

LOCTITE® 3D MED3394™

Sterilizable
Sheer Black, White

LOCTITE®

Henkel Corporation loctite3dp@henkel.com





MED3394™ STERILIZABLE



LOCTITE 3D MED3394™

LOCTITE 3D MED3394 is a high-performance material developed to withstand the harsh environment created during sterilization cycles. The high temperature resistance and low water absorption means it can withstand multiple autoclave cycles.

LOCTITE 3D MED3394 is capable of meeting ISO 10993-5, -10, -11 (acute systemic) and -23 standards, as well as USP Class VI, for biocompatibility when processed using a validated workflow. Certificates of Compliance are available upon request.

LOCTITE 3D MED3394 exhibits is available in both white and sheer black colors and can print on a variety of DLP, LCD, and mSLA style resin 3D printers.



Benefits:

- High heat resistance, HDT 100°C
- Excellent biocompatibility
- Low water absorption



Ideal for:

- Medical Devices
- Laboratory Equipment
- Sterile Devices
- Cleanroom environments



Markets:



Healthcare









PROPERTIES

| Measure | Method | Green | Post Processed |
|----------|--|--|---|
| MPa | ASTM D638 | 1400 - 1700 ^[1] | 2450 - 2650 ^[1] |
| MPa | ASTM D638 | 34 - 44 ^[1] | 68 - 76 ^[1] |
| % | ASTM D638 | 3.9 - 4.4 ^[1] | 4.5 - 4.9 ^[1] |
| MPa | ASTM D638 | 31 - 38 ^[1] | 66 - 72 ^[1] |
| % | ASTM D638 | 25 - 39 ^[1] | 9 - 16 ^[1] |
| MPa | ASTM D790 | - | 2700 [1] |
| MPa | ASTM D790 | - | - |
| % | ASTM D790 | >5 ^[1] | >5 [1] |
| J/m | ASTM D256 | - | 24.5 - 27.5 ^[1] |
| D | ASTM D2240 | 66 ^[2] | 75 ^[2] |
| | | | |
| °C | ASTM D648 | - | 97 - 104 ^[1] |
| °C | ASTM D648 | - | 82 - 94 [1] |
| % | ASTM D570 | - | 0.53 [3] |
| % | ASTM D570 | - | 0.69 [3] |
| % | ASTM D570 | - | 0.90 [3] |
| g/cm³ | ASTM D792 | 1.14 [4] | 1.15 ^[4] |
| μm/(m·K) | ASTM E831 | - | 92.3 ^[5] |
| | MPa MPa % MPa % MPa MPa MPa MPa C % MPa MPa MPa MPa % J/m D °C °C °C % % % g/cm³ | MPa ASTM D638 MPa ASTM D638 % ASTM D638 MPa ASTM D638 % ASTM D638 MPa ASTM D790 MPa ASTM D790 % ASTM D790 J/m ASTM D256 D ASTM D256 D ASTM D648 °C ASTM D648 % ASTM D570 % ASTM D570 % ASTM D570 g/cm³ ASTM D792 | MPa ASTM D638 1400 - 1700 [1] MPa ASTM D638 34 - 44 [1] % ASTM D638 3.9 - 4.4 [1] MPa ASTM D638 31 - 38 [1] % ASTM D638 25 - 39 [1] MPa ASTM D790 - MPa ASTM D790 - % ASTM D256 - D ASTM D2240 66 [2] °C ASTM D648 - % ASTM D570 - % ASTM D570 - % ASTM D570 - % ASTM D570 - g/cm³ ASTM D792 1.14 [4] |

Test parameters:
"All specimen are printed unless otherwise noted. All specimen were conditioned in ambient lab conditions at 19-23°C / 40-60% RH for at least 24 hours." ASTM Methods: D638 Type IV, 5 mm/min, D790-B, 13 mm/min, D648, D256 Notched IZOD (Machine Notched), 6 mm x 12 mm, D570 0.125" x 2" Disc 24hr@ 25°C, D2240, Type "D" (3 seconds), D7867, D1475

Internal Data Sources: [1] <u>GEN676679</u>, [2] <u>FOR600710</u>, [3] <u>FOR610015</u>, [4] <u>FOR554095</u>, [5] <u>FOR670854</u>







