



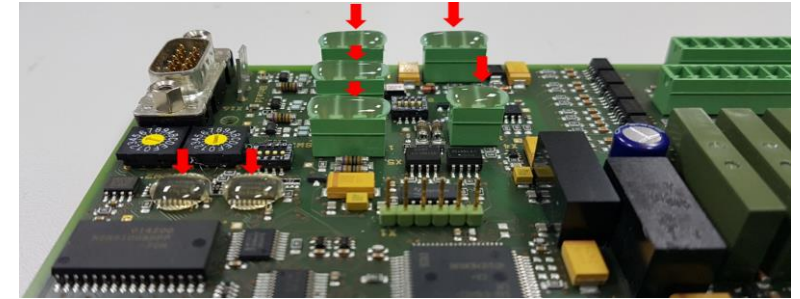
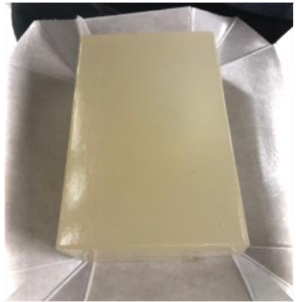
Electronics Materials Solutions Division

3M™ High-Temperature Masking
Liquid 2538/2538UV

3M Electronics Materials Solutions

Forging connections.

3M™ High-Temperature Masking Liquid 2538/2538UV Introduction



Applications:

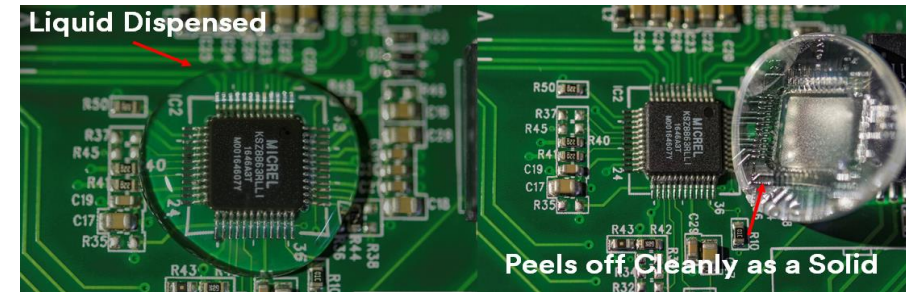
- Masking for conformal coating, reflow soldering or chemical plating processes

Features:

- Easy and clean removal without residue
- Halogen and silicone free, low outgassing,
- Non-slumping when dispensed
- Thixotropic for manual or automated dispensing
- Curing in seconds under typical room temperature
- Low shrinkage after curing
- High-temperature resistance up to 260°C (reflow)
- Resistance to solvent-based conformal coatings, plating chemistries and primers etc.
- UV visible for easier visual inspection (3M High-Temperature Masking Liquid 2538UV)

3M™ High-Temperature Masking Liquid 2538/2538UV Properties

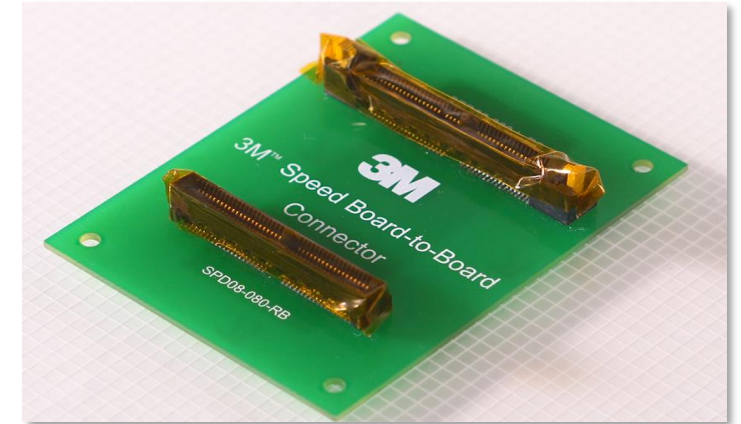
1. Dispenses as a liquid when heated
2. Solidifies upon cooling
3. Readily conformable
4. Removes easily without residue



