

Types of adhesives and their uses

Type	Example	How it bonds	Uses	Strong points	Weak points	Tips
PVA – White/Yellow glues	Elmer's, Titebond	Physically interlocks materials	Porous materials – wood, paper	Water-based, easy cleanup, long open time Heat/moisture to reverse bond	Needs clamping while setting. Slow setting.	Use sizing on really porous materials, like wood endgrain
Epoxy		Physically interlocks and chemically bonds materials	Bonds most substrates	Very strong and tough, various cure times available	Needs clamping while setting. Not reversable	Allow to partially cure before application for small parts that aren't easily clamped.
Solvent Cements	Tenax, Plastruct, Testors, Acetone, Methyl ethyl ketone (MEK)	Dissolves plastics, which then re-harden, similar to welding	Polystyrene and acrylic plastics – Each kind of plastic will require a different solvent	Very strong bond, quick set and cure time.	Will dissolve or distort thin materials. Generally not reversable.	For straight solvent, use touch-n-flo to apply cement directly to joint; otherwise, use very small brush.
Cyanoacrylate	Zap, Cyanopoxy	Binds to water and hydroxyl groups on substrate surface	Bonds just about all non-porous materials	Very strong bond	Brittle, low shear strength, Gap-filling cement somewhat better	Use thin CA where you can make tight joints, thick CA for looser joints
Contact adhesive	Goo, Barge cement	Viscosity of adhesive holds materials together	Bonding dissimilar materials, like wood and plastic, metal and plastic.	Sticks almost anything	Creep, joint failure. Solvent may affect plastics.	Vinyl floor adhesive is water-based, good for non-structural, dissimilar joints.
Polyurethane	Gorilla Glue	Interlocks and binds to water/hydroxyl	Bonds many substrates	Water-proof, expands to fill gaps while setting	Expands while setting, so must be clamped while setting	Moisture-catalyzed, short shelf life after opening. Keep opened container as dry as possible.