PROPERTIES

| Biocompatibility | | Method | Green | Post Processed |
|------------------------------|-------------------|--------------------|-------|----------------------------|
| Cytoxocity | | ISO 10993-5 | - | Comply [1] |
| Sensitization | | ISO 10993-10 | - | Comply [2] |
| Acute Systemic Toxicity | | ISO 10993-11 | - | Comply [3] |
| Irritation | | ISO 10993-23 | - | Comply [4] |
| USP Class VI | | - | - | Comply [5] |
| Liquid Properties | Measure | Method | | Value |
| Viscosity at 25°C (77°F) | сР | ASTM D7867 | | 1100 - 1250 ^[6] |
| Liquid Density | g/cm³ | ASTM D1475 | | 1.09 [7] |
| Electrical Properties | Measure | Method | Green | Post Processed |
| Volume Resistivity | Ω·cm | ASTM D257 | - | 1.05E +16 ^[8] |
| Surface Resistivity | Ω | ASTM D257 | - | 4.0E +11 ^[9] |
| AC Relative Permittivity (Di | ielectric Constar | nt) ^[8] | | |
| at 50 Hz (XY) | none | ASTM D150 | - | 3.8 |
| at 1 kHz (XY) | none | ASTM D150 | - | 3.7 |
| at 1 MHz (XY) | none | ASTM D150 | - | 3.4 |
| AC Loss Characteristic (Dis | sipation Factor) | [8] | | |
| at 50 Hz (XY) | none | ASTM D150 | - | 0.010 |
| at 1 kHz (XY) | none | ASTM D150 | - | 0.010 |
| at 1 MHz (XY) | none | ASTM D150 | | 0.027 |

Test parameters:

"All specimen are printed unless otherwise noted. All specimen were conditioned in ambient lab conditions at 19-23°C / 40-60% RH for at least 24 hours." ASTM Methods: D7867, D1475

Internal Data Sources:
[1] FOR653183, [2] FOR653182, [3] FOR653184, [4] FOR653181, [5] FOR660013, [6] FOR64935, [7] FOR554095, [8] FOR665372, [9] FOR684560







WORKFLOW

Validated workflows need to be followed to achieve properties as provided in the TDS. Examples of validated workflow steps are listed below. Users should defer to the most current workflow information for best results which can be found at https://www.loctiteam.com/printer-validation-settings

PRINTER SETTINGS

LOCTITE 3D MED3394 SHR BK is formulated to print optimally on an industrial DLP printer. Read the safety data sheet carefully to get details about health and safety instructions. Recommended print parameters:

Shake resin bottle well before usage

Temperature: 20°C to 35°C

Intensity: 3 mW/cm² to 7 mW/cm²

| Settings: 385 nm at 5 mW/cm ² | Measure | Method | Value |
|--|---------|----------|---------------------|
| Layer Thickness | μm | Internal | 100 |
| Burn-in Region | S | Internal | 40 |
| Transition Region | S | Internal | 15 |
| Model Region | S | Internal | 4.5 |
| Settings: 385 nm at 5 mW/cm ² | Measure | Method | Value |
| E _C | mJ/cm2 | Internal | 10.6 ^[1] |
| D _p | mm | Internal | 0.32 [1] |
| | | | |
| Settings: 385 nm at 5 mW/cm ² | Measure | Method | Exposure time |
| D _C = 50 μm | S | Internal | 2.5* |
| D _C = 100 μm | S | Internal | 2.9* |
| | | | |

Test parameters

*Exposure times are calculated without a safety factor

Internal data source: [1] FOR602556







WORKFLOW

Validated workflows need to be followed to achieve properties as provided in the TDS. Examples of validated workflow steps are listed below. Users should defer to the most current workflow information for best results which can be found at https://www.loctiteam.com/printer-validation-settings

CLEANING

LOCTITE 3D MED3394 SHR BK requires post processing to achieve specified properties. Prior to post curing, support structures should be removed from the printed part, and the part should then be washed. Use compressed air to remove residual solvent from the surface of the material between intervals.

| Post Process Step | Agent | Method | Duration | Intervals | Additional Info |
|-------------------------|-------|-------------------|--------------|-----------|-------------------------|
| Cleaning Step #1 | IPA | Ultrasonic | 2 min | 2 | Dry after each interval |
| Dry | n.a. | Compressed air | 10 s to 60 s | 1 | Air pressure (50psi) |
| Wait before post curing | n.a. | Ambient condition | 60 min | 1 | Room temperature |

POST CURING

LOCTITE 3D MED3394 SHR BK requires post curing to achieve specified properties. It is recommended that either an LED or wide spectrum lamp be used to post cure parts.