Typical Properties

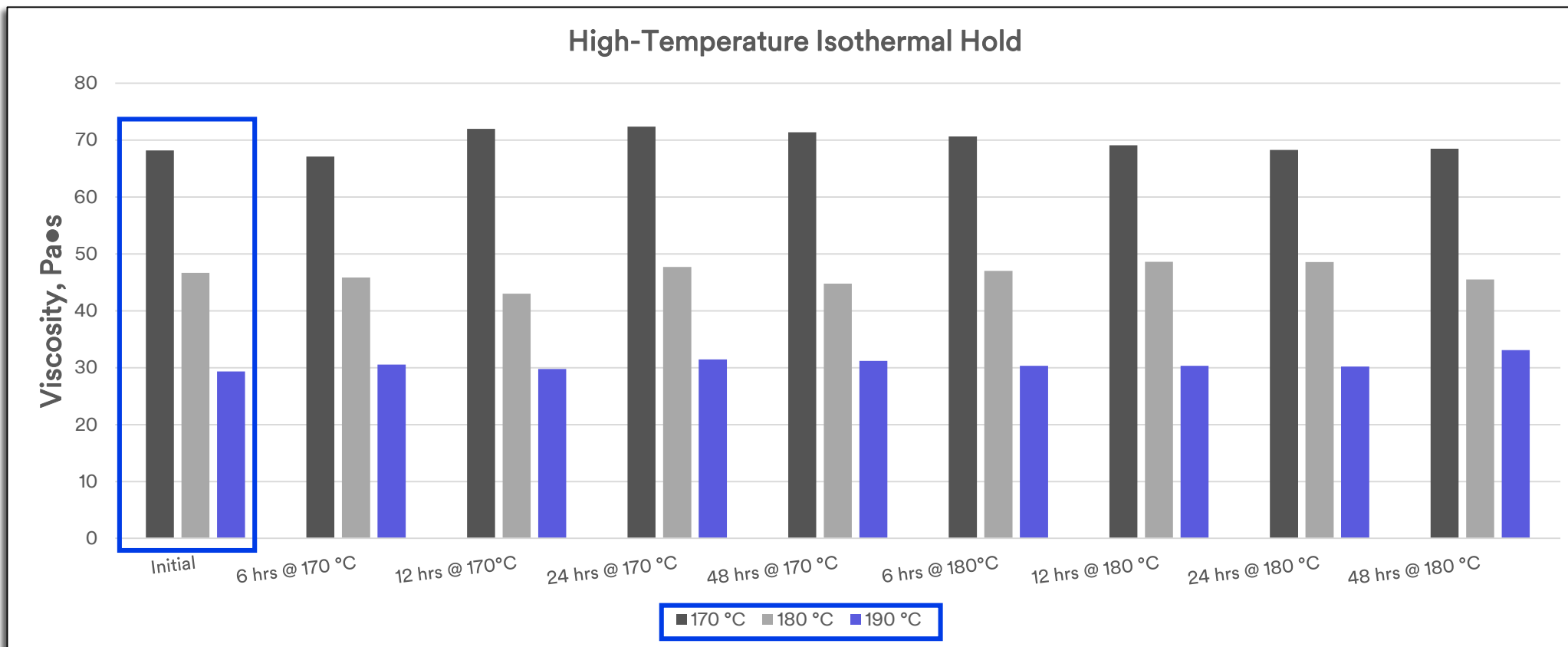
Chemistry	Hotmelt Olefin Hybrid (Non-Silicone)
Appearance	Translucent white
Solids Content	100%
Softening Point	150° ~ 160°C
Viscosity @ 190°C	20 ~ 35 Pa•s
Viscosity @ 180°C	40~ 55 Pa•s
Viscosity @ 170°C	60~ 75 Pa•s
Hardness, Shore A	25
Storage Condition	Store at 21°C (70°F) and 50% relative humidity
UV Excitation Wavelength	~380 nm

