

acResin[®] UV 3532

Chemical Nature

A UV cross linkable acrylic hot melt polymer used in the production of self-adhesive articles

Properties			
Typical Properties	Appearance		clear, slightly yellowish liquid
	Non-volatile components (30 Min at 140 °C)	%	≥ 99
	K-value (1% solution in THF) (DIN ISO 1628-1)		43 – 49
Other properties	Density at 20 °C (ISO 2811)	g/cm ³	ca. 1.06
	Hazen color		≤ 100
	Glass Transition Temperature T _g (DSC)	°C	-60
	Viscosity at 130 °C (EN ISO 3219, appendix B, cone and plate, shear rate, 100 s ⁻¹)	Pa s	5 – 35
	Stability in storage at 110 °C		Begins to form gel after 12 hours
Compatible with			
Solvents	Toluene, acetone, ethyl acetate, methyl ethyl ketone, tetrahydrofuran, isobutanol		
Resins	Modified natural resins, some hydrocarbon resins, Acronal [®] 4 F		
Plasticizers	Palatinol [®] AH, Plastilit [®] 3060		

Applications

Fields of application

acResin UV 3532 may be used as a pressure sensitive adhesive (PSA) in the production of removable labels, tapes and specialties which require coat weights up to ~40 g/m² (1.5 mils). By virtue of its low glass transition temperature, it may also be used as a freezer grade adhesive in various applications.

Compounding

As discussed, a wide performance latitude is achievable from the neat polymer by varying the UV dose. acResin UV 3532 can be compounded with tackifiers to increase its aggressiveness and alter removability. Modification with plasticizers, acrylic copolymers and polyvinyl ethers is also possible; however, a higher UV dose may be required, depending on the type and level of modifier and the desired adhesive properties.

The photoreactive group necessary for UV crosslinking is chemically bound to the polymer. Addition of a second photoinitiator or other reactive components such as monomers or oligomers may have negative effects on adhesive properties.

Processing

acResin UV 3532 exhibits the following traits:

- Versatility (adjustable, reproducible PSA properties)
- Optical clarity
- Instantaneous, no inertization cure
- Excellent aging and converting properties
- Heat resistance
- Moisture resistance
- Low volatile organic compound (VOC) content
- No evidence of skin irritation

Processing

acResin UV 3532 can be applied on conventional hot melt coaters at a suggested temperature range of 110 - 130 °C (230 - 265 °F). Temperatures in excess of 150 °C are not recommended.

acResin UV 3532 is not compatible with conventional SIS or SBS hot melt polymers. Blends of these systems result in films with an uneven, hazy appearance.

The solvents listed in the previous section may be used for cleaning equipment, provided they are used responsibly and in accordance with sound industrial practices.

UV Curing

acResin UV 3532 is an acrylic “pre-polymer” which must be crosslinked by exposure to UV radiation to develop useful pressure sensitive properties. The crosslink density of the polymer, and hence the performance properties, are controlled by varying the UV dose applied to the adhesive during processing. By using a higher UV dose, which yields lower tack and higher cohesion, removable PSAs may be generated. A lower UV dose, which results in higher tack and lower cohesion, may be used to produce freezer PSAs. In any case, small deviations in the chosen radiation dose have little effect on the adhesive properties.

Depending on the coat weight and desired properties, line speeds up to 40 m/min. can be achieved using one 120 W/cm lamp. By using a series of lamps, faster production speeds can be achieved. Generally, it is desirable to use more lamps for higher speeds rather than fewer lamps with higher intensity.

A number of variables affect property development, including:

- Line speed
- Coat weight
- Lamp
 - Type
 - Intensity
 - Number
- Temperature of adhesive
 - Reflectors
 - Coater geometry and speed
 - Carrier type (color)
- Direct/Indirect coating

Lamps

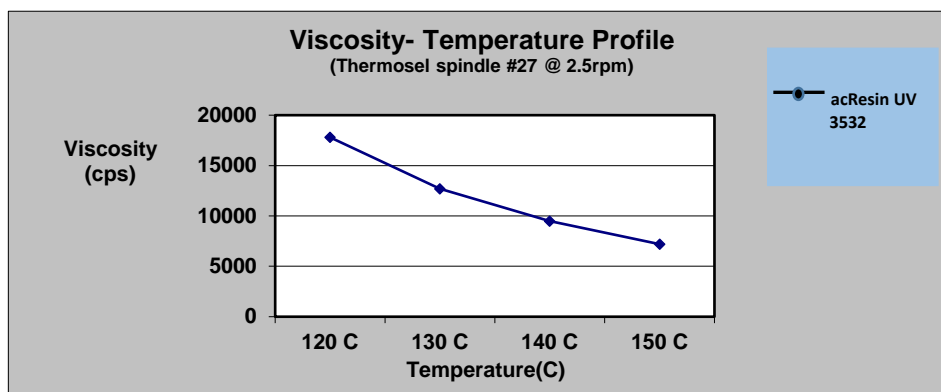
Curing is initiated by the UV radiation emitted by medium pressure mercury vapor lamps. Either conventional arc lamps or microwave powered lamps may be suitable.

UV Dose Measurement

Regular measurement of the UV dose during processing is recommended to ensure consistent development of adhesive properties. A monitoring program will reduce the effects of fluctuation in lamp performance due to failure, aging and cleanliness.

Adhesive Properties

A good balance of adhesive properties can be achieved with coat weights up to a recommended maximum of 40 g/m². At coat weights greater than the maximum, a crosslink density gradient forms which can result in performance differences between direct and transfer coated materials.



Viscosity

Safety

Safety Data Sheet

All safety information is provided in the Safety Data Sheets for acResin UV 3532.

Important

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Dispersions and Resins

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