An additional heat cure at 100°C for one hour is recommended for most workflows to realize highest HDT performance. Allow the parts to rest one hour between UV cure and heat cure. To minimize risk of warpage place parts in cold oven before ramping up temperature to target value and cool down parts slowly in switched off oven after reaching the heat curing conditions.

| UV Curing Unit | UV Source | Intensity | Cure time per side | Additional Settings (Shelf, Output Energy) |
|---------------------|-----------------------------------|----------------------------------|-----------------------|---|
| Dymax 5000 EC Flood | Mercury Arc Bulb (broad spectrum) | 150 mW/cm ² at 380 nm | 10 min | 400W, Shelf K |
| Loctite CL36 | 405nm LED | 80 mW/cm ² at 405 nm | 10 min | 100% top & side |







WORKFLOW

Validated workflows need to be followed to achieve properties as provided in the TDS. Examples of validated workflow steps are listed below. Users should defer to the most current workflow information for best results which can be found at https://www.loctiteam.com/printer-validation-settings

STORAGE

Store LOCTITE 3D MED3394 SHR BK in the unopened container in a dry location. Optimal Storage: 8°C to 30°C. Storage below 8°C or above 30°C can adversely affect product properties. Material removed from containers may be contaminated during use. For this reason, filter used resin with 190 µm mesh filter before placing back into proper storage container.



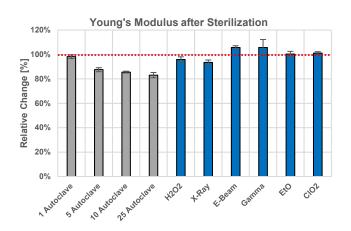


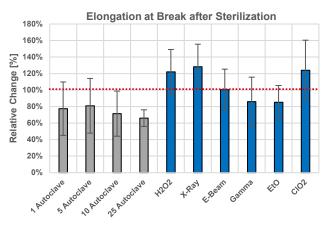


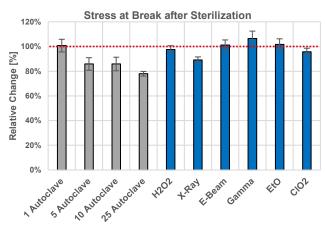
AGEING AND ENVIRONMENTAL EFFECTS – STERILIZATOIN

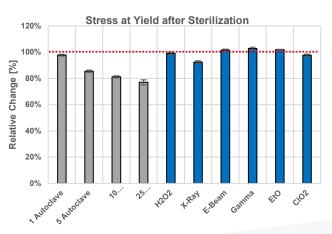
LOCTITE 3D MED3394 SHR BK was sterilized via a variety of sterilization methods. Sterilized samples were conditioned for a minimum of 24 hours before mechanical testing. Control samples were stored at a constant 22°C. All samples were printed using a validated workflow. Mechanical testing was conducted according to ASTM D638 at standard lab conditions (22°C).

Data represents mechanical properties shortly after sterilization and are not indicative of long-term shelfaged performance.









ASTM D638: Type IV, Pull speed: 5 mm/min, Young's modulus measured at 0.1-1.0% (regression), 22°C

Internal Data Sources:





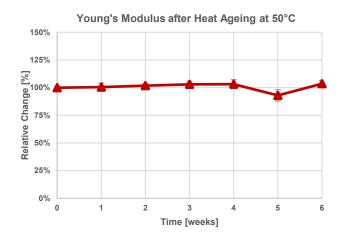


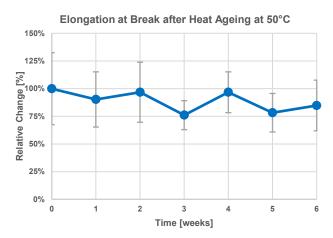
AGEING AND ENVIRONMENTAL EFFECTS – HEAT AGEING

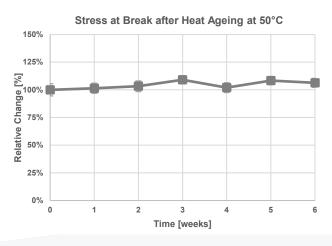
LOCTITE 3D MED3394 SHR BK was heat aged without load according to ASTM D3045. Test samples were exposed for a defined time at 50°C and conditioned for 24 hours at 22°C before mechanical testing. Control samples were stored at a constant 22°C. All samples were printed in the same print job using a validated workflow. Mechanical testing was conducted according to ASTM D638 at standard lab conditions (22°C).

