



FORGEWAY
GLUE WITH HIGH IQ



Technical Data Sheet: PUROK VX 90

Product Description

Purok VX90 is a plastic structural adhesive. It is designed for applications that require an adhesive to bond low surface energy plastics with minimal surface preparation.

Key Features

- Bonds low surface energy plastics like polypropylene and polyethylene
- Does not require primer or abrasion to achieve a strong bond
- Impact toughened
- High strength bond to metals, plastics, and composites



Applications

- Effective for bonding dissimilar substrates with minimal surface preparation e.g. metals, plastics, and composites.
- Perfect for bonding low surface energy plastics such as polypropylene, polyethylene, and teflon.

Volumes Available.

Cartridges
50ml
200ml
400ml



Bulk





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Typical Physical Properties

Uncured

Properties	Part A	Part B
Chemistry	Acrylic	Hardener
Colour	White / Cream	Light Blue
Viscosity @ 10 s -1	43,000	28,000
Density [g/ml -1]	1	0.98
Mix ratio by volume	1	1
Mix ratio by weight	1	0.98

Cured

Properties	VX 90
Colour	Light Blue to White
Working Time	15 mins
Handling Time (Minimum time to achieve >0.3 MPa overlap shear strength)	>5 hours

Typical Performance Characteristics

Overlap Shear Strength

In accordance with ISO4587

Overlap shear specimens were bonded with overlap dimensions of 12.5 x 25 x 0.5 mm (length x width x thickness). Each specimen was allowed to cure for 3 days @ 20°C @ 50% RH before being pulled apart at a rate of 6mm/min for metals and 50mm/min for plastics and composites.

Substrate	Surface Prep	Overlap Shear Strength	Failure Mode
Aluminium	IPA Wiped	10	CF
Anodised Aluminium	IPA Wiped	13	CF
Stainless Steel	IPA Wiped	14	CF
Mild Steel	IPA Wiped	8	AF
E-galvanised Steel	IPA Wiped	14	CF
Hot-Dip Galvanised Steel	IPA Wiped	11	CF
GRP - Epoxy	IPA Wiped	>16	SF
GRP - Polyster	IPA Wiped	>8	SF
PMMA	IPA Wiped	>5	SF
ABS	IPA Wiped	>6	SF
HDPE	IPA Wiped	>4	SF
LDPE	IPA Wiped	>2	SF
Polypropylene (PP)	IPA Wiped	>16	SF
Polycarbonate	IPA Wiped	>9	SF
Polystyrene	IPA Wiped	>2	SF
PVC	IPA Wiped	>6	SF
PTFE (Telefon)	IPA Wiped	2.5	AF
	Abraded (120g)*	>3	SF

IPA = Isopropyl alcohol, CF = Cohesive Failure, AF = Adhesive Failure, SF = Substrate Failure

*Abraded (120g) = Abraded with 120grit pad then clean with IPA

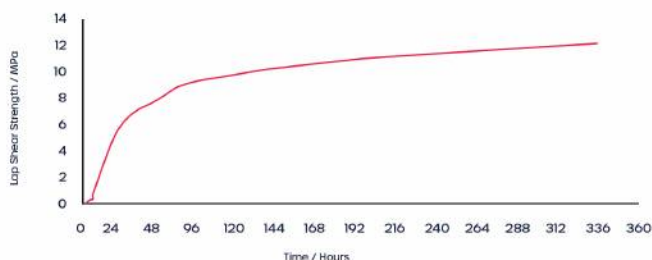
All substrates used to create a lap shear specimen were 2mm in thickness

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Adhesive Performance

Rate of Strength Build Up

VX 90



Temperature Resistance

Overlap Shear Strength

In accordance with ISO4587

Substrates	Surface Prep	Test Temp [°C]	Shear Strength	Failure Mode	% Strength Retention (% against 25°C strength)
Aluminium	Abraded (200g)	-21	22	CF	100
Aluminium	Abraded (200g)	25	22	CF	100
Aluminium	Abraded (200g)	50	18.4	CF	83
Aluminium	Abraded (200g)	75	13.3	CF	60
Aluminium	Abraded (200g)	100	11	CF	50
Aluminium	Abraded (200g)	120	8.33	CF	38
Aluminium	Abraded (200g)	150	4.9	CF	22
Aluminium	Abraded (200g)	200	1.5	CF	7

IPA = Isopropyl alcohol, CF = Cohesive Failure, AF = Adhesive Failure, SF = Substrate Failure

*Abraded (200g) = Abrade with 120 grit pad then clean with IPA.

