July 10, 2024

RE: PFAS in PCB Cable Assemblies

Dear Valued Customer;

PCB Piezotronics is aware of regulations that will result in PFAS being restricted in the near future. PFAS are widely used, long lasting chemicals, components of which break down very slowly over time. It is a common component within cable assemblies. We are committed to the removal and replacement of PFAS in our products without compromising our functionality and efficiency. This is a change that will have significant impact on countless industries, especially cable manufacturing. Many of our current cable assemblies have PFAS in them and we are reviewing replacement products that do not compromise any of our efficacy.

Although we believe PCB will receive exemptions, it is anticipated that many of our customer's products may be affected by PFAS restrictions. Through extensive testing and vetting of our supply chain, we have identified PTFE, Vinylidene Fluoride-Hexafluoropropene Polymer, and Perfluoroalkoxy Alkane in our cable assemblies.

PTFE connectors have chemical, thermal, mechanical and electrical properties that are capable of satisfying the most demanding requirements in the industry. It is anti-adherent, low friction, resistant to almost all chemical products, inflammable and has excellent electrical properties. Many of our cable connectors use poly-tetrafluoro-ethylene (PTFE) because of its wide temperature range and excellent electrical properties.

PTFE and Perfluoroalkoxy Alkane is commonly used in cables due to their superb fire, smoke and chemical resistance properties. PTFE also has the best electrical properties and the widest temperature range of any plastic material – being able to withstand everything from -200ºC up to +260ºC and even up to +400ºC for a short length of time. PTFE is a very stable chemical and will not outgas in vacuum or leave residue. Perfluoroalkoxy Alkane (PFA) has similar applications to PTFE, but is more chemical resistant and more flexible. It is needed in situations requiring the low friction of PTFE, but necessitates either more flexibly or chemical resistance. PFA, during manufacturing, will have trace long chain perfluoroalkyl carboxylates due to the process of degradation of the ester bond in the PFA formula. The degradation is from initial manufacturing and does not increase over time. Due to the low concentration and stability of the situation, it has a derogation/exemption from restriction in the EU. Thus, some of our cables have PTFE and/or Perfluoroalkoxy Alkane in them.

Vinylidene Fluoride-Hexafluoropropene Polymer is a Fluoroelastomer found in some of our wires. Vinylidene fluoride-hexafluoropropene polymer (commonly called Viton) is the most durable and high performing rubber on the market. Viton is a generally accepted generic term for a brand of Fluoroelastomers called FKM (or Vinylidene Fluoride-Hexafluoropropene Polymer). Viton is highly resistant to water and oils, making it compatible with hydrocarbons, lubricating and fuel oil, hydraulic oil, gasoline, kerosene, vegetable oils, alcohol and diluted acids. Viton adheres well to metal and has a lower probability of fire than other sealing rubbers. Viton is less susceptible to decay under increased oxygen conditions. Viton performs well in harsh environments, in temperature extremes and with harsh chemicals. The rubber is ideal for operating in hot and corrosive environments in temperatures up to 200 °C or even 220 °C for short periods of time — indications that Viton is both weather and ozone resistant. Thus, some of our cables have Vinylidene Fluoride-Hexafluoropropene Polymer with in them.

Teflon Tape is found in some of our cables. PTFE's versatile performance properties including non-stick release, high temperature rating, water and chemical resistance, and dielectric strength enable PTFE tapes to be used in a variety of applications. These properties help to improve performance where physical characteristics are important. Common PTFE Tape applications include wrapping, insulating, separating or gap filling. PTFE tape is hydrophobic (water proof), very low friction, provides lubrication properties to other materials, chemically inert, pliable, temperature resistant, pressure resistant, and non-flammable. PTFE tape's hydrophobic nature and chemical inertness make it ideal for drinking water and food applications. Thus, it is found in some of our cable assemblies.

We are investigating the functionality of the PFAS in our Cable assemblies and how we can replace them Our team is analyzing and reviewing if suitable replacements are on the market. There are currently some items in our products that have no PFAS free replacement available. PCB is working diligently on this project, and have requested exemptions. We understand the need for answers and replacements as soon as possible. If there are any questions, please do not hesitate to contact your PCB sales associate and cc IntlCompliance@pcb.com.

Thank You,

Wendy Willard
Regulatory Affairs and Product Certification Coordinator
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PFAS	PTFE Wire	Fluoroelastomer	Teflon Tape	Co-Axial Connector	Perfluoroalkoxy alkane
Intentionally added	Yes	Yes	Yes	Yes	Yes
Chemical	PTFE	Vinylidene fluoride-hexafluoropropene polymer	PTFE	PTFE	Perfluoroalkoxy alkane
Cas number	9002-84-0	9011-17-0	9002-84-0	9002-84-0	26655-00-5
Concentration in component	50%	100%	75%	50%	100%
Concentration in product	0.1% to 1%	0.1% to 1%	<0.1%	0.1% to 1%	<0.1%
Process or Use Operation	U - Use - non-incorporative activities	U - Use - non-incorporative activities	U - Use - non-incorporative activities	U - Use - non-incorporative activities	U - Use - non-incorporative activities
Function Category	F034 - Insulators	F006 - Sealant (barrier)	F006 - Sealant (barrier)	F034 - Insulators	F034 - Insulators