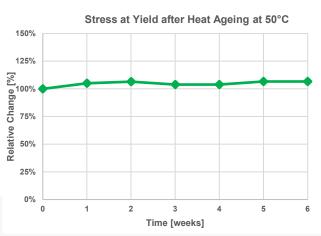
"0 weeks" represents non-aged samples stored at 22°C and tested 24 hours after post-processing.

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.









Test parameters:
ASTM D638: Type IV, Pull speed: 5 mm/min, Young's modulus measured at 0.1-1.0% (regression), 22°C

Internal Data Sources: FOR635905, FOR635909



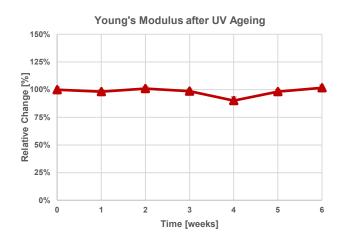


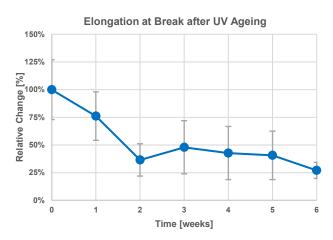


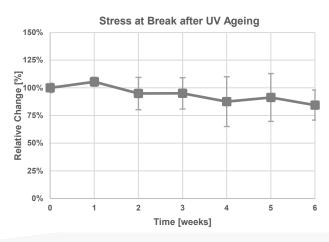
AGEING AND ENVIRONMENTAL EFFECTS – ACCELERATED WEATHERING (UV AGEING)

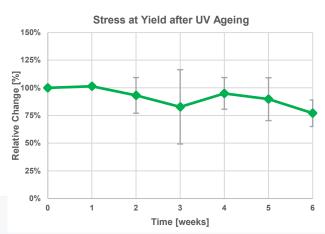
LOCTITE 3D MED3394 SHR BK has been tested after accelerated outdoor weathering according to ASTM D4329 (Cycle A). Test samples were exposed to defined conditions of heat, water condensation and UV light. Exposed samples were conditioned for 24 hours at 22°C before mechanical testing. Control samples 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 D638 at standard lab conditions (22°C). "0 weeks" represents non-aged samples stored at 22°C and tested 24 hours after post-processing.

Please note, accelerated weathering testing can never fully represent real outdoor conditions and complexity. It is therefore recommended to conduct additional (outdoor) testing relevant for your specific application needs.









Test parameters

ASTM D638: Type IV, Pull speed: 5 mm/min, Young's modulus measured at 0.1-1% (regression), 22 °C
ASTM D638: Type IV, Pull speed: 5 mm/min, Young's modulus measured at 0.1-1% (regression), 22 °C
ASTM D4329: Cycle A for general applications, QUV/se, UVA 340 nm, 0.89 W/m²nm, 8 hours UV light at 60°C followed by 4 hours at 50°C condensation in the dark. To reduce any sample warpage during test time samples were placed in tailor-made holders without any fixation clamps or mechanical load. Exposed samples were always removed from QUV before next condensation cycle to avoid samples that are soaked excessively with water before testing.

