

# D3O® BONDING GUIDE

The following pages offer general advice to customers on how to bond D3O® material.

Please familiarise yourself with the SDS of the chosen solvent/adhesive and ensure appropriate personal protective equipment is used.

Bonding techniques and results will differ depending on a number of variables including:

- The grade of D3O® material
- The type of material being bonded to D3O® material
- Surface preparation
- The geometry of the parts to be bonded
- The intended application for the finished product

The preparation phase is the most critical part of the bonding process to ensure a strong and longlasting bond. Every application is unique but the following is offered as guidance:

All surfaces should be clean, dry and free of paint oxide films, oil, dust, mold-release agent and other surface contaminants. The amount of surface preparation directly depends on the bond strength and environmental resistance desired by the user.

For any D3O® material, the minimum advised surface preparation is solvent cleaning<sup>1</sup> (IPA or MEK) to remove any trace of mold-release agent on the surface to be bonded. Slightly abrading the surface of D3O® material will improve the bond strength of most adhesives and will also enhance environmental resistance at the join.

More information on surface preparation of various materials (plastics, metals, polyefins) is available on the relevant manufacturers' website.

<sup>1</sup>. Wipe surface using any recommended solvent. Ensure regular cloth replacement to avoid contamination. The information contained in this D3O® Bonding Guide is intended to assist in the designing of products using D3O® materials. It is not intended to and does not create any warranties, expressed or implied, including any warranty of merchantability or fitness for a particular purpose or that the results shown on the guide will be achieved by a user for a particular purpose. The user should determine the suitability of D3O® materials for each application.

The table below highlights a number of potential applications and some suggested adhesives to use. This is by no means an exhaustive list and every application is unique.

Material to be bonded	D3O® PU based technologies, Such as set foams and formable foams	D3O® PO based technologies, Such as D3O® LITE
ABS	Cilbond 41	
Acrylic Plastics	Cilbond 41	
Castable PU elastomer	Cilbond 41	
Elastomeric materials	Loctite 401, Loctite 406	Loctite 406
Epoxies	Cilbond 41	
Fabrics	Loctite 4850, Loctite 401 and most cyanoacrylate glues	Loctite 4850, Loctite 401 and most cyanoacrylate glues
Flexible plastics/components	Loctite 4850! Loctite 4850	
GRP	Cilbond 41	
Leather	Loctite 4850, Loctite 401 and most cyanoacrylate glues	Loctite 4850, Loctite 401 and cyanoacrylate glues suitable for EVA materials
Metals	Cilbond 41, Loctite 4850 Loctite 401, Loctite 406	Loctite 4850, Loctite 401, Loctite 406
Plastics	Loctite 4850, Loctite 401, Loctite 406	Loctite 4850, 3M-PR100, Loctite 406, Loctite 401
Polyolefin	3M-DP8005, Loctite 4850*, Loctite 401*, Loctite 406*	Loctite 4850*, Loctite 401*, Loctite 406*!
Porous and/or acidic surfaces	Loctite 4850, Loctite 401	Loctite 4850, Loctite 401
RIM PUs	Cilbond 41	
Rubbers	Loctite 4850, Loctite 401, Loctite 406	Loctite 4850, 3M-PR100, Loctite 401, Loctite 406
Thermoplastic Olefins (TPOs)	3M - DP8005	

\*Used in combination with Polyolefin Primer Loctite 770 or Loctite 7239. The information contained in this D3O® Bonding Guide is intended to assist in the designing of products using D3O® materials. It is not intended to and does not create any warranties, expressed or implied, including any warranty of merchantability or fitness for a particular purpose or that the results shown on the guide will be achieved by a user for a particular purpose. The user should determine the suitability of D3O® materials for each application.

The table below offers recommended adhesives for use with D3O® materials. There are a large number of alternative adhesives available in the market place which will also bond D3O® to other materials.

Company	Type	Adhesive	Applications
3M	Two-parts Acrylic based	3M-DP8005	Room temperature cure, excellent water and humidity resistance, good chemical resistance, solvent free adhesive system
	Two-parts Epoxy based	3M-2216 A/B	High peel and shear strength adhesive with room temperature curing. Resistance to extremeshock, vibration and flexing
	Ethyl-Cyanoacrylate based	3M-PR100	High speed, high strength bonding
CIL	Cilbond 41	Cilbond 41	Fast curing, water and environmental resistance
HENKEL	Ethyl/ButylCyanoacrylate	Loctite 4850	For bonding materials subjected to bending or distortion, as well as flexible components
		Loctite 406	Primer Loctite 770 and 7239 improve bonding on difficult to bond substrates
		Loctite 401	General purposes, resists temperatures up to 120°C
LORD	Urethane	7545	Chemically resistant, high strength and durable for structural applications, environmental resistance (sunlight, weathering, humidity and salt spray)
MAXI FIX	Cyanoacrylate	Maxi Fix	Fast curing

Please ensure that appropriate personal protective equipment and clothing is used when working with solvents/adhesives.

For technical information regarding any adhesives (including directions for use, safety information and storage instructions) please visit the relevant adhesive providers website. If these fail to answer your questions, please contact D3O directly.

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