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Product

Heat-Spring®

m2TIM™

▶ **Liquid Metal**

Solder TIM

Our Gallium-based portfolio of gallium-based liquid metal solutions draws on the company's more than 60 years of experience in manufacturing gallium-based liquid metals.

Several very low melting point Indalloy® alloys are liquid at room temperature. These gallium-based alloys are finding increased use in various applications as a replacement for toxic mercury, which has a high vapor pressure at room temperature. These alloys have reduced toxicity and lower vapor pressure than mercury.

Excellent Thermal and Electrical Conductivity

Alloy systems that are liquid at room temperature have a high degree of thermal conductivity far superior to ordinary nonmetallic liquids. This results in the use of these materials for specific heat conducting and/or dissipation applications. Other advantages of these liquid alloy systems are their inherent high densities and electrical conductivities.

m2TIM™

m2TIM™ is a unique solid/liquid hybrid approach that combines liquid metal with a solid metal preform to provide reliable thermal conductivity while eliminating the need for a solderable surface. This hybrid approach provides excellent surface wetting and low interfacial resistance, as well as eliminating the risk of pump-out of the liquid alloy.



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Gallium and the **gallium alloys**, like indium, have the ability to wet to many non-metallic surfaces such as glass and quartz. Gently rubbing the gallium alloy into the surface may help induce wetting.

Note: These alloys form a thin dull looking oxide skin that is easily dispersed with mild agitation. The oxide-free surfaces are bright and lustrous.

Applications

Typical applications for these materials include thermostats, switches, barometers, heat transfer systems, and thermal cooling and heating designs. Uniquely, they can be used to conduct heat and/or electricity between non-metallic and metallic surfaces.

Packaging

Alloys are packaged in polyethylene bottles and shipped in accordance with applicable federal regulations.

Storage/Shelf Life

Unopened bottles have a guaranteed one year shelf life. It is recommended that, as the alloy is removed from the bottle, the volume be replaced with dry argon. This will minimize the possibility of oxidation at the surface of the alloy. If the alloy has been stored below its melting point and has solidified, it should be re-melted and thoroughly shaken or mixed before use. Care should be





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Solidus	6.5°C
Composition	61.0Ga/25.0In/13.0Sn/1.0Zn
Density gm/cm3	6.37

References

1. K.Wade and A.J. Banister, "The Chemistry of ALUMINUM, GALLIUM, INDIUM, andTHALLIUM", PergamonTexts in Inorganic Chemistry, Vol. 12, 1975.

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From One Engineer
To Another®

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Indium Corporation Expert: