

# Analyzing the Properties of EVA Hot Melt Adhesive

## Detail Introduction :

When analyzing the properties of EVA Hot Melt Adhesive films, one needs to understand what it is and how it works. It is important to know the balance of set and open time and the polarity of the tackifiers to achieve satisfactory bonding and adhesion performances. In addition, the physical adsorption of tackifiers affects the level of wetting and adhesion. Therefore, it is vital to develop the optimal EVA hot melt adhesive formulation based on the end-user's environment, substrates, application techniques, and application procedures.



## Good adhesion

EVA Hot Melt Adhesive films have excellent thermal and adhesion properties, but some applications require higher melt viscosity than this. For those applications, EVA formulations are often added. EVA is compatible with a wide range of substrates, including polar and porous materials. To make the best use of this material, you can formulate the adhesive for a wide range of temperatures, and use it with paraffin, vinylacetate

other materials.

The key to good adhesion with EVA Hot Melt Agglue is to find the balance between open and set time, which is particularly important if the material to be bonded must be flexible or non-slip. The polarity of the tackifier can have a significant effect on the adhesion and wetting properties of EVA Hot Melt Adhesive Film. In order to ensure good adhesion, the composition of the EVA hot melt adhesive must match the substrate, application techniques, and environment of the end-user.

The molecular interactions between EVA Hot Melt Adhesive films are influenced by the polymer composition and the tackifier. EVA Hot Melt Adhesive Films contain both the main polymer EVA, and the tackifier terephthalic acid (TPA) and phenol resin (TPR). On aluminium substrates, the vinyl acetate bonds with the phenolic ring of TPR. On glass substrates, carbonyl groups and silanol groups form complexes. The tackifiers also influence adhesion to non-polar surfaces.

### Softness

The softness of EVA hot melt adhesive film enables it to bond a variety of materials. Its low surface tension and high adhesion performance make it an excellent choice for a wide variety of applications. Here are some examples of applications where softness is a desirable attribute. Read on to learn more. \* Read more about the application of EVA hot melt adhesive film. And don't forget to check out the following video to learn more about its properties.

Vinyl acetate is an important ingredient in EVA hot melt adhesive film. This substance is soft and elastic, and is completely free of backing paper. Moreover, it is flammable. So, it is a good choice for applications in high temperatures. But be careful not to over-prepare your application - EVA hot melt adhesive film is strong enough to hold even the heaviest loads.

Hot tack refers to the ability of HMAs to hold two substrates together before they solidify. Open time is the time during which a serviceable bond can be formed. The open time of EVA hot melt adhesive film is dependent on the types of substrates, amount of adhesive used and application techniques. If you're unsure which kind of EVA to choose, the plastic poly company you're working with can help.

### Heating fluidity

The heating fluidity of EVA Hot Melt Adherent Film is dependent on the degree of crosslinking in the film and the coupling agent used in its preparation. This is because DCP promotes the crosslinking process, which increases the bonding strength between the adhesive and PC sheets. The crosslinking process should be controlled to increase the tensile strength of the EVA.

The heating fluidity of EVA Hot Melt Adherent Film is a critical parameter for adhesion. The temperature and duration of the reaction determine the degree of crosslinking. The organic silane coupling agent may be used as a primer to enhance the adhesion of EVA Hot Melt Adhesive Film to substrates. A further modification is required to make the adhesive film more polar.

High temperature causes chemical bonds to form in the polymer. The degree of crosslinking increases as temperature rises. A stretched polymer chain is more vulnerable to breakage. The tensile shear strength of crosslinked EVA samples also follows a similar trend. As the degree of crosslinking increases, the viscosity of the sample increases. The tensile strength of crosslinked EVA increases as the temperature is increased. However, the fluidity of the sample decreases with increasing temperature.

The heating fluidity of EVA Hot Melt Adhering Film depends on the difference in adhesive materials and the milling back and glue height. In addition to these, different conditions affect the bonding performance. Further, the application environment of hot melt adhesive film is influenced by the temperature. It is important to understand the parameters involved in its processing. With proper guidance, it is possible to optimize the heating fluidity of EVA Hot Melt Adhesive Film to improve its performance.

### Cold resistance

As a leader in the production of film adhesives, Hengning has created a hot melt that is highly resistant to cold temperatures. This cold resistance can be achieved by using hot melt adhesives developed by Hengning, which are white, odorless, and very low density. This hot melt is also capable of excellent bonding strength and thermal stability. It can be used to seal corrugated cartons and forms trays.

EVA-based HMAs do not exhibit any significant surface tack and have very low pressure sensitivity at low temperatures. Their high polarity makes them particularly useful for applications that require extremely strong bonding. They also impart a short open time and fast set time. The open time and set time of EVA hot melt adhesives are primarily determined by their wax content. EVAs with higher VA content will have a longer open time.

EVA hot melt adhesives are easier to use than PUR adhesives. PUR is more resistant to cold temperatures and is capable of surviving in much lower temperatures. EVA hot melt adhesives will melt at temperatures above 90degC. Both EVA and PUR adhere to different substrates and have a different curing time. EVA hot melt adhesives have a shelf life of up to 2 years at room temperature.

### Compatible with a wide variety of chemicals

The chemical compatibility of components is important for the performance of equipment and materials. Without chemical compatibility, materials may fail rapidly. Compatibility can be compromised when more than one chemical or compound that contains impurities. Chemical compatibility is not specific to certain chemical combinations, however. This chart helps determine if a component is compatible with a specific chemical and component material combination. The chart also includes other chemicals, including mixtures of compounds that combine two or more of the listed chemicals.

Chemical resistance is a function of temperature and concentration. Many reagents are only safe for use at a specific temperature. The compatibility chart assumes an ambient temperature of 70 degF. More chemical reactions can be unintended when mixing or diluting two or more chemicals. Heat can also cause component failure. In such cases, compatibility charts are invaluable for chemical safety. The Safer Chemical

Ingredients List can be downloaded as a spreadsheet, and updated whenever new chemicals have been added.

## Applications

The present invention provides an adhesive composition based on an ethylene-vinyl acetate resin with improved low temperature flexibility and equivalent open time and setting speed. The composition comprises between 20 and 50 wt.% ethylene vinyl acetate, a tackifying hydrocarbon resin, and 0.5 to 10 wt.% wax compatible with EVA, and at least one stabilizer.

A high degree of open time and low surface tack are essential features of HMAs for packaging applications. These two properties promote adhesion while maintaining the adhesion quality during assembly process. In addition, a fast setting time facilitates quick application of adhering pressure. These characteristics are essential for efficient EVA hot melt adhesive formulations. However, it is essential to note that the performance of an adhesive depends on several factors, including the substrate, the amount of adhesive, and the end use environment.

One of the best features of EVA hot melt adhesives is their compatibility with various chemicals. This allows manufacturers to assign specific properties to EVA hot melt adhesives. Fillers also make hot melt adhesives cheaper and less viscous. Colored EVA hot melt adhesives are available with pre-mixed color pigments or pure dyes for specific applications. Moreover, their bond remains strong even after prolonged exposure to sunlight.