All substrates used to create a lap shear specimen were 3mm in thickness

Cataplasma - Accelerated Weathering

Lap Shears of stainless steel were made in accordance with ISO4587

Lap Shears of polypropylene were made with the following dimensions 25.0 x 12.5 x 1.0 mm and allowed to cure for 14 days under ambient conditions (20°C @ 50% RH). Lap shears are subjected to 100%RH at 70 ± 2°C for 168 hours. On removal from the oven, the samples are immediately placed into a freezer at -20 ± 2 °C for 16 hours. Samples are removed from freezer and allowed to thaw. Lap shears are allowed to re-condition under ambient conditions (20°C @ 50% RH) for 4 hours before being tested.

Substrates	Surface Prep	Strength Retention %	Failure Mode
Stainless Steel	IPA Wiped	60	SF

IPA = Isopropyl alcohol, CF = Cohesive Failure, AF = Adhesive Failure, SF = Substrate Failure

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Hardness

Tested in accordance
with ASTM D2240

Properties	Value
Shore D Hardness	60

Shore A hardness measured on a 7 mm thick sample of cured adhesive

Technical Information

Chemical and Environmental Testing

In accordance with
ISO4587

Lap shears of stainless steel were made in accordance with ISO4587 with the following dimensions: 25 x 12.5 x 1mm and allowed to cure for 14 days under ambient conditions (20°C @ 50% RH). Lap shear specimens were fully immersed in chemical solution for 24 hours and 14 days, before being tested for strength retention.

Chemical	Surface Prep	Days Immersed	Strength Retention %
Water	IPA	1	100
		14	100
5% Salt Solution	IPA	1	100
		14	100
1.5M Hydrochloric Acid	IPA	1	100
		14	100
Conc. Bleach Solution	IPA	1	100
		14	100
Polar Protic Solvent - IPA	IPA	1	100
		14	100
Polar Aprotic Solvent - Acetone	IPA	1	46
		14	0
Non-polar Solvent - Diesel / Hydrocarbons	IPA	1	100
		14	100

IPA = Isopropyl alcohol, CF = Cohesive Failure, AF = Adhesive Failure, SF = Substrate Failure

*Abraded (250g) = Abrade with 100 grit paper then clean with IPA

All substrates used to create a lap shear specimen were 3mm in thickness

Remarks, Disclaimer & Health and Safety

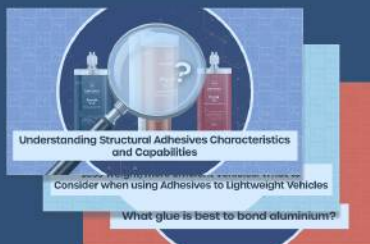
Disclaimer - The variability of materials, substrates and conditions of use is such that no warranty of their functionality for a specific application can be deducted from this information, written recommendation or any other type of suggestion offered. Each user has the responsibility to complete adequate evaluations on the efficacy of the materials offered by ForgeWay, of its products, services, recommendations and suggestions for the specific application need, and must accomplish sufficient testing to ascertain that the final product will be safe and sound for the final intent of the end user.

Health and safety - Refer to Safety Data Sheet (SDS) for further information. Apply the usual industrial hygiene.

Reviewed June 2023

Online Knowledge Centre

Our online knowledge centre has a large range of articles and product reviews to educate



Fundamentals of Adhesive eBook

Forgeways book "The Fundamentals of Adhesive" has over 200 pages full of in-depth adhesive and bonding knowledge.



The Adhesive Learning Centre

Head to our YouTube Channel to find loads of helpful reviews, adhesive tips and informative videos all about adhesives and bonding.

