STRUCTURAL ADHESIVES
SELECTOR GUIDE

intertronics

adhesives, coatings, sealants & equipment

for your manufacturing and technology applications

Description and substrate bonding guide

Suitability
★★★ Excellent
★★ Good
★ Moderate

				Substrate suitability			
Brand	**Product**	**Chemistry**	**Key Features**	**Metals**	**Plastics**	**Glass**	**Composites**
SCIGRIP	SG230HVA	MMA	• Primerless composite and plastics bonding • Excellent environmental resistance • Gap filling up to 39mm (1.5")	★★★ *With primer	★	★★	★★★
SCIGRIP	SG300	MMA	• Primerless metal bonding • Excellent environmental resistance • Excellent fatigue, impact and shock load resistance	★	★★★	★★	★★★
SCIGRIP	SG600	MMA	• Primerless plastics bonding • Excellent fatigue, impact, and shock load resistance • Excellent flow characteristics which ease manual dispensing	★★ *With primer	★★★	★★	★★ *With primer
SCIGRIP	SG800	MMA	• Withstands environments up to 150°C continuous, and intermittent exposure up to 205°C • Outstanding environmental and chemical resistance • Good strength retention, fatigue, and impact resistance at elevated temperatures	★★★	★★★	★★	★★★
SCIGRIP	SG5000	MMA	• 1:1 mix ratio yields excellent results with manual or metered mixing • Primerless metal bonding for most metals eliminates surface treatment steps • Excellent environmental and chemical resistance	★★★	★★★	★★	★★★
Intertronics	IRS3078	PUR	• Low viscosity adhesive and potting compound • Good electrical insulation properties • High adhesion and impact resistance	★★	★★	★★	★★
Intertronics	IRS3103	PUR	• Bonding of plastics, metal, GRP, ceramics, SMC, wood, plasterboard, concrete and rock • Cures to handling strength in minutes and can be sanded after 30 minutes. • Excellent resistance to moisture, fuel, many chemicals and solvents	★★	★★★	★★	★★
Intertronics	IRS3221-W	PUR	• Micro emission technology means use is exempt from REACH certification requirements • Excellent chemical resistance, better than conventional PU adhesives • Solvent free, VOC free	★★	★★★	★★	★★
Intertronics	IRS3223-B	PUR	• Micro emission technology means use is exempt from REACH certification requirements • Excellent chemical resistance, better than conventional PU adhesives • Solvent free, VOC free	★★	★★★	★★	★★
Gurit	BondPro 200 Series	EP	• Fast curing toughened epoxy • Strong adhesion to multiple substrates and bonding of dissimilar materials • Exceptional shear strength	★★★	★★	★★★	★★★
Gurit	BondPro 300 Series	EP	• Gap filling up to 15mm - thixotropic paste consistency • Strong adhesion to multiple substrates and bonding of dissimilar materials • Good chemical resistance	★★★	★★	★★★	★★★
Intertronics	IRS2111	EP	• Excellent general purpose structural adhesive • Useful working life of about one hour • Good chemical/humidity/moisture resistance	★★★	★★★	★★★	★
Intertronics	IRS2112	EP	• Versatile, general-purpose adhesive • Excellent electrical properties • Rapid curing	★★★	★	★★★	★★
Intertronics	IRS2125	EP	• Excellent flexibility giving high shear and peel strength • Outstanding chemical and fluid resistance, including moisture, diesel and fuel oils and hydraulic fluid • Tough bonds withstand vibration and flex	★★★	★★	★★★	★★
Intertronics	IRS2126	EP	• Good adhesion to flexible substrates • Will bond to most substrates, including metal, glass, wood, rubber and many plastics • Good shock resistance	★★★	★★	★★★	★
Intertronics	IRS2128	EP	• Excellent adhesion to a variety of metals, plastics, and GRP • Good general chemical resistance • Toughened, impact resistant, long pot life	★★★	★	★★	★★
Intertronics	IRS2129-1	EP	• Rubber modified, bonds well to rubberised surfaces • Very good adhesive to plastics like ABS, PVC, PC, PMMA • Semi-rigid finish, low stress in components in dynamic environments	★★★	★★	★★★	★★★
Opti-tec	OPT5001	EP	• High optical clarity • High surface energy and low viscosity, readily wets and wicks between surfaces • Cures to a hard, glass-like material which can be polished	★★	★	★★★	★
Opti-tec	OPT5007-1	EP	• Outstanding chemical, moisture and thermal resistance • Low exotherm, low shrinkage, low stress cure • High surface energy and low viscosity, readily wets and wicks between surfaces	★★★	★	★★★	★
Opti-tec	OPT5012	EP	• High optical clarity • High surface energy and low viscosity, readily wets and wicks between surfaces • Cures to a hard, glass-like material which can be polished	★★	★	★★★	★
Opti-tec	OPT5013-1	EP	• Optically clear • Sets within minutes and cures within hours at room temperature • Good impact and thermal shock resistance	★★★	★	★★★	★
Opti-tec	OPT5054-T	EP	• Can operate up to 350°C for short periods, Tg >140°C • Low shrinkage on cure, which reduces internal stresses within the bond • Very high resistance to moisture, vapours and most chemicals	★★★	★★	★★★	★
Dymax	DYM6-621	UV	• Hard & clear bonds to metals, glass, ceramic and phenolic plastics • Can be activator-cured and secondary heat-cure for shadowed areas • Cures in seconds with appropriate UV/Visible light equipment	★★★	★★	★★★	★★
Dymax	DYM431	UV	• High adhesion on glass-to-glass and glass-to-metal bonding • Moisture and temperature resistant • Cures in seconds with appropriate UV/Visible light equipment	★★★	★★	★★★	★
Dymax	DYM3099	UV	• Strong bonds to acrylic (PMMA), Polycarbonate (PC), and glass • Low viscosity for wicking into bonding joints • Cures in seconds with appropriate UV/Visible light equipment	★	★★★	★★★	★
Born2Bond	B2B Structural	CA	• High-strength, high-temperature (120°C) hybrid cyanoacrylate adhesive • Gap filling up to 5mm • Good impact and environmental resistance	★★★	★★★	★★★	★★
Born2Bond	B2B Ultra K85	CA	• Exceptional resistance to humidity and high temperatures - Passes 85°C/85% RH for up to 1,000 hours (up to 5,000 hours on ABS) • High strength bonding of plastics, rubbers and metals.	★★★	★★	Not advised	★★
Born2Bond	B2B Ultra	CA	• Short fixture time with long open time • Low blooming with increased flexibility over typical cyanoacrylate • Available in a range of viscosities	★★★	★★	Not advised	★★
Intertronics	ADH9406	CA	• Bonding difficult substrates such as EPDM and polyolefin polymers • Super-fast bonding of plastics, metals, ceramics and rubbers • Rapid cure, surface insensitive with low viscosity	★★★	★★	Not advised	★★
Intertronics	ADH9485	CA	• High viscosity • Impact and peel resistant formulation • Rapid bonding of plastics and rubbers	★★★	★★	Not advised	★★

