



xFLEX475-White

Basic Properties

Measurement	Unit	Test Method	2x30min in XiP Cure, 1x60min in xCure, 2x10min 100% in xCure Desktop
Elastomer Properties			
Young's Modulus	MPa	ASTM D638	3.8
Ultimate Tensile Strength	MPa	ASTM D638	3.2
Elongation at Break	%	ASTM D638	163
Stress at 50% strain	MPa	ASTM D412	0.9
Stress at 100% strain	MPa	ASTM D412	1.78
Stress at Break	Mpa	ASTM D412	3.7
Strain at Break	%	ASTM D412	155
Tear Strength	kN/m	ASTM D624	8.9
Resilience by Vertical Rebound	%	ASTM D2632	20
Shore Hardness (1s)	A	ASTM D2240	65
Shore Hardness (5s)	A	ASTM D2240	60
General Properties			
Viscosity at 25°C (77°F)	cP	ASTM D7867	1400
Liquid Density	g/cm ³	ASTM D1475	1.00
Solid Density	g/cm ³	ASTM D792	1.06

Henkel Extended Properties

Measurement	Unit	Test Method	Post Processed
Compression Property			
Compression Set (22hr)	%	ASTM D395	28.7
Additional Thermal Properties			
Thermal Conductivity	W/(m·K)	ASTM D5930	0.17
Heat Capacity	J/(g·K)	ASTM D5930	0.41
Electrical Properties			
Volume Resistivity	Ω·cm	ASTM D257	8.95E11
Surface Resistivity	Ω	ASTM D257	2.53E13
Electric Strength	kV/mm	ASTM D149	29.6
AC Relative Permittivity (Dielectric Constant)			
at 50 Hz (XY)		ASTM D150	5.1
at 1 kHz (XY)		ASTM D150	4.6
at 1 MHz (XY)		ASTM D150	4.3
AC Loss Characteristic (Dissipation Factor)			
at 50 Hz (XY)		ASTM D150	0.061
at 1 kHz (XY)		ASTM D150	0.070
at 1 MHz (XY)		ASTM D150	0.107

Other Properties			
Water Absorption (24hr)	%	ASTM D570	2.1
Water Absorption (72hr)	%	ASTM D570	4.5
Biocompatibility			
Irritation		ISO 10993-23	Pass

Printing Process

The material should be processed at room temperature. Before usage, the material should be shaken well. 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.

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

Washing

xFLEX475-White 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 IPA for longer than 5 minutes to avoid any impact on performance.

Post Cure

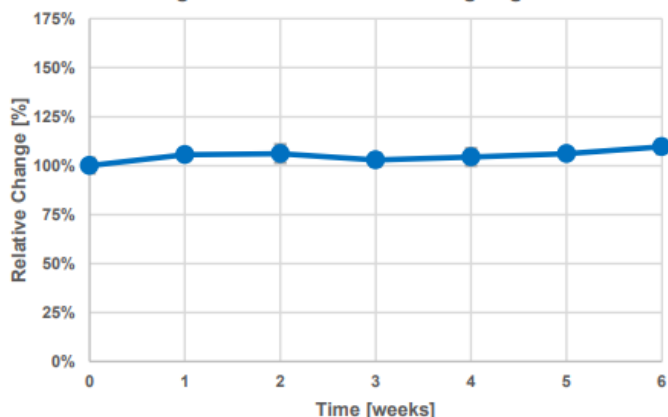
xFLEX475-White requires post curing **in water** to achieve specified properties. It is recommended to apply a **mold release** on the parts before submerged in a transparent water container.

Heat Ageing

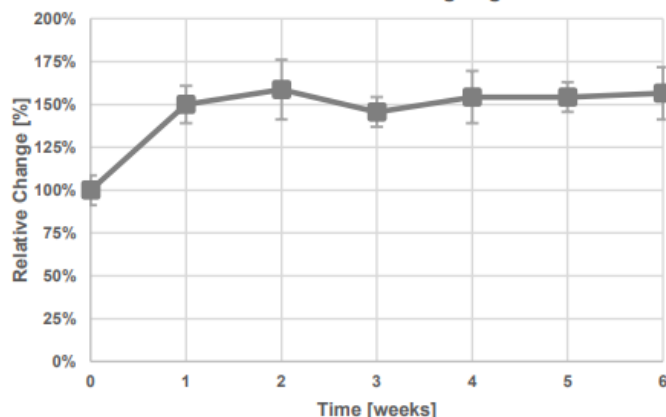
The samples were heat aged without load according to ASTM D3045. Test samples were exposed for a defined time at 50°C and conditioned for 24 hours at 22°C before mechanical testing. Control samples were stored at a constant 22°C. All samples were printed in the same print job using a validated workflow. Mechanical testing was conducted according to ASTM D412 at standard lab conditions (22°C). "0 weeks" represents non-aged samples stored at 22°C and tested 24 hours after post-processing.

Based on temperature dependence of reaction rates a test time of 6 weeks at 50°C can be interpreted as approximately 12 months at ambient temperature.

