Technical Data Sheet

L 219 THREE-COMPONENT EPOXY SYSTEM

Versatile epoxy casting and laminating system

Application

- Tooling jigs and fixtures
- Patterns and moulds

Key Properties

- Low viscosity system with variable addition accelerator
- Highly compatible with glass fibre and fillers
- Very low shrinkage potential
- Room temperature curing

Description

- Basic — Three-component epoxy system
- Resin — L 219 RESIN, medium viscosity
- Hardener — 219 H NT HARDENER
- Accelerator — 219 A GREEN ACCELERATOR

Physical Data (approximate values)

	L 219 RESIN	219 H NT HARDENER	219 A GREEN ACCELERATOR
Colour	Clear	Neutral	Green
Density (g/cm³)	1.21	-	1.09
Viscosity (mPas)	900 – 1400	76	810
Flashpoint (°C)	200	-	90

Issue date: 24/07/2019
Ellsworth Adhesives Ltd
Registered Office: 2 Langlands Avenue, Kelvin Business
Park, East Kilbride, Glasgow, G75 0YG, United Kingdom Registered No: 122624
Tel: +44 (0) 1355 231122 Fax: +44 (0) 1355 235266 Website: www.ellsworthadhesives.co.uk/tooling

Delivery

L 219 RESIN	5kg, 25kg, 200kg
219 H NT HARDENER	2.5kg, 12.5kg
219 A GREEN ACCELERATOR	0.5kg, 5kg

Processing Data: Mix ratio

	Parts by weight	Parts by volume
L 219 RESIN	100	100
219 H NT HARDENER	50	60
219 A GREEN ACCELERATOR	0 - 10	0 - 10

The cure speed is regulated by the addition of 219 A GREEN ACCELERATOR. Details are given overleaf. The system has the potential to produce parts of high accuracy. In general, optimum results are achieved by limiting 219 A GREEN ACCELERATOR levels in order to minimise the build-up of exothermic heat during the curing process.

Cured Resin Properties after RT Cure	HDT 40-50°C dependent on accelerator percentage
Cured Resin Properties after Post-Cure	2 hrs @ 80°C + 3 hrs @ 125°C, 0r, 8 hrs@ 80°C

Measured at room temperature		Unit	Value RT Cure	Post-cure Value
	Flexural strength	MPa	99 - 107	106
	Modulus of elasticity (flexure)	GPa	3.45 – 3.69	3.01
	Tensile Strength	MPa	55 - 63	65
	Tensile Modulus	GPa	3.24 – 3.52	2.88
	Tg	°C	50	85
	HDT	°C	40 - 45	80

The colour of the cured castings and laminates will change with time. Long-term tests have shown that this in no way alters mechanical properties or dimensional stability.

Gel Coat Formula

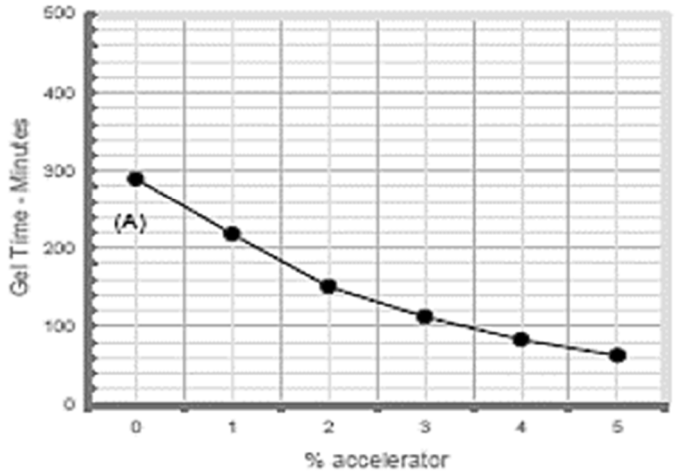
Component	Parts by weight
L 219 RESIN	100
219 H NT HARDENER	50
219 A GREEN ACCELERATOR	10
Filler – SLATE POWDER	150

Pot life of 500 grams mixture = 45 minutes

Figure 3 provides indicative gel-times for the mixed system with various accelerator levels.

(Unfilled –150g mass)

Figure 3
Gel Time vs accelerator level



L 219 RESIN (100 parts)

219 H NT HARDENER (50 parts)

219 A GREEN ACCELERATOR
(as indicated)

Curing

As indicated in the graph above (figure 3) the level of accelerator added influences the reactivity. There are several further factors that will all have a significant influence in the rate of reaction. The temperature of the mix will have a significant effect in addition to the mass or quantity of the mixed material, it is important to avoid mixing excessive amounts of material, the incorporation of most mineral fillers will reduce the reaction rate and serve to extend the cure process. All of these factors require consideration when formulating the system and application of the mixture. Further assistance is available from our technical sales personnel.

Curing

Figure 4

Temperature °C	Minimum Cure Time (hours) – for special accelerator level (parts on system)			
	0 Accelerator	2 accelerator	5 accelerator	10 accelerator
25°C	7 days	3 days	2 days	1 day
40°C	2 days	1 day	18 hours	8 hours
60°C	1 day	12 hours	8 hours	3 hours
80°C	6 hours	3 hours	2 hours	2 hours
100°C	3 hours	2 hours	1 hour	1 hour

Note: The small quantities of 219 A GREEN ACCELERATOR required for mixtures containing less than 100 grams of L 219 RESIN are best measured out in a graduated pipette or measuring cylinder. The quantities for 100 grams of resin are:

Weight of 219 A GREEN ACCELERATOR Per 100 grams of resin	Equivalent volume of 219 A GREEN ACCELERATOR per 100 grams of resin
5 grams	5ml
10 grams	10ml

Related Products

- **Release Agents** - 506 RELEASE AGENT
- **Gloves** - Available in blue nitrile, vinyl and latex
- **Mixing pots** - 0.5L, 1L, 2.5L and 5L
- **Brushes** - A range of brushes available for material application

Storage

Store L 219 RESIN, 219 H NT HARDENER and 219 A GREEN ACCELERATOR, separately, at a temperature of 10 - 25°C in the original containers with the seals fastened. Quality is sustained well beyond the expiry date, although a performance check by the user is advisable on out of date material. Cool storage prolongs storage life but below 10°C the hardener may develop crystals. These are dissolved by heating the hardener for a few minutes at ca 40°C.

Precautions

For information and advice on the safe handling and storage of products, users should refer to the current Safety Data Sheet(s) containing physical, ecological, toxicological and other safety related data.

Disposal Consideration

Product - must be disposed of in a special waste disposal unit in accordance with the corresponding regulations. Packaging - completely emptied packaging can be given for recycling. Packaging that cannot be cleaned should be disposed of as product waste. The technical specification and/or our technical advice, whether verbal, in writing or by trials is given in good faith and based on our test results obtained, but without warranty. It does not release the user from the obligation to test products supplied by us or any other third party as to the suitability for the intended application.

A product Safety Data Sheet should be obtained from Ellsworth Adhesives Ltd prior to use. ATTENTION: Before handling, read product information, Product Safety Data Sheets and container labels for safe use, and any physical and/or health hazard information.