



HEM TIM FAE
Feb 2021

HLT SERIES TIM APPLICATION NOTE

Honeywell

Overview

- **Product Introduction**
- **Handling & Storage Conditions**
- **Equipment / Tooling**
- **Dispense Process**
- **Rework Process**

Product Introduction: HLT Series

- Honeywell High TC Hybrid TIM -- HLT series are two-component, dispensable thermal gap filler, which offers high thermal conductivity and long-term reliability.
- This product is easy to dispense and rework, making it ideal for high volume manufacture. It can be cured after two-component mixing and can be cured faster under higher temperature.
- Its high compressibility minimizes thermal resistance at interfaces, while maintaining excellent performance during reliability testing
- Syringe Size: Two-part tube for lab level or LVM production, 25+25cc, 200+200cc, 600+600cc, 20L+20L Pail, other cartridge, contain available base on customer needs



Integrate two-part tube
25+25cc



Integrate two-part tube
200+200cc



Separate syringe tube



Pail Pack

Product Introduction: HLT Series

- **Product Data** *** Contact Honeywell if you are interested in more technical data

	HLT1800	HLT2000	HLT3000	HLT3500	HLT7000	HLT10000	Test method
Thermal Conductivity (W/m·K)	1.8	2.0	3.0	3.5	7	10	ASTM D5470 @ 1mm TH
Thermal Impedance(°C.in ² /W) (1mm@10psi)(Typical Value)	0.8	0.75	0.45	0.5	0.2	***	ASTM D5470
Dispense Rate(g/min) of each component 30cc syringe with no tip attachment, 0.100' orifice @0.6Mpa	100	260	250	275	60	***	
BLT(mm)	0.2	0.06	0.05	0.1	0.19	0.15	--
Hardness (shore 00 after cured)	50	50	50	50	50	***	ASTM D2240
Specific Gravity	2.0	2.8	3.1	3.1	3.5	***	ASTM D792
Fully Curing time @RT	18hr	18hr	18hr	18 hr	5.5 hr	***	Honeywell Method
Fully Curing time @100°C	30min	30min	30min	30min	30min	***	
Color A/B	A:Yellow B:White	A:Yellow B:White	A:White B:Blue	A:White B:Blue	A: Red B: White	***	Visual
Mixture A/B	1:1	1:1	1:1	1:1	1:1	***	N/A
Flammability Rating	V-0	V-0	V-0	V-0	V-0	***	UL94
Break Down Voltage(KV/mm)	≥10	≥10	≥10	≥10	8.5	***	ASTM D149

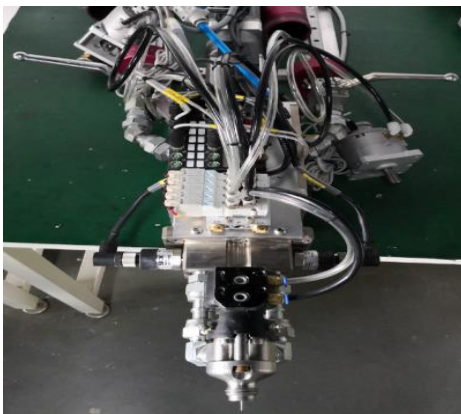
Handling Method & Storage Condition

- **Storage conditions**
 - **At 0- 35 °C / < 65% RH Storage = 6months**
 - **Storage condition may update with full verification**
- **Store syringe vertically in a cool and dry ambient environment in horizontal place. Keep away from incompatible materials as outlined in the MSDS.**
- **Do not handle, store or open the container near open flame and/or source of heat or sources of ignition.**
- **Keep syringe tightly closed except when dispensing TIM.**

Equipment / Tooling

Dispense Equipment

- Auto dispenser with programmable motion control is recommended for mass production
- Servo motor type dispensing cylinder is preferred to drive high thermal conductivity material feeding and dispensing
- Manual dispenser can be used for material testing, validation, R&D sample build with low dispense volume



