



Preliminary Technical Data Sheet

Nexa3D 3843-xABS Black



PRODUCT DESCRIPTION

Nexa3D 3843-xABS Black is a high performance, high modulus product which boasts excellent flexural and tensile physical properties with a relatively high degree of elongation. Nexa3D 3843-xABS Black displays high green strength and good Heat Deflection Temperature enabling it to print accurately and function in a wide variety of applications. Nexa3D 3843-xABS Black has been tested in QUV exterior weathering conditions (ASTM G-154) for 800 hours with less than a 15% change in Tensile and IZOD Impact properties.

Nexa3D 3843-xABS Black provides the following product characteristics:

TYPICAL PROPERTIES OF LIQUID RESIN

Specific Gravity, g/cm ³ @ 25°C	1.1
Viscosity, mPa*s (cP) @ 25°C	450 – 750 ^{LM5}
Appearance/Colour	Black

3D PRINTING MACHINE SETTINGS

Cure rate and ultimate depth of cure depend on light intensity, spectral distribution of the light source, exposure time and light transmittance of the printer window through which the light must pass.

The following working curve values were determined using a NXE400 printer.

TYPICAL PROPERTIES OF PRINTED MATERIAL

Data based on testing by Henkel. This information is representative only. Contact your Nexa3D Technical Service Team for further information.

Mechanical Properties	Test Method	As printed	After post-processing ¹
Tensile Strength at Break	ASTM D638		32± 1 MPa
Young's Modulus	ASTM D638		1,400± 52 MPa
Elongation at Failure	ASTM D638		50 ± 8 %
Flexural Stress at Yield	ASTM D790		30 ± 1.3 MPa
Flexural Modulus	ASTM D790		1,400 ± 130 MPa
Flexural Strain at Break	ASTM D790		>10%
Other Properties			
IZOD Impact strength (Notched)	ASTM D256		53.8 ± 3 J/m
HDT @ 0.455 MPa (VICAT)	ASTM D648		56°C
Water Absorption	ASTM D570		2.35 %

GENERAL INFORMATION

For safe handling information on this product, consult the Safety Data Sheet (SDS).

Directions for use:

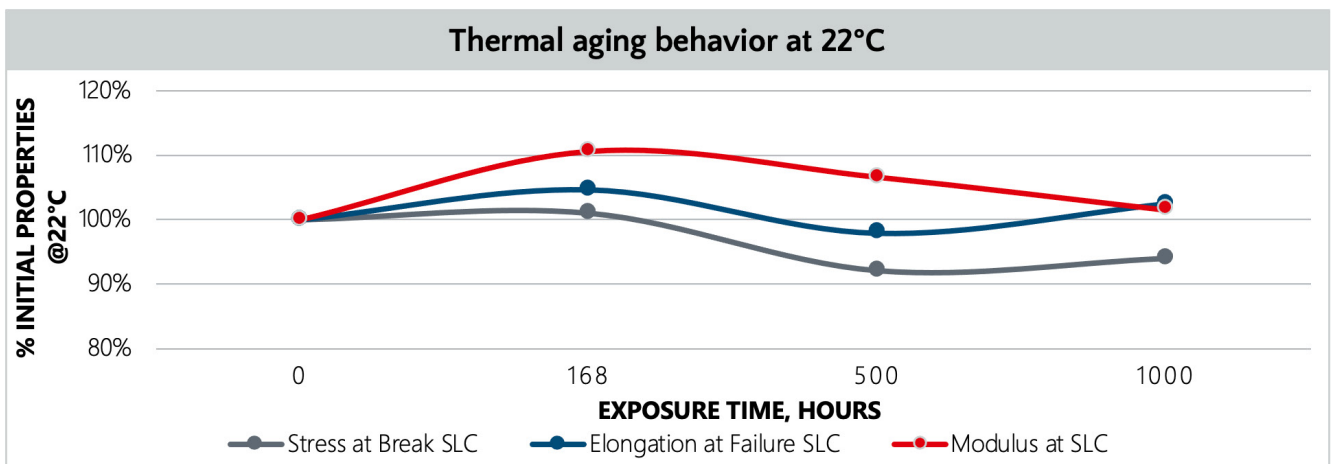
- This product is light sensitive; exposure to daylight, UV light and artificial lighting should be kept to a minimum during storage and handling.
- **Shake or stir Nexa3D 3843-xABS Black well before use.**
 - Agitate resin before each print
 - Do not leave resin in printer tray when not in use
- Recommended Post Print Processing:
 - Rinse the printed part using an approved cleaner to remove uncured resin
 - The use compressed air or impregnated wipes to remove excess residual solvent from the surface is recommended
 - Remove any support structures prior to any post-curing step

