Great Performance, **Delivered.**

Avery Dennison Hot Melt Adhesive Portfolio

AVERY DENNISON

Pressure-Sensitive Adhesives

Pressure-Sensitive Adhesives have a broad range of performance capabilities - from ultraremovables to ultra-high adhesion. Avery Dennison's range of products are ideal for demanding applications in the electronics, medical, industrial, graphics, construction, and consumer goods industries. There are three types of pressure-sensitive adhesives:

Hot Melt

Hotmelts are 100% solids and based on block copolymers. They have very good moisture resistance, cold temperature performance and high adhesion to difficult Low Surface Energy (LSE) and textured substrates.

Solvents

Solvents are acrylic polymers in petroleum-based solutions. They have outstanding shear, chemical resistance and long term durability.

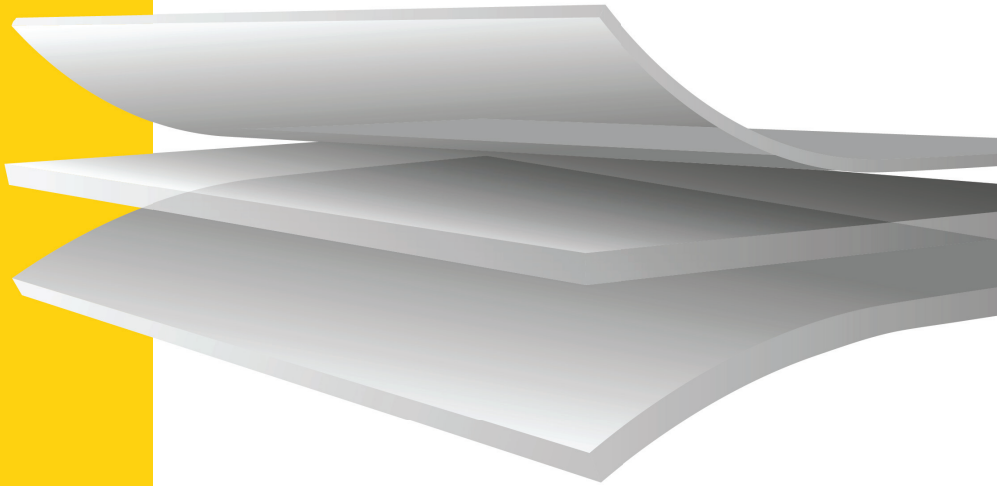
Emulsions

Emulsions are water-based acrylic polymers, with wide service temperature range and can bind to many substrates as well.

Did you know?

Pressure-sensitive adhesives can also be further classified based on the chemical composition of the adhesive, either rubber-based, acrylic or solventbased. The chemical makeup is a major contributor to the performance of the product.

Hot Melts - Rubber-based
Solvents - Rubber-based, Acrylic
Emulsions - Acrylic



Hot Melt Adhesive Solutions Guide

Hot melt adhesives have been used in the label industry for more than 20 years. Hot melts deliver broad application temperatures and strong adhesion. The Avery Dennison Hot Melt Portfolio offers solutions for low temperatures, rough or difficult to label surfaces, or even difficult label shapes, bringing benefits to both the converter and end users.

Avery Dennison Hot Melt Adhesives																					
	C4500				C4510				C2075				S246				C2580				
Min. Application Temperature	35 °F 1.7 °C				15 °F -9.4 °C				0 °F -18 °C				40 °F 4.4 °C				10 °F -12 °C				
Application Conditions	15 °F -9.4 °C	25 °F -3.9 °C	35 °F 1.7 °C	72 °F 22 °C	15 °F -9.4 °C	25 °F -3.9 °C	35 °F 1.7 °C	72 °F 22 °C	15 °F -9.4 °C	25 °F -3.9 °C	35 °F 1.7 °C	72 °F 22 °C	15 °F -9.4 °C	25 °F -3.9 °C	35 °F 1.7 °C	72 °F 22 °C	15 °F -9.4 °C	25 °F -3.9 °C	35 °F 1.7 °C	45 °F 7.2 °C	72 °F 22 °C
Corrugated Boxes	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
HDPE	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
PP	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
PET	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Glass	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Metal	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

● Excellent ● Good ● Fair ● Not Recommended

Fit for use testing recommended

The Best Applications of Hot Melts

The chemical characteristics of Hot Melts make them an excellent adhesive choice for particular applications. Here are the application conditions hot melts work best in.

Hot Melt is great for

- Recycled cardboard
- Low surface energy substrates ie. HDPE
- Rough or difficult to adhere to substrates
- Chiller or freezer performance

Hot Melt is not suitable for applications involving

- Heat exposure above 160°F
- Incidental solvent exposure
- UV exposure

More Hot Tips

- Press speeds are largely dependent on label shape and size, and the efficiency of die cutting through the adhesive
- Make sure the die has the right blade angle and tolerance
- Have a generous corner radius (1 mm at the minimum)

Frequently Asked Questions

Amid the vast plethora of adhesive formulas for labels out there, finding the right adhesive that is the most suitable for your particular material and business need can be daunting and time-consuming. That's why we've created this list of key factors to help you decide.

Does the label need to be permanent or removable?

- A permanent label cannot be removed from the substrate without damage to the label or the substrate
- A removable label can be removed without damaging it or the substrate

What are the application requirements?

- Is the application done automatically or manually by hand?
- How fast will the label be applied?
- Is repositionability required and if so, for how long?

What conditions are present during application?

- Is it on moist and humid environment?
- Does application take place in a very dusty, dirty or hot room?
- Will there be other contamination such as product overflow, grease, or gas outflow?

Are there any special application or exposure conditions the label must withstand?

- Extreme temperatures: For example, if the label will be exposed to temperatures above 70°C for an extended period, an acrylic adhesive combined with film or foil may be required.
- Outdoor weather: If the label is exposed to large amounts of moisture, a moisture-resistant facestock should be selected.
- UV light exposure: Long term exposure to UV light deteriorates rubber based adhesives and can also affect the graphics on the label.
- Sterilization processes

What is the composition of the substrate?

- It is important to identify the exact composition of the substrate because it does affect the ultimate bond strength.
- For example, saying "plastic" is not a sufficient description since the level of adhesion varies with the type of plastic involved, whether it is PET or PVC.

Frequently Asked Questions

(Continued)

What is the surface energy of the substrate?

- What you want is for the adhesive to "wet out" nicely over the surface of a material.
- High surface energy materials have excellent wet out and provide best adhesion.
- Low surface energy materials prohibit wet out, and the result will resemble water beads on a freshly waxed car.
- Rubber based adhesives generally offer better adhesion to low surface energy substrates.

What is the texture of the substrate's surface?

- Adhesion to any substrate is achieved by the adhesive flowing into all areas of the substrate and bonding with them.
- Textured materials do not allow 100% contact of adhesive. So, less contact means a smaller bonding area.
- A rough surface may require a stronger bonding adhesive to achieve acceptable adhesion.

What is the shape of the substrate?

- The shape of the substrate along with the size and stiffness of the label must be considered to ensure proper end-use performance.
- Curved surfaces (less than 25mm in diameter) will require an aggressive adhesive with thinner face

Is the application surface clean or contaminated?

- The cleanliness of the surface affects the ultimate adhesion and success of application.
- Contaminated surfaces prevent the adhesive from touching the actual surface, which is one reason why an adhesive fails to perform as expected.
- Typical contaminants include oil, grease, dust, dirt, moisture, ice, and even fingerprints. Mold release agents are another typical contaminate.

Are there plasticizers present in the substrate?

- Materials containing plasticisers will degrade the adhesive bond strength and may render the label useless.
- Pre-testing is always advisable by accelerated aging when the existence of plasticisers is suspected.

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