



## xPRO9400-FR

### Basic Property

Measurement	Unit	Test Method	2x30min in XiP Cure, 1x60min in xCure, 2x10min 100% in xCure Desktop	UV + 3hrs @150°C
<b>Tensile Property</b>				
Tensile Modulus	MPa	ASTM D638	3470	4060
Ultimate Tensile Strength	MPa	ASTM D638	71	78
Tensile Strength at Break	MPa	ASTM D638	71	78
Elongation	%	ASTM D638	3.1	2.5
<b>Thermal Properties</b>				
HDT at 1.82 Mpa	°C	ASTM D648	69	141
HDT at 0.45 Mpa	°C	ASTM D648	>174	>236
Glass Transition Temperature (DMA, tan(d))	°C	ASTM D4065	175	
<b>FST Properties</b>				
Flammability		UL94	V0 (2mm) V1 (1.5mm)	
Fire classification Railway (R22)		DIN EN 45545-2	compliant to HL1 (2mm, 2.5mm)	
Fire classification Railway (R23, R24)		DIN EN 45545-2	compliant to HL2 (2mm, 2.5mm)	
Smoke Generation and Density		ISO 5659-2	Ds (4) < 600 VOF4 < 1200 Ds (max) < 600 (2mm, 2.5mm)	
Limiting Oxygen Index		ISO 4589-2	LOI ≥ 28	
Smoke Gas Toxicity		NF X70-100	CIT <sub>NLP</sub> : 0.36	
Glow-wire Test		IEC 60695-2-12-13 (2.1mm)	GWIT: 825°C GWFI: 960°C	
<b>General Property</b>				
Viscosity at 25°C (77°F)	cP	ASTM D7867	830	
Viscosity at 30°C (86°F)	cP	ASTM D7867	490	
Liquid Density	g/cm <sup>3</sup>	ASTM D4052-18a	1.21	
Solid Density	g/cm <sup>3</sup>	ASTM D792	1.32	



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### BASF Extended Property Value

Measurement	Unit	Test Method	Post Processed
<b>Flexural Properties</b>			
Flexural Modulus	MPa	ASTM D790	3400
Flexural Stress	MPa	ASTM D790	115
<b>Impact Properties</b>			
IZOD Impact (Notched)	J/m	ASTM D256	20
IZOD Impact (unnotched)	J/m	ASTM D256	176
Charppy (Notched)	kJ/m <sup>2</sup>	ISO179-1	0.9
<b>Advanced Thermal Properties</b>			
C.T.E. (-40°C to 0°C)	µm/(m·K)	ASTM E831	49
C.T.E. (0°C to 50°C)	µm/(m·K)	ASTM E831	81
C.T.E. (50°C to 100°C)	µm/(m·K)	ASTM E831	137
C.T.E. (100°C to 150°C)	µm/(m·K)	ASTM E831	111
<b>Electrical Properties</b>			
Volume Resistivity	Ω·cm	DIN EN 62631-3-1	2.20E+16
Surface Resistivity	Ω	DIN EN 62631-3-2	4.50E+16
Electric Strength	kV/mm	DIN EN 60243-1	31
Comparative tracking index, CTI	V	DIN EN 60112	600
<b>Other Properties</b>			
Water Absorption (24hr)	%	ASTM D570	0.65
Water Absorption (>1500hrs)	%	ASTM D570	>5%
Shore Hardness	D	ASTM D2240	88

### Preheating

Nexa3D xPRO9400-FR will slowly form crystals and solidify after longer periods of storage, especially if kept at colder temperatures. Therefore, a preheating of the material is required before starting any prints.

- Step 1:** Preheat the material for 5 hours at 40°C.
- Step 2:** Check if there are any crystals or lumps present. If there are, continue preheating.
- Step 3:** Shake the bottle/canister to be sure everything is mixed well.
- Step 4:** Pour it slowly into the vat and wait a couple of minutes, until a smooth, bubble-free surface is obtained before starting the print job.



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### Printing Process

If the material is kept/used at room temperature (23°C), it will stay fully liquid for about 3 days. After this, small crystals may start forming again, so a new preheating step will be required before starting another print.

The 3D printer examples and settings stated above are only for general guidance. The fully optimized settings should always be determined by the users themselves, according to their specific needs. Please always refer to the user manual of the employed 3D printer for instructions on printer settings and handling.

Remove the parts from the build platform with a suitable tool, for more information, refer to the user manual of the used 3D printer.

