

THERMO™ Heat Resistant Model Resin



Thermo™ Light Grey - Colours may vary from screen image



TECHNICAL DATASHEET

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Product Description

Monocure 3D THERMO™ Heat Resistant Dental Model Resin is a low odour 3D printing material specifically designed for orthodontic aligner and mouthguard models. This resin offers exceptional heat resistance (120°C+) and pressure vacuum forming capabilities, ensuring optimal durability and precision for your dental applications.

SKU(s): THD-4005LGY, THM-4006LGY

Material: Heat Resistant Epoxy Based Photopolymer

Available Colours: Light Grey

Suitable Models: Aligner | Mouthguard | Orthodontic | Study | Diagnostic



/product-category/resins/dental-resins/thermo



www.monocure3d.com.au

THERMO™

Heat Resistant Dental Model Resin

Monocure 3D THERMO™ Heat Resistant Resin is an innovative 3D printing resin perfect for projects requiring superior heat resistance and pressure vacuum forming. This resin is designed for both MSLA and DLP technologies, is easy to print, and boasts a smooth finish with an 'easy-release' formula.

PRINTING TIPS

- ✓ We recommend positioning the model flat on the build plate without supports or hollowing the model.
- ✓ A calibration model is an effective way to dial in a 3D resin printer for use with our THERMO™ Resin, ensuring the printer & resin work together to produce highly-accurate models.
- ✓ Post-curing a 3D-printed model is essential before pressure or vacuum forming. It ensures that the model is sufficiently cured and ready to withstand the pressure and heat of the thermo-forming process.
- ✓ To ensure the model is properly cleaned, we recommend RESINAWAY® to remove any trapped resin that can cause dimensional issues.

RESIN COMPATIBILITY: DLP & MSLA 3D Printers Guide

THERMO™ Heat Resistant Dental Resin is available in two formulas. Since DLP printers output more power than MSLA, we have a version to cover both system types.

Choose the DLP formula if your printer uses a projector module (DLP) to expose the layers. These include brands and models such as the MoonRay, SprintRay, Peopoly Moai, Asiga UV-Max & Pro 4K, Phrozen Make, B9 Creator, Flashforge Hunter, XYZ Nobel, and Kudo Titan.

If your 3D printer uses an LCD screen and a LED array (MSLA) to expose the layers, you must use our regular MSLA formula. These include Anycubic, Phrozen, Creality, Elegoo, Epax, Peopoly, Prusa, Uniz, Wanhao, WOW SparkMaker & Kelant.



High Heat Resistance (120°C)

Specially designed to provide superior heat resistance, making it the perfect choice for Models that need to stand up to higher temperatures.



High Precision

THERMO™ Heat Resistant Resin is designed to provide high precision, allowing for detailed and dimensionally accurate 3D printed models.



'Easy Release'

This resin is designed with an 'easy-release' formula, making it simple and easy to release mouth guards and aligners from the model after forming.



Multi-compatible formulas

This Resin is designed to be compatible with DLP and MSLA 3D printing technologies, making it perfect for high-quality results with either technology.

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MECHANICAL PROPERTIES

Method Code: ASTM D638-14
Product: Monocure 3D THERMO™ Resin (50µm)
Acceptance Code: Supply Findings
Specimen Type: Rectangular beam samples (Type IV)
Equip' Serial No: UTM Serial No. 075
Conditioning: Tested at ambient temperature



SKU(s)	THD-4005LGY THM-4006LGY	Flexural Band Span (mm)	86.23
Cross-Sectional Area (mm2)	25.21M	Max Load Applied (N)	380
Max Force (kN)	1.55	Flexural Stress (MPa)	126
Tensile Strength (MPa)	67	Max Flex Strain (mm/mm)	0.5
Elongation at Break	2.2	Shore Hardness (D)	96
Young's Modulus (GPa)	1.8	Heat Deflection Temp (°C)	130°C @ 0.45MPa

With excellent accuracy, it can print with higher speeds and lower failure rates than competitors. The resin is designed to suit layer heights from 10 to 100 microns and has a low odour. With Monocure 3D THERMO™ Heat Resistant Resin, you can create models easily and confidently, knowing that it is resistant up to 130°C.