Masking Options Comparison



Metal / Plastic Boots	3M™ High-Temperature Masking Liquid	Polyimide / PET / Paper Masking Tapes
Fast to cover, especially tall components	Low-cost solution for high-volume production	Tape cost is relatively low, able to die cut into shapes
Low-cost solution for low-volume production	Automated dispensing design can be easily changed	Effective solution for 2D masking
High cost for high-volume production, requires many boots	Very small size masking possible, down to 500 um	Poor 3D conformability on complex parts
Boot shape is fixed, new boots required for all new PCBA layouts	High-temp masking up to 260°C of repeated reflow process	Labor intensive process and high labor cost
Labor intensive, manual solvent cleaning process	Chemical resistant for plating applications	High probability of silicone transfer after demask
High risk of cross contamination with repeated use	No cleaning required, no solvent cost	Difficult to remove silicone adhesive residue
Extra cost for solvent usage	No silicone transfer or residue	Not compatible with high-volume automation process

Thermal Stability at High Temperatures



Using Test Method 3M TM-9047

3M™ High-Temperature Masking Liquid 2538/2538UV offer excellent thermal stability (as shown by isothermal holds).

3M™ High-Temperature Masking Liquid 2538/2538UV Chemical Resistance

Chemical Resistance Summary		Typical Usage	Immersion Conditions			
			24°C/ 20 min	24°C/ 60 min	60°C/ 20 min	60°C/ 60 min
Chemical Solution	10 wt% H ₃ PO ₄ (Phosphoric acid)	Anodizing and plating	Pass	Pass	Pass	Pass
	10 wt% H ₂ SO ₄ (Sulfuric acid)	Copper electroplating	Pass	Pass	Pass	Pass
	5 wt% KOH (Potassium hydroxide)	Cleaning and etching	Pass	Pass	Pass	Pass
	5 wt% NaOH (Sodium hydroxide)	Cleaning and etching	Pass	Pass	Pass	Pass

Remarks:

- **Pass** = No observed leakage or weight loss noted after immersion
- Test Substrate = 3M High-Temperature Masking Liquid 2538 bonded to FR4

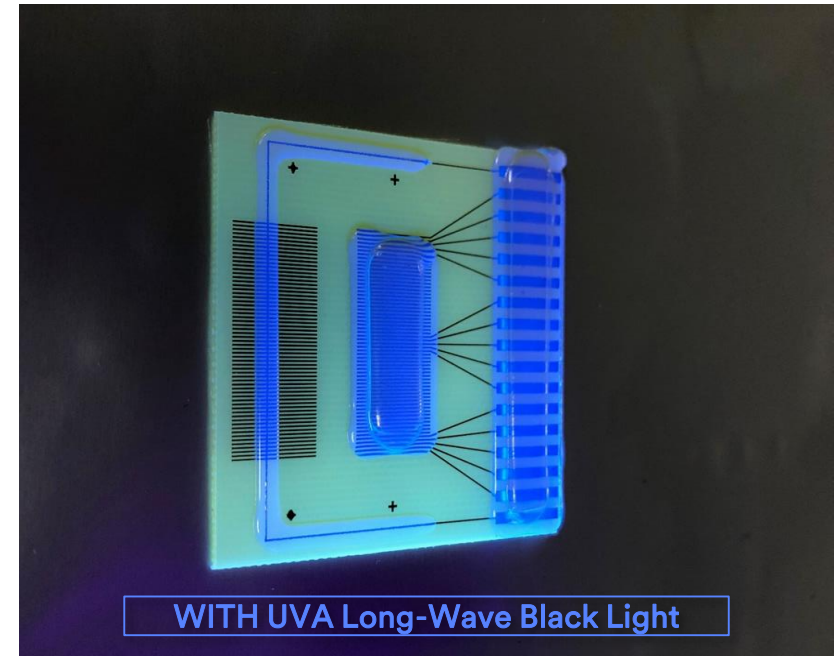
Easy Visual Inspection



WITHOUT UVA Long-Wave Black Light

3M™ High-Temperature Masking Liquid 2538UV

- 400 – 320 nm fluorescence
- Detectable physical location under black light
- Improved quality control



WITH UVA Long-Wave Black Light

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