### Washing

xPRO9400-FR requires post processing to achieve specified properties. Prior to post curing, the part should be washed. Nexa3D recommends using xClean followed by IPA as standard cleaning procedure. Parts should not be submerged in xClean for longer than 2 minutes or in IPA for longer than 5 minutes to avoid any impact on performance.

### Examples of Additional Thermal Treatment After UV Post-Curing (Optional)

	Thermal Oven	
Ramp up phase	2 hours	30 °C to 150 °C (ca. 86 °F to 302 °F)
Holding phase	3 hours	150 °C (ca. 302 °F)
Ramp down phase	2 hours	150 °C to 30 °C (ca. 302 °F to 86 °F)

These proceedings are only general guidelines. In the end, the user has to determine the optimum post-curing procedure based on their specific requirements and the equipment used.

### Industrial Chemical Resistance

The resistance of resin materials against chemicals, solvents and other contact substances is an important criterion of selection for many industrial applications. General chemical resistance depends on the period of exposure, the temperature, the quantity, the concentration and the type of the chemical substance. When exposed to industrial chemicals, the chemical bonds of photopolymers can break or degrade, causing a change in the mechanical properties.

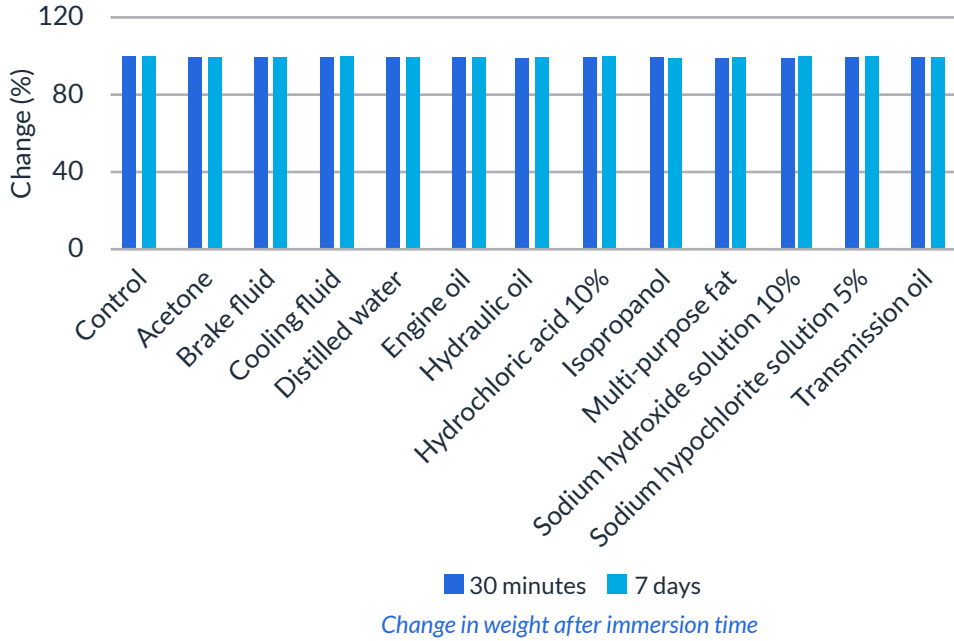
### Test Method and Specimens

ASTM D638 type IV tensile bars were soaked in each fluid at room temperature, one set for 30 minutes and one set for 7 days. Upon completion of the soaking time, the parts were removed from the test fluid and were dried to measure the weight and the mechanical properties.



