

# Avery Dennison®

## Automotive Window Film HP Series

Revision: 2

Dated: 01/09/18

### Introduction

Avery Dennison® AWF HP is a high-performance, metal-dye hybrid film range available with different light transmission levels. AWF HP films merge metallized film with a weatherable dyed polyester for optimized solar performance with low reflectance and color-stable features.

### Description

**Film Series:** High- Performance automotive window films

**Color:** Charcoal Graphite

**Technology:** Metal- Dye Hybrid combined with UV Stable Dye

**Thickness:** 30 micron (1.2 mil)

**Adhesive:** Permanent- Solvent based acrylic

**Liner:** PET

**Color Stable:** Yes

### Conversion

Product is designed for automotive window tinting purposes and is easy to size by manual cutting during application. Material should be applied using the wet application method.

### Features:

- Hybrid film; giving optimal heat & glare protection with minimal mirror effect
- Excellent UV block, >99%
- Easy to handle with controlled shrink
- Thin, flexible construction
- High clarity adhesive; no smears or smudging
- Superior aesthetics, ultimate clarity and color stability

### Common Applications:

On the internal side of glass substrate of:

- Personal Vehicles
- Commercial and Fleet Vehicles

Before apply the product, the user shall determine the suitability of the product for its intended use. The user shall ensure that the application and the intended use of the product is in accordance with any and all applicable laws and regulations concerning the use of automotive window film, and user assumes all risk and liability in connection therewith.

### PRODUCT CHARACTERISTICS

#### Optical & Solar Properties:

	HP 05	HP 15	HP 30	HP 40
Visible Light Transmitted	6%	14%	30%	38%
Visible Light Reflected	7%	7%	8%	9%
Ultra Violet Block	>99%	>99%	>99%	>99%
Total Solar Energy Reflected	8%	10%	10%	10%
Total Solar Energy Transmitted	17%	26%	33%	39%
Total Solar Energy Absorbed	75%	64%	57%	51%
IR Energy Rejection	53%	42%	41%	39%
Selective IR Rejection	72%	56%	55%	52%
Glare Reduction	94%	85%	68%	57%
Shading Coefficient	0.44	0.53	0.58	0.63
Total Solar Energy Rejected	62%	55%	50%	46%

**Note:** Performance results are calculated on 6mm clear glass using NFRC methodology and LBNL Window 5.2 software, and are subject to variations in process conditions within industry.

#### Shelf Life and storage conditions:

When stored in original packaging upon arrival at the customer: 2 years.  
Recommended Storage conditions are 20 °C (± 2 °C) with 50 %RH (± 5%)

#### Warranty:

4 years

#### DISCLAIMER

All Avery Dennison statements, technical information and recommendations are based on tests believed to be reliable but do not constitute a guarantee or warranty. All Avery Dennison products are sold with the understanding that purchaser has independently determined the suitability of such products for its purposes. All Avery Dennison's products are sold subject to Avery Dennison's general terms and conditions of sale, see <http://terms.europe.averydennison.com>

### DEFINITIONS

#### **Visible Light Transmitted (VLT)**

The percentage of total visible light (380-780 nanometers) to be passed through a glazing system. Test method - ASTM E 903-96.

#### **Visible Light Reflected (VLR)**

The percentage of total visible light to be reflected by a glazing system. Test method - ASTM E 903-96.

#### **Total Solar Energy Reflected**

The percentage of total solar energy (300-2500 nanometers) to be reflected by a glazing system. Test method - ASTM E 903-96.

#### **Total Solar Energy Transmitted**

The percentage of total solar energy (300-2500 nanometers) to be passed through a glazing system.

#### **Total Solar Energy Absorbed**

The percentage of total solar energy (300-2500 nanometers) to be absorbed by a glazing system. Solar absorption is that portion of total solar energy neither transmitted nor reflected. Since solar transmittance and reflectance are measured directly, the following equation is used for calculating solar absorption. Test method - ASTM E 903. Total solar energy absorbed = 100% - (Total solar energy reflected) - (Total solar energy transmitted).

#### **Selective IR Rejection**

The percentage of IR radiation that does not directly transmit through a glazing system. Calculated as %SIRR = 100% - % Transmission (@780nm-2500nm).

#### **IRER - IR Energy Rejection:**

The percentage of energy rejected of Near Infrared as measured between 780-2500nm. This is the equivalent of the SHGC measuring only the NIR range, and is more accurate than the SIRR as it takes in consideration both reflected and absorbed energy reradiating . Calculated as the TSER over 780-2500nm: %IRER = 100% - 100\*SHGC (@780-2500nm)

#### **Ultra Violet Block**

The percentage of Ultra Violet radiation (300-380 nanometers) to be blocked by a glazing system. Ultraviolet is one portion of the total solar energy spectrum which greatly contributes to fading and deterioration of fabric and furnishings.

#### **Shading Coefficient (SC)**

The ratio of the solar heat gain through a given glazing system to the solar heat gain under the same conditions for clear, unshaded double strength window glass (DSA). Shading coefficient defines the sun control capability or efficiency of the glazing system.

# Avery Dennison®

## Automotive Window Film HP Series

Revision: 2

Dated: 01/09/18

### **Glare Reduction**

Glare usually defined as being the difficulty of seeing in the presence of bright light such as direct or reflected sunlight or artificial light such as car headlamps at night. Window film can provide glare reduction of up to 95%.

### **Total Solar Energy Rejected (TSER)**

Measures the window film's ability to reject solar energy in the form of visible light, infrared radiation and ultraviolet light. The higher the TSER number, the more solar energy is rejected away from the window.