AGING AND ENVIRONMENTAL EFFECTS (I/III) **

LOCTITE 3D 3843 has been tested in QUV exterior weathering conditions (ASTM G-154) for 800 hours with less than a 15% change in Tensile and IZOD Impact properties.

Control Aging at 22°C (Tested at 22°C)

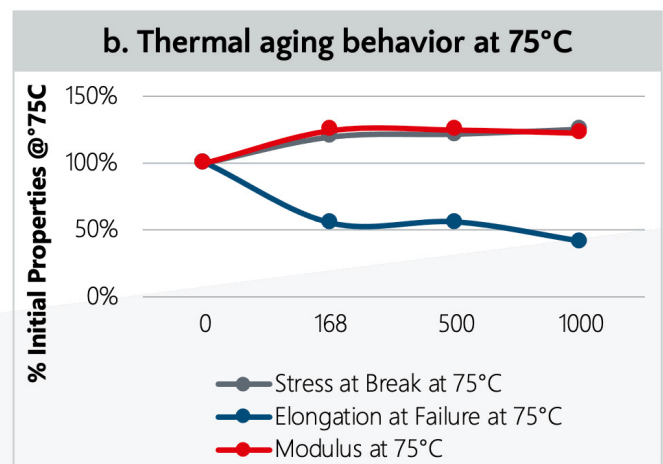
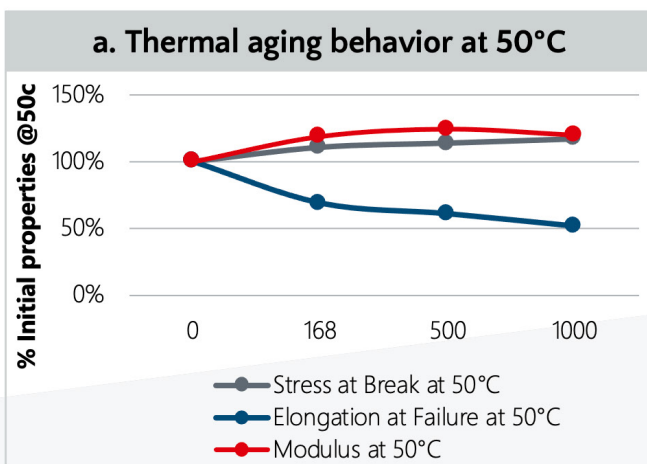
Samples were kept at standard laboratory conditions and were not exposed to elevated temperatures.



SLC: Standard Lab Conditions

Heat Aging (Tested at 22°C)

Samples were aged at (a) 50°C and (b) 75°C.