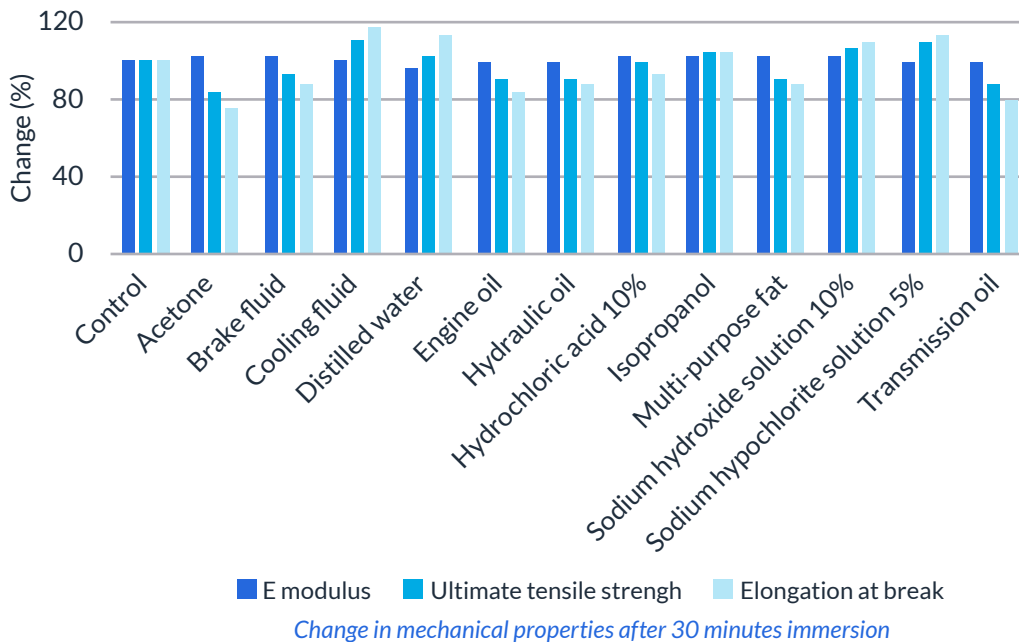
# xPRO9400-FR

## Weight Measurement



## Mechanical Testing

30 minutes

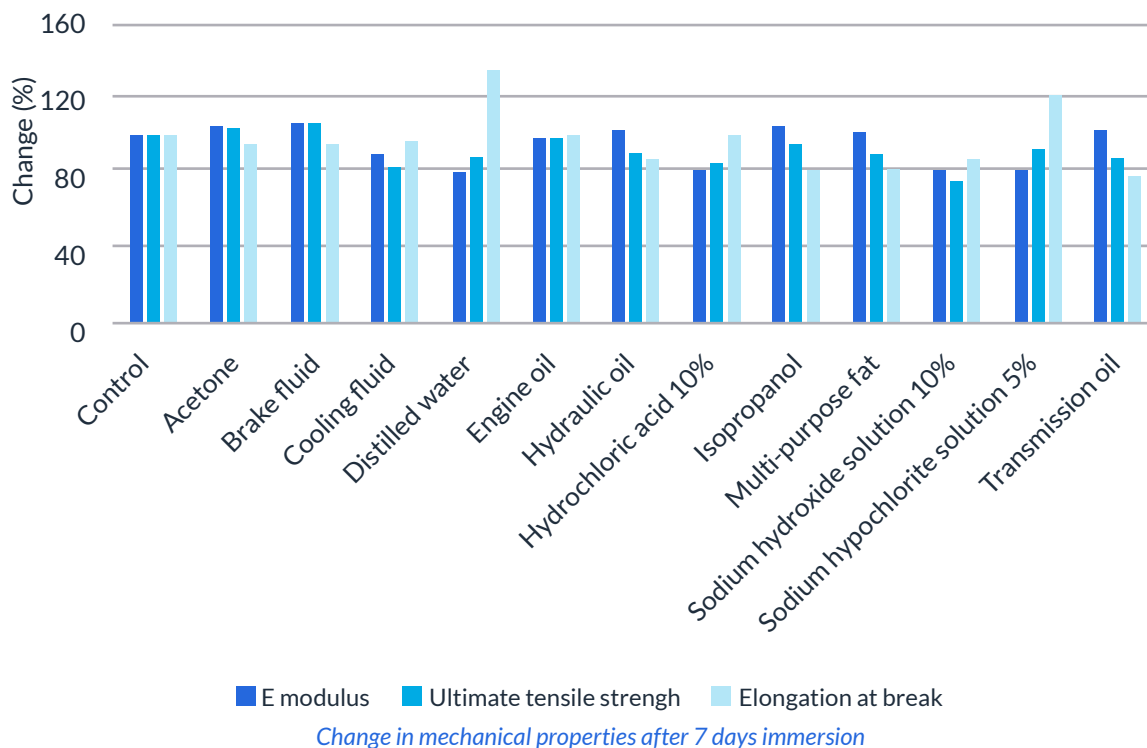




# xPRO9400-FR

## Mechanical Testing

7 days



**Note:** The information provided in this Technical Data Sheet (TDS) including the recommendations for use and application of the product are based on our knowledge and experience of the product as at the date of this TDS. The product can have a variety of different applications as well as differing application and working conditions in your environment that are beyond our control. Nexa3D is, therefore, not liable for the suitability of our product for the production processes and conditions in respect of which you use them, as well as the intended applications and results. We strongly recommend that you carry out your own prior trials to confirm such suitability of our product.

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