MMA: Methyl Methacrylate adhesives **PUR**: Polyurethane adhesives **EP**: Epoxy adhesives **UV**: Ultraviolet curable adhesives **CA**: Cyanoacrylate adhesives

Cure times and physical properties

Work & Cure Times						Physical Properties					
Brand	**Product**	**Chemistry**	**Viscosity**	**Work time (Room temp)**	**Cure time**	**Modulus**	**Elongation**	**Bond strength**	**Shore Hardness**	**Colour**	**Ratio**
SCIGRIP	SG230HVA	MMA	Non-sag	40min 60min	6-8hrs[2] @24°C	>710 MPa	>100%	>14 MPa	D60	Grey	10:1
SCIGRIP	SG300	MMA	Non-sag	5min 15min	6-8hrs[2] @24°C	>276 MPa	>40%	>16 MPa	D55	Black	10:1
SCIGRIP	SG600	MMA	Non-sag	5min	6-8hrs[2] @24°C	>827 MPa	>65%	>25 MPa	D55	White / Black	10:1
SCIGRIP	SG800	MMA	Non-sag	5min 15min	6-8hrs[2] @24°C	>827 MPa	30%	>20 MPa	D55	Black	10:1
SCIGRIP	SG5000	MMA	Non-sag	3min 13min	6-8hrs[2] @24°C	>1240 MPa	>10%	>25 MPa	D70	Amber	1:1
Intertronics	IRS3078	PUR	2,000 mPas	6min	12hrs @23°C 6hrs @80°C	21 MPa	23%		D65	Black	1:1
Intertronics	IRS3103	PUR	55,000 mPas	3.5min	10min[2] @23°C	245 MPa	55%	15 MPa	D63	Black	1:1
Intertronics	IRS3221-W	PUR	49,000 mPas	1.5min	10min[2] @23°C	210 MPa	58%	12 MPa	D73	White	1:1
Intertronics	IRS3223-B	PUR	49,000 mPas	3.5min	10min[2] @23°C	210 MPa	58%	12 MPa	D73	Black	1:1
Gurit	BondPro 200 Series	EP	0.5-5mm	5min 15min 60min	48hrs@ 23°C 54hrs@ 23°C 72hrs@ 23°C	1.8-2GPa	15-20%	14 MPa	75-80	Black	1:1
Gurit	BondPro 300 Series	EP	0.5-15mm	60min 140min	7 days @ 23°C 16 hours @ 50°C	2.9GPa	>10%	29 Mpa	75-80	Black	2:1
Intertronics	IRS2111	EP	14,000 mPas	60min	32hrs @23°C	320 MPa	2%	9 MPa	D75	Amber	1:1
Intertronics	IRS2112	EP	27,000 mPas	4min	12hrs @23°C	320 MPa		14 MPa	D80	Amber	1:1
Intertronics	IRS2125	EP	100,000 mPas	90min	7days @23°C 2hrs @85°C	350 MPa		11 MPa	D65	Black	1:1
Intertronics	IRS2126	EP	25,000 mPas	5min	2hrs @23°C	320 MPa		9 MPa	A80	Black	1:1
Intertronics	IRS2128	EP	Non-sag	60min	96hrs @23°C 24hrs @40°C	32 MPa		18 MPa	D80	Black	2:1
Intertronics	IRS2129-1	EP	Non-sag	20min	16hrs @23°C 8hrs @30°C	32 MPa		17 MPa	A90	Black	2:1
Opti-tec	OPT5001	EP	100 mPas	60min	24hrs @23°C 60min @65°C	23 MPa			D81	Clear	4:1
Opti-tec	OPT5007-1	EP	1,000 mPas	2hrs	24hrs @23°C 20min @75°C 5min @100°C	33 MPa			D85	Clear Blue	4:1
Opti-tec	OPT5012	EP	500 mPas	4hrs	48hrs @23°C 90min @80°C	23 MPa			D82	Clear	100:35
Opti-tec	OPT5013-1	EP	7,500 mPas	5min	2hrs @23°C 10min @65°C	32 MPa			D70	Clear	1:1
Opti-tec	OPT5054-T	EP	15,000 mPas	12hrs	30min @135°C 15min @150°C	330 MPa			D92	Amber	1:1
