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PHTHALATE STATEMENT

Wurth Electronics Midcom is dedicated to supporting our customers in satisfaction of the many and varied environmental responsibilities that we both face. This statement clarifies the occasional confusion that arises regarding the use and restrictions of substances called phthalates.

Restrictions for phthalates are expanding due to demonstrated or suspected toxic effects. Initial phthalate restrictions focused on exposure routes that could cause the greatest damage, such as through children's toys, items having frequent skin contact, or phthalates with particularly toxic characteristics. While phthalates that have been carefully studied can have greatly varying hazard characteristics, the risk of simultaneous exposure to multiple phthalates is more difficult to quantify. As a result, initiatives have arisen that go beyond restrictions to dictate complete elimination of phthalates.

In recognition of the strictest compliance initiatives leaning toward phthalate-free, Wurth Electronics Midcom has researched and clarified the meaning of "phthalate" and "phthalate-free". It is apparent across representative initiatives[1] and regulatory bodies[2,3,4] that regulated phthalates are only those intentionally added to function as plasticizers, or that remain unchanged when in mixtures and are diesters of orthophthalic (benzene-1,2-dicarboxylic) acid, with complete disregard for isophthalic (meta-phthalic or benzene-1,3-dicarboxylic) acid and terephthalic (para-phthalic or benzene-1,4-dicarboxylic) acid. "Phthalate-free" therefore means the absence of intentionally added orthophthalate plasticizers or mixtures containing orthophthalates.

A few phthalates have dual use: either as plasticizers or as an intermediate in the manufacture of polymer materials. When used as a plasticizer, they remain as discrete molecules in a mixture with other substances and are also capable of migrating out of those mixtures, contributing to exposure risk. When used as an intermediate, phthalates are reactive and chemically combine, losing their properties; no longer discrete molecules after reaction, only a solid polymer substance exists that cannot migrate. A common phthalate polymer is PET, poly(ethylene terephthalate), used worldwide as food and beverage packaging. Phthalate polymers in textiles are well-known as polyesters.

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1. Hewlett-Packard HX-00011-00, "General Specification for the Environment", 29 July 2020.

2. United States Environmental Protection Agency, numerous resources.
https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/risk-management-phthalates

3. Denmark Ministry of the Environment Environmental Protection Agency, "Phthalate Strategy", 1 Jul 2013 (and many others).
https://www2.mst.dk/Udgiv/publications/2013/06/978-87-93026-22-3.pdf

4. EC 1907/2006 Annex XVII, List of Restrictions, current to 10 August 2020.
https://echa.europa.eu/substances-restricted-under-reach

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Typical Wurth Electronic Midcom phthalate polymers that are not subject to restrictions or that do not affect “phthalate-free” status due to their polymerized state include, but are not limited to:

Item	Name	C.A.S. No.
DAP	poly(diallyl phthalate)	25053-15-0
PBT	poly(butylene terephthalate)	26062-94-2
PET	poly(ethylene terephthalate)	25038-59-9
LCP	poly(p-hydroxybenzoic acid/biphenol/orthophthalic acid/isophthalic acid)	60088-52-0
MHHPA	methylhexahydrophthalic anhydride (polymer intermediate)	19438-60-9

Polymer phthalates are often listed in Wurth Electronic Midcom material declarations. In some cases the word “phthalate” occurs within a polymer name, or specific phthalates may be listed as a polymer intermediate. Regardless, Wurth Electronics Midcom materials do not contain intentionally added orthophthalate plasticizers and are in compliance with “phthalate-free” initiatives and other restrictions such as, but not limited to: Bose OP285799, Denmark BEK No. 1113, European Union EC 1907/2006, and Hewlett-Packard HX-00011-00.

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