Internal Data Sources: FOR640990, FOR640994

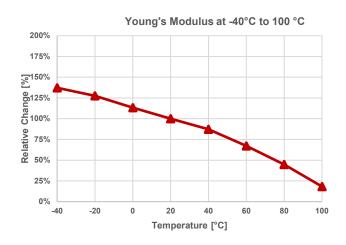


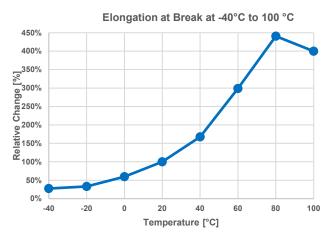


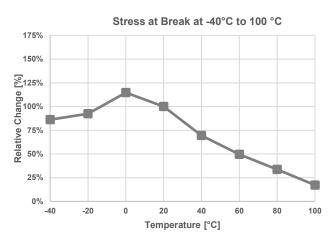


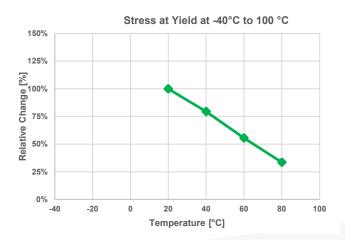
THERMAL INFLUENCE ON MECHANICAL PROPERTIES

LOCTITE 3D MED3394 SHR BK has been tested according to ASTM D638 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 D638. Before each test series samples were conditioned for 60 minutes at the specific test temperature.









Test parameters:ASTM D638, Type IV, Pull speed: 5 mm/min, Young's modulus measured at 0.1-1% (regression)

Internal Data Sources: FOR667304, FOR669197



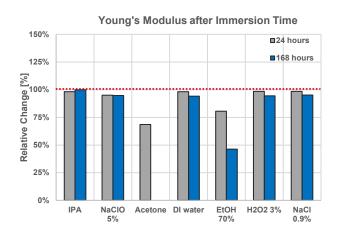


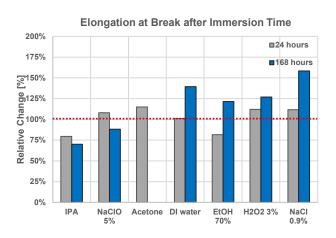


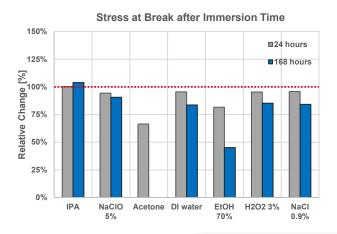
AGEING AND ENVIRONMENTAL EFFECTS – CHEMICAL RESISTANCE MEDICAL

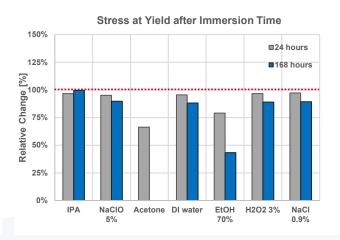
LOCTITE 3D MED3394 SHR BK has been tested after chemical ageing according to ASTM D543. The influence of chemicals was tested by measuring mechanical properties after different test times (Immersion test for 24 and 168 hours). Exposed samples were stored in containers and fully immersed in different 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 D638 at standard lab conditions (22°C).

"100%" represents non-aged samples stored at 22°C and tested 24 hours after post-processing.









Test parameters

ASTM D638: Type IV, Pull speed: 5 mm/min, Young's modulus measured at 0.1-1.0% (regression), 22°C ASTM D543: Samples immersed in different chemicals were stored at 22°C.

Internal Data Sources

FOR669958, FOR669957, FOR669960, FOR676378, FOR669962, FOR676381, FOR676383



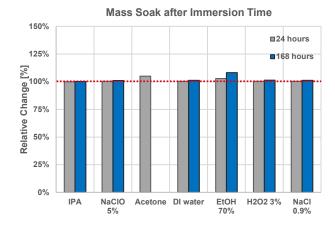




AGEING AND ENVIRONMENTAL EFFECTS – CHEMICAL RESISTANCE MASS SOAK

LOCTITE 3D MED3394 SHR BK has been tested 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.





Test parameters

ASTM D543: Samples immersed in different chemicals were stored at 22°C.

