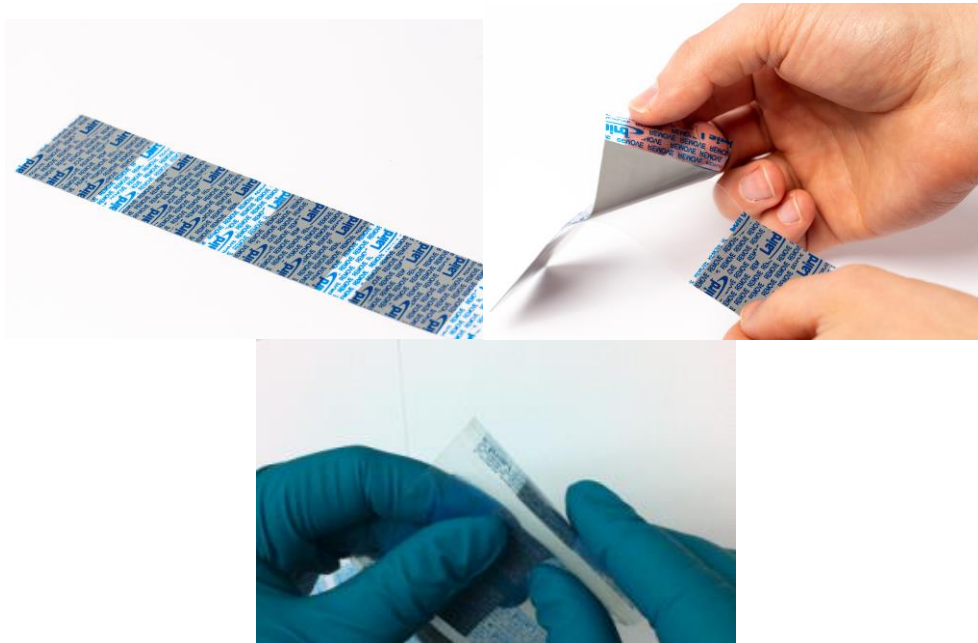


**Manual Application Method: For parts with tabbed liners:**

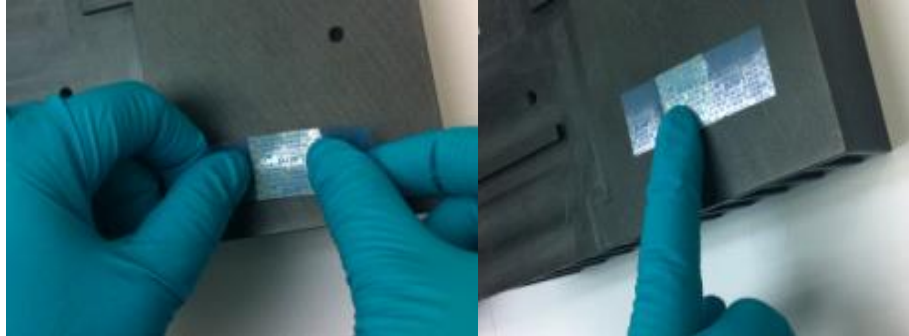
1. Material can safely be handled and applied at a temperature between 15°C and 30°C.
2. **Warning: Make sure the application surface (heatsink) is clean. No dirt, dust or chemical residue are present**
3. Remove the Tpcm<sup>™</sup> phase change material from the bottom liner by bending back the strip and gripping the top liner containing the tab.
4. Remove the top tabbed part by rolling the tab back creating a 180-degree peel angle. Do NOT pull upwards on the tab. Peeling from a corner for larger parts or parts with shorter tabs may be helpful.



5. **Warning: Do NOT attempt to “roll” the part off of the liner**



6. Carefully align and place the pad with the top tabbed liner onto a clean thermal solution.
7. Start at one edge and force the air out from under the pad by rubbing with moderate finger pressure.



8. Allow at least a 1 to 2 minutes dwell time to allow the pad to “wet” the surface of the thermal solution. (At cooler temperatures below 22C this could take longer) During this dwell time the adhesion improves. Once the material has “wetted” the surface it cannot be re-positioned.
9. When the thermal solution is ready for final assembly, remove the tab by rolling the tab back creating a 180-degree peel angle. Do NOT pull upwards on the tab. Peeling from a corner for larger parts or parts with shorter tabs may be helpful.



10. If the top liner is to be removed immediately, more pressure is needed to adhere the pad. In this case, a roller or other device should be used to apply more pressure.

## Application method: For individual parts:

1. Remove liner from one side of the pad.
2. Align the pad on the mounting surface. Apply finger pressure across the entire surface of the pad to remove any trapped air.
3. Allow at least 1 to 2 minutes dwell time to allow the pad to wet the surface of the thermal solution. During this dwell time the adhesion improves. Once the material has “wetted” the surface it cannot be re-positioned.
4. Carefully remove the remaining top liner. To assist with removing the top liner and piece of adhesive tape can be added extending out over the part to be used as a tab. See pictures below.



## Achieving Optimal Performance

In most applications under normal operating conditions the heat sink side should reach 60C for at least 3 minutes while under pressure >20 psi. Under these conditions a thin bond line is formed resulting in the optimal thermal performance. If in application these parameters are not met under normal operating conditions, a burn in operation (per mentioned parameters) may need to be added to ensure optimal performance.

## Rework and Clean up

It may be possible at room temperature to use a back-and-forth twisting motion to break the bond between the components. In many situations this may not be practical or impart too much stress. In these situations, heating the solution to over 40C is required to facilitate separation. The hotter the easier the separation will occur.

While still hot the Tpcm™ can be easily wiped off with a cloth. If allowed to cool, use either a wooden tongue depressor or a flexible plastic card (ex: credit card or hotel room key) and gently scrape material from the device surface. Do not use a metal edge or rough hard material as it may damage or scratch the surface of the heat sink.

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After removing the material from the heat sink surface, remove remaining residue with a clean dry cloth. Use acetone or other solvent and a clean cloth to clean away any remaining residue. Clean the entire surface, not just the area where there Tpcm™ was applied. Clean using a new area of the cloth until no further residue comes off on the cloth. Allow the heat sink to dry for 5 minutes at room temperature. Check to ensure no dust or particles have settled on the surface. Apply new Tpcm™ material, following the instructions above.

## Shelf Life and Storage

In order to provide customers with the longest shelf life possible and maximum flexibility in shipping, Laird thermal has implemented the packaging of phase change materials in moisture resistance vacuum bags. The product has been designed using highly stable materials and extensively tested for exposure to high heat and humidity conditions found in uncontrolled shipping environments. The result is industry leading performance and exceptional shelf-life stability. As a result of the implementation of new packaging Laird no longer requires humidity control during shipping and storage if the original bag remains unopened.

### Shelf life:

1 year from date of shipment in sealed bag

### Storage conditions:

0 to 40C in sealed bag. No humidity requirements.

If stored above 30°C or below 15°C, material must be stabilized between 15°C and 30°C for a minimum of 24 hours prior to use for best application.

### Once the bag has been opened:

Store unused parts in the original box inside of metalized bag in which it was originally sealed. Vacuum sealing the bag (if possible) will prolong the material life. At minimum folding the bag and taping it shut should be practiced.

*Temperature range:* 15-35°C

*Humidity:* less than 50%