



Preliminary Technical Data Sheet

Nexa3D xCAST



PRODUCT DESCRIPTION

xCAST resin is formulated for making investment casting patterns with excellent surface finish and low ash after burnout. Patterns made from xCAST are suitable for both dip-shell and flask-type investment casting processes.

TYPICAL PROPERTIES OF LIQUID RESIN

Specific Gravity, g/cm³@ 25°C 1.1
Appearance/Colour Yellow

RECOMMENDED PREPARATION – SHELL CASTING

Scale pattern models to account for foundry shrinkage.

Hollow pattern model with 0.8-1.2mm wall and lattice infill 8-10mm cell size using stl editor. Include multiple drain and vent holes Ø3-6mm to allow removing resin from interior and avoid cupping during printing.

After printing wash with xCLEAN or IPA for 5-10 minutes. Don't rinse with water – material is hydroscopic.

Post-Cure in UV chamber 60 minutes at room temperature in cure oven with 405nm light source and 5-30mW/cm² intensity.

Tree up with standard foundry wax and shell same day as curing. If patterns have sat, rinse in clean IPA 2 hours before assembling tree – additives in the polymer can leech out and affect surface finish.

Burn out 1050°C for 2.5hrs in ventilated oven, blow out mold with air to remove any ash before pouring.

RECOMMENDED PREPARATION – FLASK CASTING

After printing wash with xCLEAN or IPA for 5-10 minutes. Don't rinse with water – material is hydroscopic. Post-Cure in UV chamber 60 minutes at room temperature in cure oven with 405nm light source and 5-30mW/cm² intensity.

Tree up with standard foundry wax and shell same day as curing. If patterns have sat, rinse in clean IPA 2 hours before assembling tree – additives in the polymer can leech out and affect surface finish.

Follow instructions of the investment powder for preparation. Recommended powders are Plasticast, Omega+, and Prestige Optima. Use virgin powder only. Burn-out in a ventilated oven (oxygen is required to fully burnout the pattern). Start burnout 5 hours after preparation of the cylinder. Invert cylinder 2 hours before casting to evacuate gases and ash. Follow this burnout cycle and ramp rates:

Temperature	Time	Rate
150°C	2 hr	4°/min
750°C	6 hr	4°/min
650°C	1 hr	4°/min

Pattern may be printed solid, hollowing recommended for sections > 5mm across. Use 1mm wall thickness.

TYPICAL PROPERTIES OF PRINTED MATERIAL

Tensile Strength	ASTM D368	9MPa
Tensile Modulus	ASTM D368	200MPa
Elongation at Break	ASTM D368	8%
Flexural Strength	ASTM D790	13MPa
Flexural Modulus	ASTM D790	255MPa
HDT @ 1.81MPa	ASTM D648	32°C
Hardness	ASTM D2240	59D

GENERAL INFORMATION

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

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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