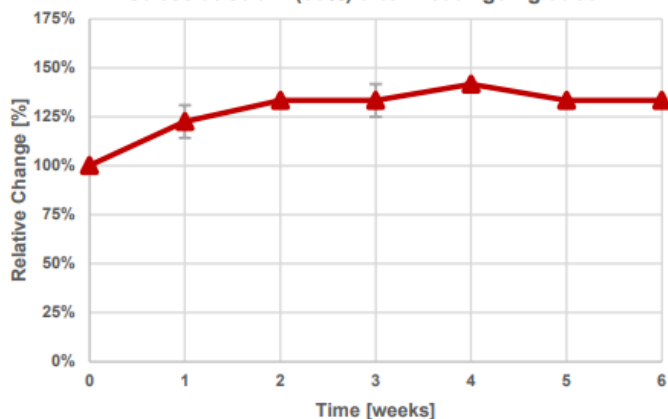
Elongation at Break after Heat Ageing at 50°C



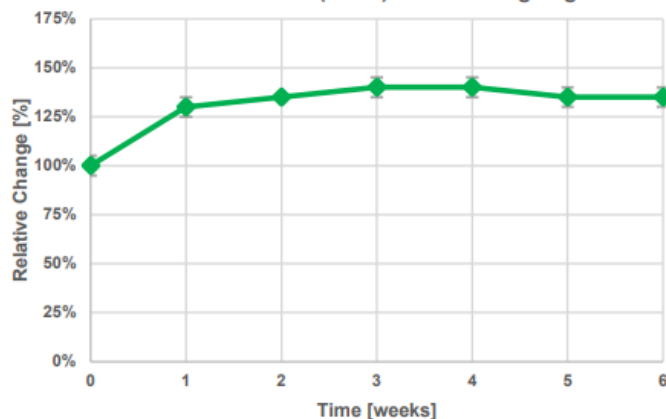
Stress at Break after Heat Ageing at 50°C



Stress at Strain (50%) after Heat Ageing at 50°C



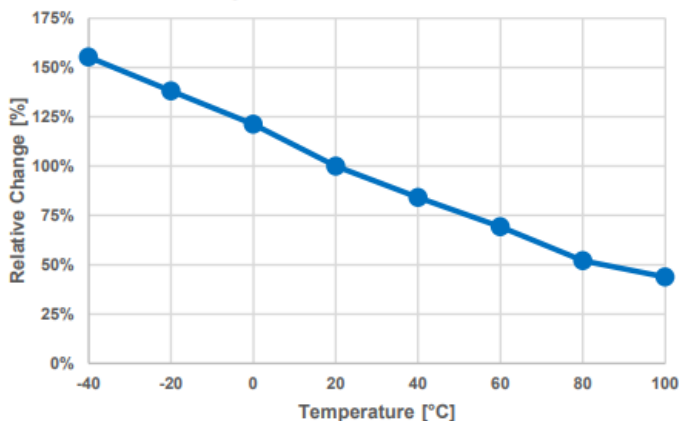
Stress at Strain (100%) after Heat Ageing at 50°C



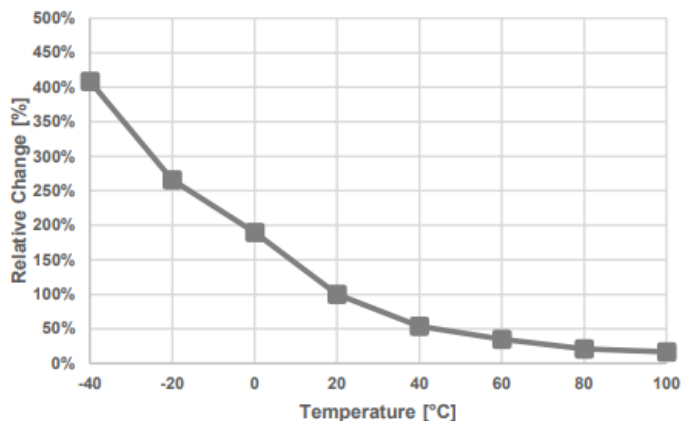
Temperature Dependence of Mechanical Properties

The test was conducted according to ASTM D412 at varied environmental temperatures, from -40°C to 100°C. All samples were printed in the same print job using a validated workflow. Mechanical testing was conducted according to ASTM D412. Before each test series samples were conditioned for 60 minutes at the specific test temperature.

