

**NEUKADUR ProtoCast 229 mercury-free**  
 2-C PUR Vacuum Casting System  
 Transparent, UV-resistant

**altropol**

**Main features**

- properties similar to those of PMMA
- very good polishability
- transparent, colourless
- resistant to yellowing
- high thermal stability
- very fast curing
- mercury-free
- pot life extension possible with NEUKADUR ProtoCast 229 L Comp. A

**Applications**

- prototyping
- production of technical parts
- production of decorative items

**Properties in the non-crosslinked state (approx. values)**

		<b>NEUKADUR ProtoCast 229 Comp. A mercury-free</b>	<b>NEUKADUR ProtoCast 229 Comp. B</b>
Colour		transparent, colourless	transparent, colourless
Mixing ratio	p.b.w.	100	130
Density (20 °C)	g/cm <sup>3</sup>	1.03	1.07
Viscosity (25 °C)	mPa·s	850	25

**Properties of the mixture (approx. values)**

Colour			transparent, colourless
Mixed viscosity (25 °C)	mPa·s		110
Density (20 °C)	g/cm <sup>3</sup>	DIN 53479	1.05
Hardness	Shore D	DIN 53505	80
Pot life (100 g) (RT / 35 °C / 40 °C)	minutes		6 / 4 / 3.5
Waiting time after crosslinking up to casting	seconds	Comp. A preheated to 40 °C	25
		Comp. A at 23 °C	120
Demoulding time (70 °C)	minutes	1 - 3 mm	60 - 120

**Mechanical values after 1 d of tempering at RT and 2 h of storage at 80 °C (approx. values)**

Tensile elongation	%	DIN 53455	8
Tensile strength	MPa	DIN 53455	60
Flexural strength	MPa	DIN 53452	90
Modulus in flexure	MPa	DIN 53457	2,300
Index of refraction	nD23	ISO 489 : 1999	1,507
Light transmittance	%		99
Dimensional stability under heat	°C	HDT	90
Linear dimensional change	%	500 x 50 x 10 mm	0.26

\* RT = room temperature

**How to process the material**

Preheat casting mould/tool to 70 °C. Preheat Comp. A to approx. 40 °C and degas and/or dehydrate the resin under full vacuum for 15 - 30 minutes. Mix components A and B under full vacuum for approx. 60 seconds. At the beginning, the mixture is turbid.

It is essential to observe the waiting time after crosslinking to avoid mixing faults. After approx. 20 to 30 seconds, the mixture becomes clear, as far as NEUKADUR ProtoCast 229 Comp. A mercury-free has been preheated to 40 °C beforehand.

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NEUKADUR ProtoCast 229 Comp. B needs not be preheated and can be cast. If NEUKADUR ProtoCast 229 Comp. A mercury-free is not preheated, the turbidity will disappear approx. 2 minutes after addition of Comp. B. The mixture must on no account be cast in a turbid state as this may lead to mixing faults. For casting (max. layer thickness 10 mm), reduce the vacuum to approx. 100 - 200 mbar. You will only achieve the mentioned mechanical values after having tempered the material as described above. The pot life shortens when the material is heated up. At 35 °C, it is 4 to 4.5 minutes only. Heating up to 40 °C leads to a pot life reduction to 3.5 to 4 minutes only.

The pot life of NEUKADUR ProtoCast 229 Comp. A mercury-free/NEUKADUR ProtoCast 229 B mercury-free can be extended with NEUKADUR ProtoCast 229 L Comp. A. The mixing ratio of NEUKADUR ProtoCast 229 L Comp. A with NEUKADUR ProtoCast 229 Comp. B is also 100 : 130. NEUKADUR ProtoCast 229 L Comp. A must on no account be processed with NEUKADUR ProtoCast 229 Comp. B alone, but only in combination with NEUKADUR ProtoCast 229 Comp. A mercury-free. In view of the risk that the brilliance gets lost, we recommend using NEUKADUR ProtoCast 229 Comp. A mercury-free/NEUKADUR ProtoCast 229 Comp. B only up to a layer thickness of max. 2 mm. For higher layer thicknesses, you should only use a combination of NEUKADUR ProtoCast 229 Comp. A mercury-free and NEUKADUR ProtoCast 229 L Comp. A. For layer thicknesses up to 5 mm, we recommend replacing 10 to 35 % of NEUKADUR ProtoCast 229 Comp. A mercury-free by NEUKADUR ProtoCast 229 L Comp. A. However not only the pot life will be prolonged, but with an increasing quantity of NEUKADUR ProtoCast 229 L Comp. A also the curing time of the mixture.

