UV-Curable Adhesives

Permabond UV-curable adhesives are single part, cure on demand adhesives suitable for bonding a wide variety of substrates. Upon exposure to UV light, Permabond UV curables will cure to a high strength in a matter of seconds.

Permabond UV curable adhesives are suitable for a variety of applications.
They are excellent for bonding glass to glass or glass to metal and form very high strength bonds for load bearing joints, such as those found in glass furniture and display cases.

Flexible and stress absorbing, Permabond UV curable adhesives are suited to applications where substrates with different thermal expansions need to be bonded.

Permabond UV curable adhesives bond a wide variety of plastics. Some clear plastics contain UV stabilizers that block the transmission of UV light, but they can still be bonded with visable light curing adhesives. Permabond's technical staff can help you identify the UV characteristics of the plastic you are using.

Typical applications include:
- Bonding glass furniture
- Glass to metal structural bonding
- Acrylic display racks
- Lenses
- Solar panels
- Trophies and glass ornaments

Permabond UV curable adhesives form strong and durable bonds.
Permabond UV curable adhesives cure during exposure to ultra violet light. The adhesives contain photo-initiators that react to specific wavelengths, causing the curing process to begin.

UV adhesives do not dissolve, melt or weaken the two components. They form strong chemical bonds between the two substrates and provide a high strength alternative to other joining methods.

Lamps are available in a variety of intensities from small inexpensive hobby type lamps to larger high intensity units for high speed production. Permabond will help you select the equipment best suited to your specific application.

Benefits

- Cure on demand - allows proper alignment of components before bonding.
- Cure speed - increase production by simply adding more lamps to the line.
- Non-flammable and solvent-free - provides a safe and comfortable work environment.
- Single part product - No mixing required.
- 100% solids equal no waste and no VOCs
- Save energy and space - UV lamps require less electricity and space compared to ovens.
- Appearance - UV adhesives provide quality aesthetics.
- Technical support- application specialists available for assistance with joint design, adhesive selection and production process.

Cure speed of UV-curable adhesives:
There are a number of factors which determine the cure speed of UV-curable adhesives (not just the reactivity of the adhesive itself):
-Intensity of UV-light and distance from the source
-Type of UV bulb - there are a variety of bulb types and LEDs with different power outputs and spectra
-Age of the UV bulb (UV output of bulbs reduces with age)
-Light transmittance of the materials being bonded (many plastics have UV-stabilisers which block UV rays).

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UV-Curables Product Chart

Grade	Description	Appearance	Viscosity (mPa.s)	Tensile strength (MPa)	Lap shear strength (MPa)	Hardness (Shore D)	Service Temperature (°C)
UV605	Very low viscosity	Clear, colourless	50-100	14	Steel to glass 10-14	65-75	-55 to +120
UV610	High strength bonding for glass to metal.	Translucent	800-1000	17	Steel to glass 13-16	65-75	-55 to +120
UV612	Bevel bonding grade with slow cure and easy clean-up	Clear, colourless	450-650	>5	Steel to glass 8-12	30-40	-55 to +120
UV620	General purpose, optically clear, excellent resistance to yellowing.	Clear, colourless	2200-2900	16	Steel to glass 9-10	60-75	-55 to +120
UV625	Non-drip for larger gaps and vertical applications.	Clear, colourless	20rpm: 30,000-55,000 2rpm: 120,000-250,000	16	Steel to glass 6-10	60-70	-55 to +120
UV630	Low viscosity, plastic bonding. ISO10993 cytotoxicity approved.	Clear, colourless	200-300	14	PC to PC >9*	60	-55 to +120
UV632	Particularly good for bonding acrylic substrate material.	Clear, colourless	200-400	13	PC to PC >5*	55-75	-55 to +120
UV640	Medium viscosity, plastic bonding.	Clear, colourless	20rpm: 3,000-5,000 2.5rpm: 12,000-25,000	13	PC to PC >9*	55-75	-55 to +120
UV645	Plastic bonding. Good adhesion to acrylic.	Clear, colourless	20rpm: 8,000-10,000 2.5rpm: 30,000-60,000	11	PC to PC >9*	50-65	-55 to +120
UV648	High viscosity, excellent adhesion to acrylic substrates.	Clear, colourless	20rpm: 20,000-40,000 2rpm: 120,000-180,000	11	PC to PC >5*	50-65	-55 to +120
UV649	Plastic bonding gel.	Clear, colourless	20rpm: 20,000-30,000 2rpm: 80,000-150,000	15	PC to PC >9*	50-65	-55 to +120
UV670	Flexible for metal and metallized plastics.	Clear, colourless	2000-3000	12	Steel to glass 6-10	50-60	-55 to +120
UV675	For crystal clear bonding of glass.	Clear, colourless	500-800	16	Steel to glass 8-12	60-70	-55 to +120
UV681	Tack-free coating UV. Ideal for encapsulation.	Clear, colourless	80-120	10-12	N/A	50-65	-55 to +120
UV683	Tack-free UV for encapsulation or doming applications.	Clear, colourless	1000-1600	12-14	N/A	50-65	-55 to +120
UV6231	Excellent resistance to moisture and harsh environmental conditions	Clear, colourless	5000-8000	10	Steel to glass 10	45-50	-55 to +120
UV6160	Maintains optical clarity even in high stress joints	Clear, colourless	1000-2000	15-25	Steel to glass 11	65-75	-55 to +120
UV7141	UV and anaerobic curing. For bonding ceramic coated glass, mirrors, glass and metal.	Clear/colourless liquid, slightly yellow when cured	1000-1700	20	Steel to glass 14-17	60-70	-55 to +150

PC = Polycarbonate
** Denotes substrate failure*