Internal Data Sources

FOR669958, FOR669957, FOR669960, FOR676378, FOR669962, FOR676381, FOR676383







PROPERTIES

| Mechanical Properties | Measure | Method | Green | Post Processed |
|------------------------------|---------|------------|----------------------------|----------------------------|
| Young's Modulus | MPa | ASTM D638 | 1400 - 1850 ^[1] | 2400 - 2750 ^[1] |
| Tensile Stress at Yield | MPa | ASTM D638 | 35 - 46 ^[1] | 67 – 72 ^[1] |
| Elongation at Yield | % | ASTM D638 | 3.9 - 4.2 ^[1] | 4.4 - 4.7 ^[1] |
| Tensile Stress at Break | MPa | ASTM D638 | 31 - 36 ^[1] | 64 - 70 ^[1] |
| Elongation at Break | % | ASTM D638 | 18 - 33 ^[1] | 9 - 13 ^[1] |
| Flexural Modulus | MPa | ASTM D790 | _ | 2439 ^[2] |
| Flexural Stress at Break | MPa | ASTM D790 | - | - |
| Flexural Elongation at Break | % | ASTM D790 | >5 [2] | >5 ^[2] |
| IZOD Impact (Notched) | J/m | ASTM D256 | - | 26.5 - 27.5 ^[1] |
| Shore Hardness (3s) | D | ASTM D2240 | _ | 74 ^[2] |
| Other Properties | | | | |
| HDT at 0.455 MPa | °C | ASTM D648 | - | 97 - 100 ^[1] |
| HDT at 1.82 MPa | °C | ASTM D648 | - | 80 - 84 [1] |
| Water Absorption (24hr) | % | ASTM D570 | - | 0.73 [2] |
| Water Absorption (48hr) | % | ASTM D570 | _ | 0.85 [2] |
| Water Absorption (72hr) | % | ASTM D570 | - | 0.86 [2] |
| Solid Density | g/cm³ | ASTM D792 | 1.15 ^[2] | 1.20 [2] |

Test parameters:
"All specimen are printed unless otherwise noted. All specimen were conditioned in ambient lab conditions at 19-23°C / 40-60% RH for at least 24 hours." ASTM Methods: D638 Type IV, 5 mm/min, D790-B, 1.3 mm/min, D648, D256 Notched IZOD (Machine Notched), 6 mm x 12 mm, D570 0.125" x 2" Disc 24hr@ 25°C, D2240, Type "D" (3 seconds), D7867, D1475

Internal Data Sources: [1] <u>GEN685172</u>, [2] <u>FOR623072</u>, [3] <u>FOR610015</u>, [4] <u>FOR554095</u>, [5] <u>FOR644291</u>







PROPERTIES

| Biocompatibility | | Method | Green | Post processed |
|---|---|---|-----------------|--------------------------------------|
| Cytoxocity | | ISO 10993-5 | - | Comply [1] |
| Sensitization | | ISO 10993-10 | - | Pending |
| Acute Systemic Toxicity | | ISO 10993-11 | - | Pending |
| Irritation | | ISO 10993-23 | - | Pending |
| USP Class VI | | - | - | Pending |
| Liquid Properties | Measure | Method | | Value |
| Viscosity at 25°C (77°F) | сР | ASTM D7867 | | 1150 - 1300 ^[2] |
| Liquid Density | g/cm³ | ASTM D1475 | | 1.09 [3] |
| | | | | |
| Electrical Properties | Measure | Method | Green | Post Processed |
| Electrical Properties Volume Resistivity | Measure Ω·cm | Method ASTM D257 | Green - | Post Processed 8.49E +15 [4] |
| <u>.</u> | Ω·cm | ASTM D257 | Green - | |
| Volume Resistivity | Ω·cm | ASTM D257 | Green - - | |
| Volume Resistivity AC Relative Permittivity (Die | Ω·cm electric Constar | ASTM D257 | Green | 8.49E +15 ^[4] |
| Volume Resistivity AC Relative Permittivity (Die at 50 Hz (XY) | Ω·cm electric Constar none | ASTM D257 nt) ^[4] ASTM D150 | - | 8.49E +15 ^[4] 3.9 |
| Volume Resistivity AC Relative Permittivity (Die at 50 Hz (XY) at 1 kHz (XY) | Ω·cm electric Constar none none none | ASTM D257 at) ^[4] ASTM D150 ASTM D150 ASTM D150 | - | 8.49E +15 ^[4] 3.9 3.8 |
| Volume Resistivity AC Relative Permittivity (Die at 50 Hz (XY) at 1 kHz (XY) at 1 MHz (XY) | Ω·cm electric Constar none none none | ASTM D257 at) ^[4] ASTM D150 ASTM D150 ASTM D150 | - | 8.49E +15 ^[4] 3.9 3.8 |
| Volume Resistivity AC Relative Permittivity (Die at 50 Hz (XY) at 1 kHz (XY) at 1 MHz (XY) AC Loss Characteristic (Diss | Ω·cm electric Constar none none none sipation Factor) | ASTM D257 at) ^[4] ASTM D150 ASTM D150 ASTM D150 | - - - | 8.49E +15 ^[4] 3.9 3.8 3.5 |