Products	Quantity used in g		
NEUKADUR ProtoCast 229 Comp. A mercury-free	35	20	10
NEUKADUR ProtoCast 229 L Comp. A	65	80	90
Totally	100	100	100
NEUKADUR ProtoCast 229 Comp. B	130	130	130
Pot life (RT, 100 g)	approx. 7 minutes	approx. 7 minutes	approx. 8 minutes
Pot life Comp. A (40 °C, 100 g)	approx. 5 minutes	approx. 6 minutes	approx. 6 minutes
Demoulding time (70 °C)	approx. 2.5 hours	approx. 2.5 hours	approx. 3 hours

When you replace approx. 35 % of NEUKADUR ProtoCast 229 Comp. A mercury-free by NEUKADUR ProtoCast 229 L Comp. A, the demoulding time may be approx. 3 to 4 hours or, depending on the contour, even a little bit longer. Also the duration of the turbidity after addition of NEUKADUR ProtoCast 229 Comp. B to the mixture of NEUKADUR ProtoCast 229 Comp. A/NEUKADUR ProtoCast 229 L Comp. A will be prolonged according to the increasing quantity of NEUKADUR ProtoCast 229 L Comp. A. It is essential to take care that you cast only completely **clear** mixtures, otherwise you risk an increased formation of streaks in the cured cast.

After the above mentioned tempering, NEUKADUR ProtoCast 229 stands out for its very good polishability.

NEUKADUR ProtoCast 229 Comp. B is sensitive to low temperatures and may become turbid. This occurrence is reversible at approx. 45 °C.

NEUKADUR ProtoCast 229 can be colored ideally. For this, we recommend the use of AltroColor Color Pastes which are available in the common basic colors (see <http://www.altrocolor.de>). Color inks of other manufacturers should be tested for their suitability before use.

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**Form of delivery**

NEUKADUR ProtoCast 229 Comp. A mercury-free	0.77 kg	3.85 kg
NEUKADUR ProtoCast 229 L Comp. A	0.77 kg	3.85 kg
NEUKADUR ProtoCast 229 Comp. B	1 kg	5 kg

**Storage**

We recommend keeping the material in tightly closed original receptacles at temperatures of 20 - 25 °C. When duly stored, the material can be used within the shelf life indicated on the labels (the first 2 digits of the batch number indicate the week, the 3rd digit indicates the year).

**Measure of precaution**

With the aid of the current safety data sheets, which contain physical, ecological, toxicological and other data relating to safety, the user can inform himself on the safe handling and storage of the products.

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Our technical service - in words, in writing or by trials - is given according to the current state of our knowledge. It does however not relieve the customer/ user from the duty to check by himself if the products supplied by us are suitable for the intended processes and purposes. Application, use and processing of the products take place beyond our control possibilities and lie therefore exclusively in the area of responsibility of the processor. Any existing property rights of third parties are to be considered. We guarantee the perfect quality of our products in accordance with our general terms and conditions of business. When handling our products you have to observe the legal rules and the rules for the industrial hygiene. As for the rest, we refer to the corresponding safety data sheets.

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• [www.altropol.de](http://www.altropol.de) •

• Altropol Kunststoff GmbH • Rudolf-Diesel-Straße 9 - 13 • D-23617 Stockelsdorf • Tel. +49 451-499 60-0 •  
• Fax. +49 451-499 60-20 • E - Mail: [info@altropol.de](mailto:info@altropol.de) •