Dymax	DYM6-621	UV	800 mPas	N/A	Seconds	550 MPa	37%	15 MPa	D80	Clear	Single-part
Dymax	DYM431	UV	500 mPas	N/A	Seconds	570 MPa	61%	31 MPa	D70	Clear	Single-part
Dymax	DYM3099	UV	150 mPas	N/A	Seconds	917 MPa	220%		D75	Clear	Single-part
Born2Bond	B2B Structural	CA	Non-sag	Up to 30min		800 MPa	17%	16 MPa	D65	Transparent	4:1
Born2Bond	B2B Ultra K85	CA	200 mPas	15-140sec (fixturing)			30%	20MPa		Transparent	Single-part
Born2Bond	B2B Ultra	CA	20 mPas 120 mPas 700 mPas 105,000 mPas	5-60sec (fixturing)				20 MPa		Clear	Single-part
Intertronics	ADH9406	CA	30 mPas	2-20sec (fixturing)						Clear	Single-part
Intertronics	ADH9485	CA	5,000 mPas	3-120sec (fixturing)						Clear	Single-part

[2]: Time denotes processing time where the adhesive can be handled or sanded. Likely to be 60-80% cross-linked (application and environment dependant)

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Durability and packaging

Suitability
●●● Excellent
●● Good
● Moderate

		Resistance				Packaging		
Brand	**Product**	**Chemistry**	**Water / humidity**	**Chemicals**	**Heat**	**Twinpacks**	**Cartridges**	**Bulk**
SCIGRIP	SG230HVA	MMA	●●●	●●●	●●		490ml	
SCIGRIP	SG300	MMA	●●●	●●●	●●		50ml 490ml	
SCIGRIP	SG600	MMA	●●●	●●	●●		490ml	
SCIGRIP	SG800	MMA	●●●	●●●	●●●		490ml	
SCIGRIP	SG5000	MMA	●●●	●●●	●●		50ml 400ml	
Intertronics	IRS3078	PUR	●●	●●	●		50ml 200ml	
Intertronics	IRS3103	PUR	●●●	●●	●		50ml	
Intertronics	IRS3221-W	PUR	●●●	●●●	●		50ml	
Intertronics	IRS3223-B	PUR	●●●	●●●	●		50ml	
Gurit	BondPro 200 Series	EP	●●	●●	●●		50ml 400ml	
Gurit	BondPro 300 Series	EP	●●	●●	●●		50ml 400ml	
Intertronics	IRS2111	EP	●●	●●	●●		50ml	
Intertronics	IRS2112	EP	●●	●	●●		50ml 200ml	
Intertronics	IRS2125	EP	●●●	●●●	●●		50ml	
Intertronics	IRS2126	EP	●●	●●	●●	10ml	50ml	
Intertronics	IRS2128	EP	●●	●●	●●		50ml	
Intertronics	IRS2129-1	EP	●●	●●	●●		50ml 200ml	
Opti-tec	OPT5001	EP	●●	●●	●●●	4g		500g
Opti-tec	OPT5007-1	EP	●●●	●●●	●●●	4g		500g
Opti-tec	OPT5012	EP	●●	●●	●●●	4g		500g
Opti-tec	OPT5013-1	EP	●●	●●	●●		50g	
Opti-tec	OPT5054-T	EP	●●●	●●●	●●●		50g	
Dymax	DYM6-621	UV	●●	●●	●●		10g 30g	
Dymax	DYM431	UV	●●●	●●	●●		30g	1kg
Dymax	DYM3099	UV	●●	●	●●		30g	1kg
Born2Bond	B2B Structural	CA	●●	●●	●●		10g 50g	
Born2Bond	B2B Ultra K85	CA	●●●	●●	●●			20g 500g
Born2Bond	B2B Ultra	CA	●	●●	●			20g 500g
Intertronics	ADH9406	CA	●	●●	●			20g 50g 500g
Intertronics	ADH9485	CA	●	●●	●			20g 50g 500g