Test parameters:

"All specimen are printed unless otherwise noted. All specimen were conditioned in ambient lab conditions at 19-23°C / 40-60% RH for at least 24 hours." ASTM Methods: D7867, D1475

Internal Data Sources: [1] FOR6667411, [2]FOR674931, [3]FOR623072, [4]FOR671965







WORKFLOW

Validated workflows need to be followed to achieve properties as provided in the TDS. Examples of validated workflow steps are listed below. Users should defer to the most current workflow information for best results which can be found at https://www.loctiteam.com/printer-validation-settings

PRINTER SETTINGS

LOCTITE 3D MED3394 WH is formulated to print optimally on an industrial DLP printer. Read the safety data sheet carefully to get details about health and safety instructions. Recommended print parameters:

- Shake resin bottle well before usage
- Temperature: 20°C to 35°C
- Intensity: 3 mW/cm² to 7 mW/cm²

| Settings: 385 nm at 5 mW/cm ² | Measure | Method | Value |
|--|---------|-------------|---------------|
| Layer Thickness | μm | Internal | 100 |
| Burn-in Region | S | Internal | 20 |
| Transition Region | S | Internal 12 | |
| Model Region | S | Internal 6 | |
| Settings: 385 nm at 5 mW/cm ² | Measure | Method | Value |
| E _C | mJ/cm2 | Internal | 6.0 [1] |
| Dp | mm | Internal | 0.14 [1] |
| Settings: 385 nm at 5 mW/cm² | Measure | Method | Exposure time |
| D _C = 50 μm | S | Internal | 1.7* |
| D _C = 100 μm | S | Internal | 2.5* |

Test parameters

Exposure times are calculated without a safety factor

Internal data source: [9] FOR623088







WORKFLOW

Validated workflows need to be followed to achieve properties as provided in the TDS. Examples of validated workflow steps are listed below. Users should defer to the most current workflow information for best results which can be found at https://www.loctiteam.com/printer-validation-settings

CLEANING

LOCTITE 3D MED3394 WH requires post processing to achieve specified properties. Prior to post curing, support structures should be removed from the printed part, and the part should then be washed. Use compressed air to remove residual solvent from the surface of the material between intervals.

| Post Process Step | Agent | Method | Duration | Intervals | Additional Info |
|-------------------------|-------|-------------------|--------------|-----------|-------------------------|
| Cleaning Step #1 | IPA | Ultrasonic | 2 min | 2 | Dry after each interval |
| Dry | n.a. | Compressed air | 10 s to 60 s | 1 | Air pressure (50psi) |
| Wait before post curing | n.a. | Ambient condition | 60 min | 1 | Room temperature |

POST CURING

LOCTITE 3D MED3394 WH requires post curing to achieve specified properties. It is recommended that either an LED or wide spectrum lamp be used to post cure parts.

An additional heat cure at 100°C for one hour is recommended for most workflows to realize highest HDT performance. Allow the parts to rest one hour between UV cure and heat cure. To minimize risk of warpage place parts in cold oven before ramping up temperature to target value and cool down parts slowly in switched off oven after reaching the heat curing conditions.

| UV Curing Unit | UV Source | Intensity | Cure time per side | Additional Settings (Shelf, Output Energy) |
|---------------------|-----------------------------------|------------------------------------|-----------------------|---|
| Dymax 5000 EC Flood | Mercury Arc Bulb (broad spectrum) | 150 mW/cm² at 380 nm | 20 min | 400W, Shelf K |
| Loctite CL36 | 405nm LED | 80 mW/cm ² at 405 nm | 20 min | 100% top & side |







WORKFLOW

Validated workflows need to be followed to achieve properties as provided in the TDS. Examples of validated workflow steps are listed below. Users should defer to the most current workflow information for best results which can be found at https://www.loctiteam.com/printer-validation-settings

STORAGE

Store LOCTITE 3D MED3394 WH in the unopened container in a dry location. Optimal Storage: 8°C to 30°C. Storage below 8°C or above 30°C can adversely affect product properties. Material removed from containers may be contaminated during use. For this reason, filter used resin with 190 µm mesh filter before placing back into proper storage container.



