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# DID YOU KNOW? NTCALUG LEAD (Pb)-FREE

NTC lug thermistors have transitioned to a 100 % lead (Pb)-free construction (RoHS with no exemptions).

It's been nearly 20 years since RoHS directive 2002/95/EC – which covers restrictions for using specific hazardous substances in electrical and electronic equipment – was written. Enforcement began in July 2006, with updates in 2011 (2011/65/EU) and 2015 (2015-863). These amendments covered exemptions that continued to allow for lead (Pb) usage in the glass / non-dielectric ceramic of some passive components, and were necessitated by a lack of alternatives in the production processes for devices like NTC thermistors and assemblies.



**RoHS**  
COMPLIANT

With this in mind, a recent important product improvement from Vishay was the release of a complete NTC ceramic chip family that requires absolutely no lead (Pb) content exemptions. These new chips have also been integrated into the popular NTCALUG family of NTC thermistors / sensors that are widely used as surface temperature sensors in a broad range of electronic equipment. They provide reliable and accurate thermal management where it is crucial for equipment lifetime, and their ring tongue terminal can be easily connected to a surface in the system using a screw or bolt.

In these assemblies, the NTC chip is mounted inside the lug barrel by using appropriate thermally conducting and electrically insulating barriers. The insulated leads offer good thermal coupling performance and are capable of providing continuous operation up to 150 °C. The electrical performances of the lug and the leads are critical aspects of final assemblies, and result in a very wide range of standard sizes and customizable options being available to meet specific design requirements.

Obviously, the eventual objective of the drive to RoHS compliance is to fully remove all hazardous substances from electronics to eliminate potential issues during recycling and disposal. The next formal review of exemptions is due to occur in 2021, and therefore this NTC product material evolution could potentially result in the removal of exemptions for these types of components.

For an overview of our NTCALUG products, please visit:

<https://www.vishay.com/search?searchChoice=part&query=NTCALUG>