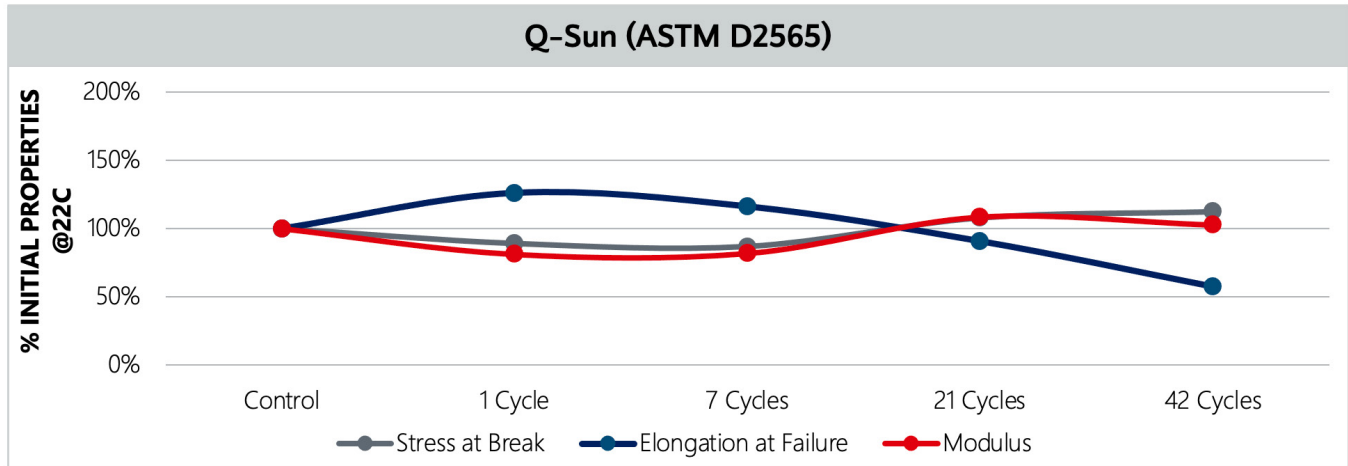


*All values tested at room temperature

** Data based on testing by Henkel

Q-Sun (ASTM D2565)

Q-Sun (ASTM D2565) **



CHEMICAL RESISTANCE

Amount of Exposure Time 100 hours

Chemical	Measure	% of initial strength		
		Elongation at Break	Stress at Break	Modulus
Water (22C°)	%	152	52	44
IPA	%	117	40	38
NaOCl	%	120	57	58
Salt Fog (22C°)	%	169	43	30
Motor Oil (87C°)	%	93	104	100
Hydrogen Peroxide		158	47	38

CHEMICAL RESISTANCE

Amount of Exposure Time 500 hours

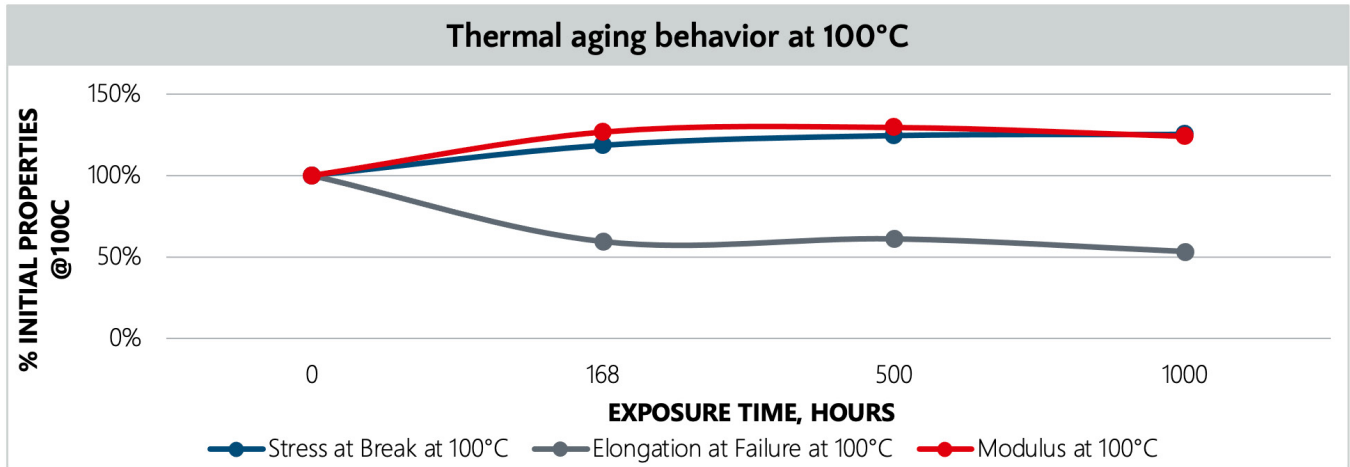
Chemical	Measure	% of initial strength		
		Elongation at Break	Stress at Break	Modulus
Water (22C°)	%	175	52	12
IPA	%	0	0	0
NaOCl 5	%	83	28	31
Salt Fog (22C°)	%	192	33	17
Motor Oil (87C°)	%	78	106	105
Hydrogen Peroxide		180	22	7