Elongation at Break at -40 to 100 °C



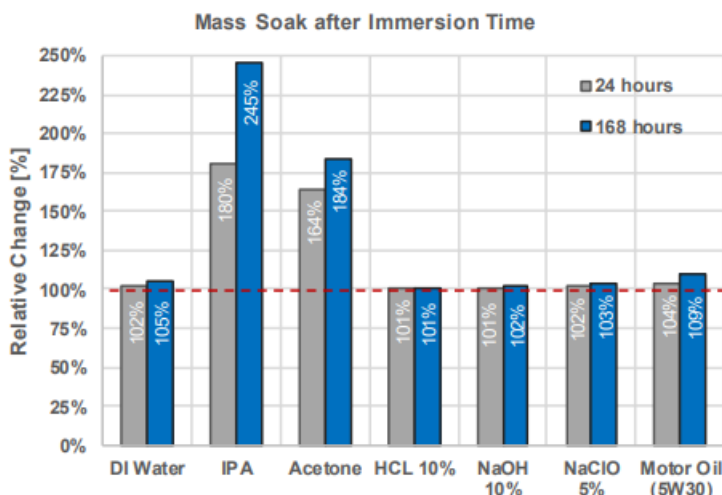
Stress at Break at -40 to 100 °C



Industrial Chemical Resistance

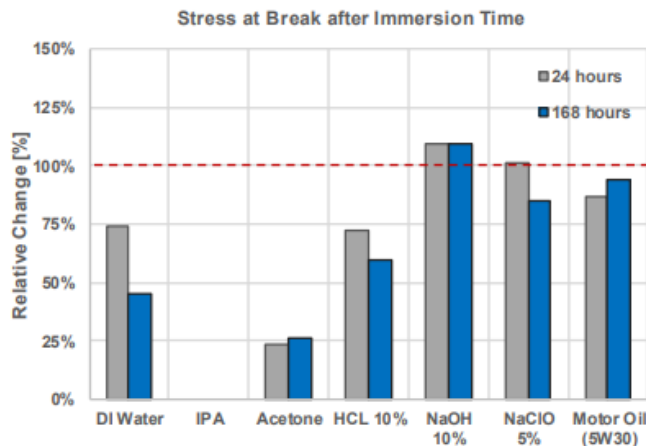
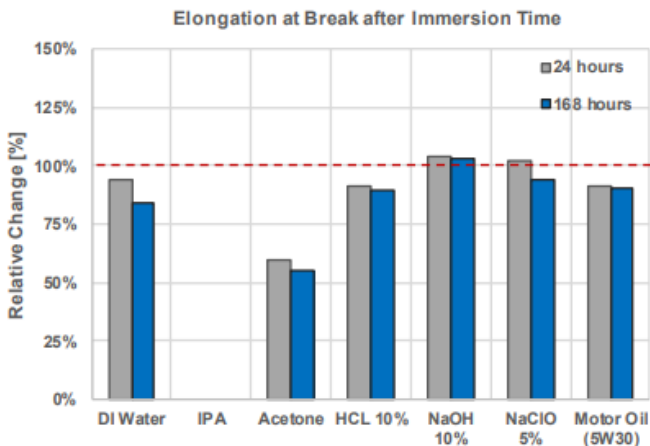
Weight Measurement

The test was conducted after chemical ageing according to ASTM D543. The influence of chemicals was tested by measuring the mass change after different test times (Immersion test for 24 and 168 hours). Exposed samples were stored in containers and fully immersed in different chemicals. Samples were stirred every 24 hours using a shaker. After removal exposed samples were washed, dried and immediately weighed. All samples were printed using a validated workflow. "100%" represents the initial weight 24 hours after post-processing.



Mechanical Testing

The test was conducted after chemical ageing according to ASTM D543. The influence of chemicals was tested by measuring mechanical properties after different test times (Immersion test for 24 and 168 hours). Exposed samples were stored in containers and fully immersed in different chemicals. Samples were stirred every 24 hours using a shaker. After removal, exposed samples were washed and conditioned for 24 hours at 22°C before mechanical testing. All samples were printed using a validated workflow. Mechanical testing was conducted according to ASTM D412 at standard lab conditions (22°C). "100%" represents non-aged samples stored at 22°C and tested 24 hours after post-processing.



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.

The following Disclaimers may apply depending on country of delivery:

Any liability in respect of the information in the Technical Data Sheet or any other written or oral recommendation(s) regarding the concerned product is excluded, except if otherwise explicitly agreed and except in relation to death or personal injury caused by our negligence and any liability under any applicable mandatory product liability law. In case Nexa3D would be nevertheless held liable, on whatever legal ground, Nexa3D's liability will in no event exceed the amount of the concerned delivery. The data contained herein are furnished for information only and are believed to be reliable. We cannot assume responsibility for the results obtained by others over whose methods we have no control.

It is the user's responsibility to determine suitability for the user's purpose of any production methods mentioned herein and to adopt such precautions as may be advisable for the protection of property and of persons against any hazards that may be involved in the handling and use thereof. In light of the foregoing, Nexa3D Inc. specifically disclaims all warranties expressed or implied, including warranties of merchantability or fitness for a particular purpose, arising from sale or use of Nexa3D products. Nexa3D specifically

disclaims any liability for consequential or incidental damages of any kind, including lost profits. The discussion herein of various processes or compositions is not to be interpreted as representation that they are free from domination of patents owned by others or as a license under any Nexa3D patents that may cover such processes or compositions.

We recommend that each prospective user test his proposed application before repetitive use, using this data as a guide. This product may be covered by one or more United States or foreign patents or patent applications.

Trademark usage

Except as otherwise noted, all trademarks in this document are trademarks of either Nexa3D in the U.S. and elsewhere. ® denotes a trademark registered in the U.S.

Patent and Trademark Office.