Auto Tool



Manual Dispensing

Dispense Nozzle / Needle Tip

- Static Mixers tube need be used to get component A and B fully Mixing



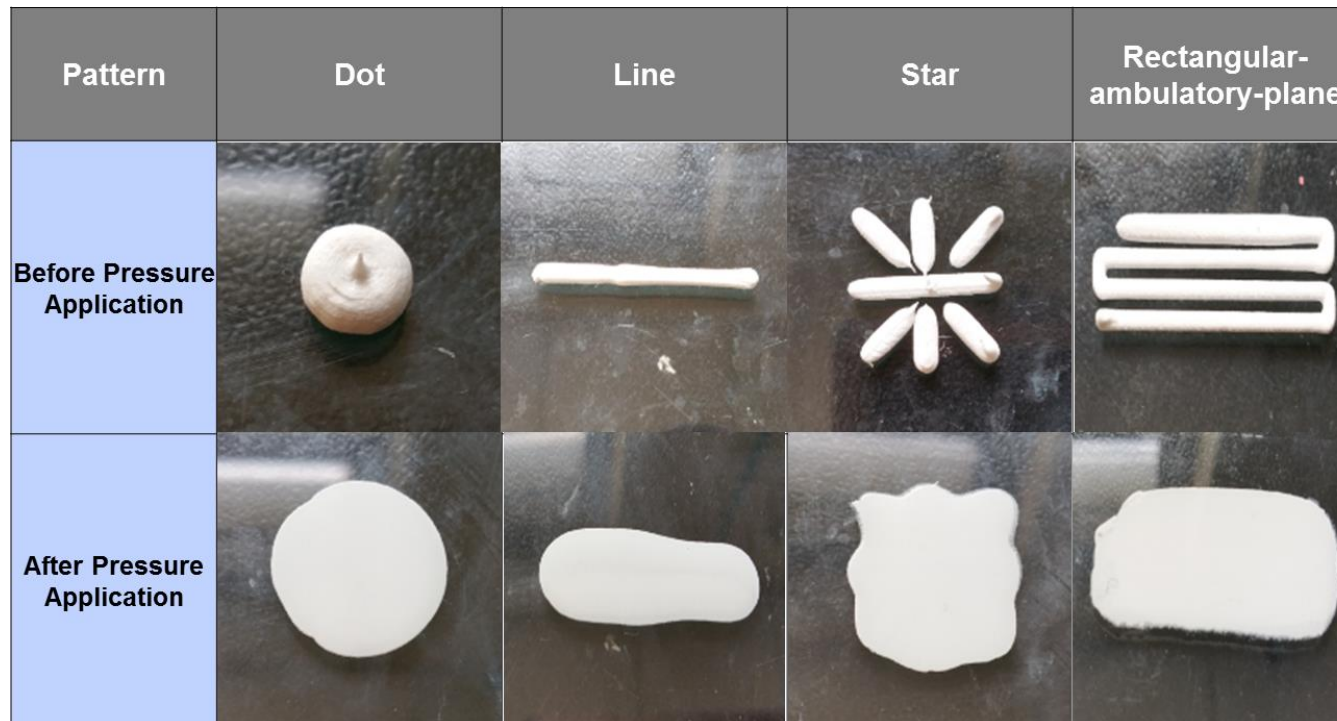
Optional:

- Plastic or Stainless steel can be added along with Static Mixers to get precise dispensing size control
- Narrow tip nozzle for small/thin applications
- Large tip nozzle for big/thick applications



Dispense Process -- Recommended Dispense Patterns

- **Dot pattern:** ultra small pad application
- **Star pattern:** small and square application
- **Rectangular-ambulatory-plane pattern:** large/thick application
- **Custom design:** based on actual application, coverage and surface; test validation is recommended



Rework Method

- **If rework is required, TIM can be removed and cleaned before/after cure**
- **Manually remove TIM material from the surface. A hard plastic edge may be applied to assist the removal of dried application as well**
- **Use an appropriate cleaning solvent such as acetone, IPA or toluene to remove any residue**
- **Solvent can be applied to soften and remove the dried applications.**
- **Re-dispense TIM material on the cleaned surface**

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