** Data based on testing by Henkel

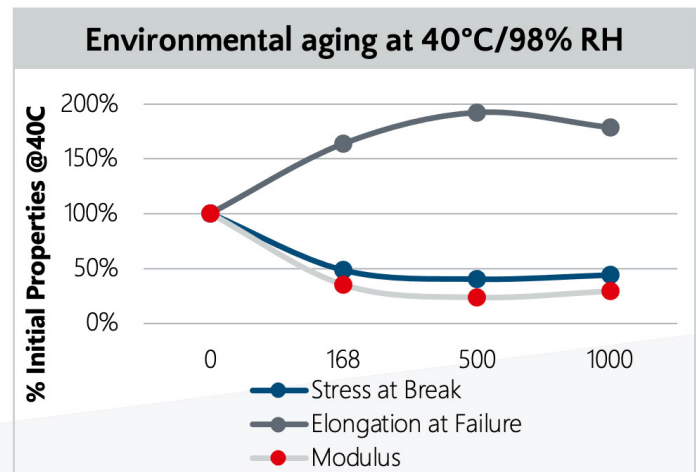
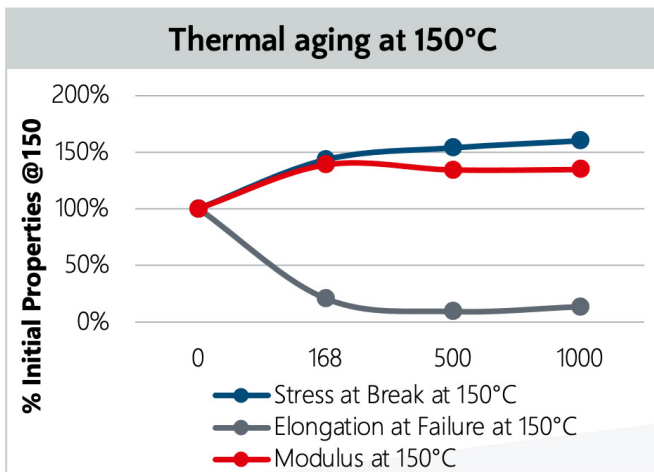
AGING AND ENVIRONMENTAL EFFECTS (I/III). **

Heat Aging at 100°C (Tested at 22°C)

Samples were aged at the temperature indicated, and tested at 22°C.



Heat Aging at 150°C (Tested at 22°C)



*All values tested at room temperature

** Data based on testing by Henkel

Nexa3D 3843-xABS Black

Nexa3D Material Specification^{LMS}

Test reports for each batch are available for the indicated properties. LMS test reports include selected QC test parameters considered appropriate to specifications for customer use. Additionally, comprehensive controls are in place to assure product quality and consistency. Special customer specification requirements may be coordinated through Nexa3D Quality.

Storage

Store product in the unopened container in a dry location.

Storage information may be indicated on the product container labelling.

Optimal Storage: 8 °C to 21 °C. Storage below 8 °C or greater than 28 °C can adversely affect product properties. Material removed from containers may be contaminated during use. Do not return product to the original container. Nexa3D cannot assume responsibility for product which has been contaminated or stored under conditions other than those previously indicated. If additional information is required, please contact your local Technical Service Centre or Customer Service Representative.

Conversions

$(^{\circ}\text{C} \times 1.8) + 32 = ^{\circ}\text{F}$	$\text{N}/\text{mm}^2 \times 145 = \text{psi}$
$\text{kV}/\text{mm} \times 25.4 = \text{V}/\text{mil}$	$\text{MPa} \times 145 = \text{psi}$
$\text{mm} / 25.4 = \text{inches}$	$\text{N}\cdot\text{m} \times 8.851 = \text{lb}\cdot\text{in}$
$\mu\text{m} / 25.4 = \text{mil}$	$\text{N}\cdot\text{m} \times 0.738 = \text{lb}\cdot\text{ft}$
$\text{N} \times 0.225 = \text{lb}$	$\text{N}\cdot\text{mm} \times 0.142 = \text{oz}\cdot\text{in}$
$\text{N}/\text{mm} \times 5.71 = \text{lb}/\text{in}$	$\text{mPa}\cdot\text{s} = \text{cP}$

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.

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.

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