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Tensile (MPa)	Low	67	high
Young's Modulus (GPa)	Pliable	1.8	Stiff
Elongation (%)	Low	2.2	High
Flexural Stress (MPa)	Low	126	High
Shore Harness (D)	Soft	100	Hard

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MSLA LIQUID PROPERTIES

SKUs	M/THM-4006LGY
Colour(s)	Light Grey (RAL7035)
Viscosity	500cps @ 25°C (BrookfieldRVT)
Odour	Negligible Characteristics
Shelf Life	36 months
Active Solids	100%
UV Cure	365nm to 405nm
Cure Speed	1.5-3 seconds per layer (Monochrome LCD)

TECHNICAL

Storage	Dark, cool & dry place
Wash Up	RESINAWAY® or IPA (Isopropyl Alcohol)
Compatible MSLA 3D Printers	<p>AnyCubic Phrozen Creality Elegoo Epax Peopoly Prusa Uniz Wanhao WOW SparkMaker Kelant Not Listed – Contact Us</p>



(monocure3d.com.au/printers)

DLP LIQUID PROPERTIES

Product Code(s)	M/THD-4006LGY
Colour(s)	Light Grey (RAL7035)
Viscosity	500cps @ 25°C (BrookfieldRVT)
Odour	Negligible Characteristics
Shelf Life	36 months
Active Solids	100%
UV Cure	365nm to 405nm
Cure Speed	1-3 seconds per layer

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Storage	Dark, cool & dry place.
Wash Up	RESINAWAY® or IPA (Isopropyl Alcohol)
Compatible DLP Printers	<p>Asiga (Scan QR Code for .ini configuration files) SprintRay Peopoly MoonRay Phrozen Make B9 Creator Flashforge Hunter XYZ Nobel Kudo Titan Not Listed – Contact Us</p>



(printers/asiga-max-uv-dental)



FIND YOUR PRINTER SETTINGS

Access the slicer settings for dialing in with our all-resin systems by selecting your 3D printer(s) from the list available on our website, where you can also find information on printer specifications, reviews, and videos; if your printer is not listed, please do not hesitate to contact us.



PRINTER NOT LISTED?

Feeling frustrated with calibration? Download our Calibration Model to fine-tune your printer and get the best results. Need further assistance? Our local resin 3D printing experts are just an email away at support@monocure3d.com.au if you need one-on-one support.



DISCLAIMER

Please note that while our settings serve as a useful guide, not all 3D printers are created equal. Due to variations in make and model, your 3D printer may require different layer durations to achieve the desired results. Call us on +612 (0) 9738 5340



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WORKFLOW PROCEDURES

Most 3D Printers & Resin materials are unique and require setting up before first-time use.

We recommend that you dial-in new printers and resins using one of our handy calibration models that can be found at <https://monocure3d.com.au/product-category/3d-models/calibration-models/>

PRINTER SETTINGS

The following example settings have been formulated with consideration for monochrome MSLA 3D printers employing a 405nm light source. For more information pertaining to all our materials and most popular 3D printer models, please refer to the official settings page at: <https://monocure3d.com.au/printers/>

Shake resin bottle well before each use

Temperature: 18°C to 35°C

Layer Thickness: 50µm

Base layer Duration: 15-30(sec)

No. Base Layers: 2-4

Normal Layer Exposure: 2-3(sec)

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CLEANING

For optimal post-printing results, use ResinAway® to remove uncured resin. With enhanced cleaning, non-flammable properties, and a pleasant scent, follow the guidelines for the best finish on 3D dental models.

STEP 1. Ultrasonic cleaner with ResinAway®: 3-5mins

STEP 2. Dry models: Compressed air 20secs *

*Warning: Excess IPA or ResinAway® on models might result in surface cracking.



POST-CURING

THERMO™ resin requires post-curing to reach its optimal mechanical properties.

STEP 3. UV Light Source: 405nm LED Ultraviolet light.

STEP 4. Minimum Post-Curing Duration (m): 5mins

STEP 5. Remove the excess ResinAway® by washing with fresh water.

STEP 6. Place the model in the curing chamber for a minimum of 30 minutes to enhance the materials tensile strength, crucial for pressure forming applications.

STORAGE

To ensure optimal performance and shelf life of Monocure 3D resins, store them in a cool, dark environment, tightly sealed in their original containers, away from heat, direct sunlight, and moisture, while also taking care to prevent the resins from freezing.



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