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Structural adhesive chemistries

We offer five different types of adhesive, or what we call adhesive chemistries. They have different generic characteristics, which we outline here. Understanding these will help you in your adhesive selection process. There are many factors to take into account when choosing an adhesive to test; adhesives projects are notoriously complex. We provide insightful technical and applications guidance, so please contact us with your project details.

Methyl Methacrylate (MMA) Adhesive:

Properties: Offers excellent strength, flexibility, and environmental resistance. Bonds well to a wide variety of substrates, including metals, plastics, and composites, often without priming or surface preparation.

Applications: Ideal for applications requiring high impact resistance and toughness, including Composite panel bonding, boat building, caravan and motorhome panels and automotive components, signage

Curing: Mixing of two components, typically rapid cures at room temperature and can be accelerated with heat. Available in a range of handling times.

Handling: Supplied in two-part cartridges that can be manually or pneumatically applied directly through a mixing nozzle. Can be automated easily.

Epoxy Adhesive (EP):

Properties: Known for its high strength and excellent chemical and heat resistance.

Applications: Commonly used in heavy-duty metal and glass bonding applications and general bonding

Curing: Mixing of two components, curing at room temperature or elevated temperatures as appropriate with working lifetimes from minutes to hours.

Handling: Supplied in a range of packaging options, from two-part cartridges that can be manually or pneumatically applied directly through a mixing nozzle to twin-pack sachets and bulk containers

Polyurethane Adhesive (PUR):

Properties: Single-part material, providing fast bonding to a variety of substrates upon exposure to appropriate UV light.

Applications: Interior and exterior automotive repairs, outdoor lighting and signage, general bonding of plastics, metal, GRP, ceramics, SMC, wood, plasterboard, concrete, rock and marble

Curing: Mixing of two components, typically rapid cures at room temperature

Handling: Supplied in two-part cartridges that can be manually or pneumatically applied directly through a mixing nozzle. Can be automated easily.

UV Adhesive (UV):

Properties: Single-part material, providing fast bonding to a variety of substrates upon exposure to appropriate UV light.

Applications: Electronics and medical device manufacturing, architectural glass and lighting products.

Handling: Supplied in syringes or bulk packaging. Very stable in ambient conditions, meaning it can be applied in a wide variety of manual and automated methods.

Curing: Extremely rapid curing, often in seconds, when exposed to the appropriate wavelength and intensity of UV or visible light

Cyanoacrylate Adhesive (CA):

Properties: Known for its fast-setting nature and strong bond strength of very close-fitting parts and components.

Applications: Ideal for fast bonding of plastic, rubber, or metal components in electronics or medical devices

Curing: Cures almost instantly in ambient conditions upon contact with the substrate

Handling: Available in small bottles for manual application or larger bottles for high volume, automated processes.

Viscosity:

Viscosity is a material's resistance to flow. Low viscosity adhesives flow more readily than high viscosity ones.

Typical Viscosity (mPas)	Example liquid @ 20°C
1	Water
10	Kerosene
200	Maple syrup
3,000	Honey
10,000	Ketchup
18,000	Chocolate syrup
65,000	Vaseline
200,000	Peanut butter

Hardness:

A measure of surface and/or bulk hardness using a Shore durometer to penetrate the surface. The higher the number, the harder the compound.

Hardness	Example material
A20	Rubber band
A50	Pencil eraser
A60	Car tyre tread
A80	Leather belt
D50	Golf ball
D60	Castor wheel
D80	Hard hat
D90	Bone

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Let’s start by talking about **your** application

For more information about any of the adhesives described in this guide, please email **info@intertronics.co.uk** or call **01865 842842**.

Complete information on our products is available at **intertronics.co.uk**

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