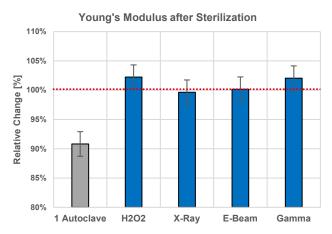


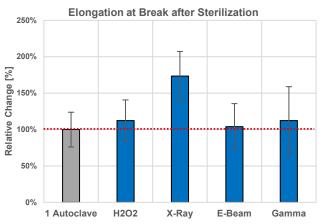


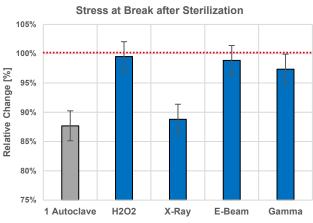
AGEING AND ENVIRONMENTAL EFFECTS – STERILIZATOIN

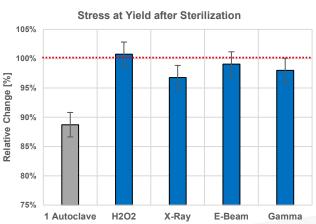
LOCTITE 3D MED3394 WH was sterilized via a variety of sterilization methods. Sterilized samples were conditioned for a minimum of 24 hours before mechanical testing. Control samples were stored at a constant 22°C. All samples were printed using a validated workflow. Mechanical testing was conducted according to ASTM D638 at standard lab conditions (22°C).

Data represents mechanical properties shortly after sterilization and are not indicative of long-term shelf-aged performance.









ASTM D638: Type IV, Pull speed: 5 mm/min, Young's modulus measured at 0.1-1.0% (regression), 22°C

Internal Data Sources: GEN685128

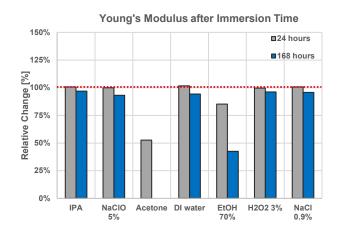


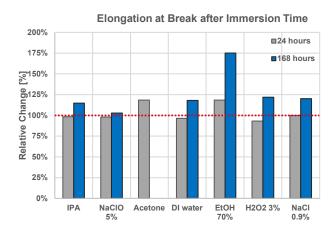


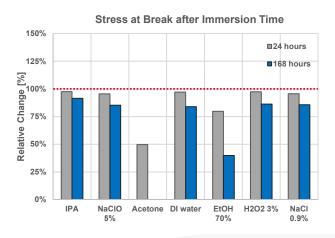


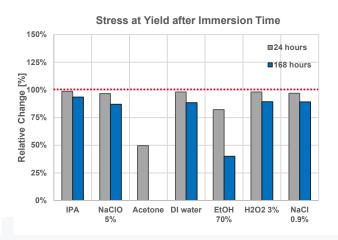
AGEING AND ENVIRONMENTAL EFFECTS – CHEMICAL RESISTANCE MEDICAL

LOCTITE 3D MED3394 WH has been tested 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 D638 at standard lab conditions (22°C). "100%" represents non-aged samples stored at 22°C and tested 24 hours after post-processing.









Test parameters

ASTM D638: Type IV, Pull speed: 5 mm/min, Young's modulus measured at 0.1-1.0% (regression), 22°C ASTM D543: Samples immersed in different chemicals were stored at 22°C.

Internal Data Sources

FOR672243, FOR672244, FOR672246, FOR672248, FOR676357, FOR676355, FOR676358



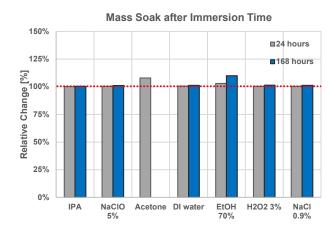




AGEING AND ENVIRONMENTAL EFFECTS – CHEMICAL RESISTANCE MASS SOAK

LOCTITE 3D MED3394 SHR BK has been tested 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.



ASTM D543: Samples immersed in different chemicals were stored at 22°C.

Internal Data Sources: FOR672243, FOR672244, FOR672245, FOR676357, FOR676355, FOR676358





MED3394™ STERILIZABLE



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. Henkel 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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