 30% solution (cps, 25ºC)	6
Film properties	
% Transmission	93
% Haze	0.1
Pencil Hardness on PET	5 H
5H pencil with weight	600 gram
Adhesion	100/100
% T after steel wool (SW) test SW conditions = 100 g/cm^2/100 time	92
Delta Haze after SW	0.1
Surface energy mN/m^2	23
Solvent resistance properties	
Ethanol soak, 24 hrs (adhesion, appearance)	100/100*, O**
IPA soak, 24 hrs (adhesion, appearance)	100/100, O
Ethanol at 60 ºC soak, 24 hrs (adhesion, appearance)	100/100, O
Adhesion after moisture (40 ºC, 95% RH, 24 hrs)	100/100, O
QUV (72 hrs) - yellowing check	O
QUV + Ethanol soak x 72 hrs - adhesion check	100/100, O

*100/100 = no delamination of the x-hatch test
**O = no delamination, no haze, no pocket and is excellent appearance

APPLICATIONS

UV-curable hard coat for plastic film

TYPICAL PROPERTIES of NEAT RESIN

Liquid

Viscosity (cps, 25 °C)	5,000 to 6,500
Storage (°C)	20 - 25
Shelf life (15 - 25 °C)	3 months
Pot life (15 - 25 °C)	2 months

Cured film

Shrinkage (volume, %)	6
Hardness – Shore D	95
Glass transition temperature (DMA, °C)	115
Refractive index of cured film (25°C)	
@ 589 nm	1.51
Physical properties tested at 25°C, 50% RH (ASTM D638)	
Tensile strength, MPa	20
Elongation (%)	5
Modulus, MPa	1,500

TYPICAL PROPERTIES of COATED FILM

Viscosity (cps, 25 °C in 50% PM) 6-8

Suggested solvent: Methyl Isobutyl Ketone (MIBK), Methyl Ethyl Ketone (MEK), propylene glycol monomethyl ether (PM or PGME), IPA, Ethyl Acetate or mixture of solvents

Suggested hard coat solution for process: 25 – 50 wt % of neat HC-5619 in Methyl Isobutyl Ketone (MIBK) or 1:3 ratio of IPA and Ethyl Acetate.

Process

Film:	Plastic films (treated plastic film will enhance adhesion)
Coating:	Wire bar, roller coat, knife coat, dip coat or spin coat
Pre-curing:	60 – 80 °C for 1 – 2 min, IR heating is acceptable
UV-curing:	High, medium pressure Mercury lamp or Fusion lamp
UV dose:	500 – 600 mJ/cm^2

Properties of coated film (3-5 µm)

Pencil Hardness	
TAC film (10-15 µm)	4H – 5H
PET film	5H – 6H
PC substrate	5H – 7H
PMMA substrate	6H – 8H
Adhesion to film	Excellent
Steel Wool resistance	Excellent

To achieve the optimum hardness, a dilution of 40-50% of solid and a UV dose of >500 mJ/cm^2 are required.

***Minimum intensity recommended for Spot lamp system: 300 mW/cm^2
***Minimum intensity recommended for Flood lamp system: 125 WPI or 49 WPcm

SAFETY AND HANDLING

The un-cured adhesive can be cleaned from apparatus with isopropyl alcohol (IPA), MIBK, methyl ethyl ketone (MEK), or commercial alcohol based cleaning solution.

Use caution in handling this material. Avoid direct skin and eye contact. Use only in well ventilated areas. Use protective clothing, **gloves and safety goggles**. Read Material Safety Data Sheet before handling.