

Declaration of Conformity on the Restriction of per- and polyfluorinated Chemicals (PFAS)

Revision: August 2024

A proposal for the comprehensive restriction of per- and polyfluoroalkyl substances (PFAS) under the European Chemicals Regulation REACH is currently being discussed by the committees of the European Chemicals Agency (ECHA). This letter provides you with an update on the impacts on unassembled printed circuit boards and our perspective on the current status quo. PFAS regulated under EU chemical legislation:

Subject/Subject groups	Cas number	Limitations in REACH, Annex XVII	The candidate list, SVHC substances in REACH	Harmonized classification and labelling, Annex VI of CLP	POPs Regulation	Subject/Subject groups	Cas number	Limitations in REACH, Annex XVII	The candidate list, SVHC substances in REACH	Harmonized classification and labelling, Annex VI of CLP	POPs Regulation
Perfluorooctanoic acid (PFOA), its salts and related substances	335-67-1 and more		X (only Cas No. 335-67-1)	X	X	Heptacosulfurotetradecanoic acid (PFTeDA) (C14 PFCA)	376-06-7	X	X		
Perfluorooctane sulfonic acid (PFOS) and its derivatives	1763-23-1 and others			X	X	Pentacosulfurotridecanoic acid (PFTIDA) (C13 PFCA)	72629-94-8	X	X		
Ammonium penta-decafluorooctanate (APFO)	3825-26-1		X	X	X	Tricosulfurododecanoic acid (PFDoDA) (C12 PFCA)	307-55-1	X	X		
Perfluorohexanesulfonic acid (PFHxS), and its salts	355-46-4 and more		X		X	HFPO-DA (GenX)	13252-13-6 and more		X		
Perfluorohexanesulfonic acid (PFHxS)-related substances					X	Perfluorobutanesulfonic acid (PFBS) and its salts	375-73-5 and more		X		
C9-C14 PFCA-related substances		X				3,3,4,4,5,5,6,6,7,7,8,8,8-Tridecafluorooctyl-silanetriol (TDFA) and its derivatives		X			
Perfluorononanoic acid (PFNA), and its ammonium and sodium salts (C9 PFCA)	375-95-1 and more	X	X	X		Perfluoroheptanoic acid (PFHpA) and its salts	375-85-9 and more		X	X (Cas No 375-85-9 only)	
Perfluorodecanoic acid (PFDA), and its ammonium and sodium salts (C10 PFCA)	335-76-2 and more	X	X	X		3,3,4,4,5,5,6,6,7,7,8,8,8-Tridecafluorooctan-1-ol (6:2 FTOH)	647-42-7			X (to be applied from 1 September 2025)	
Heptacosulfuroundecanoic acid (PFUnDA) (C11 PFCA)	2058-94-8	X	X								

Source: <https://www.kemi.se/hallbarhet/amnen-och-material/pfas>

Current Regulatory Status in the EU

Without a detailed risk assessment of the various applications of individual substances, a proposal by five European countries, including Germany, aims to regulate approximately 10,000 substances with varying properties at once, with the ultimate goal of banning them altogether. The first legislative proposal from the EU Commission is not expected before early 2027.

What consequences would a PTFE ban have for your printed circuit board products?

The broad portfolio of high-frequency laminate materials includes several product lines based on PTFE. Due to their reliable, stable electrical, and mechanical properties, these products are selected by you for your specific printed circuit board applications, including radar applications for automotive, aerospace, and military technology, as well as wireless communication technology. As a result, the unrestricted use of these PTFE-based laminate types for these products would no longer be possible.

The KSG Group has, to the best of its knowledge, carefully researched the currently available base materials and auxiliary substances. Perfluorinated alkyls are only present in printed circuit boards if the customer selects PTFE-containing base materials (Teflon) for their products. These are present in high concentrations (>10%). High-quality printed circuit boards for high-frequency applications are currently manufactured using PTFE-containing base materials. We are closely monitoring our suppliers' efforts towards potential substitutions. All other base products are free from PFAS substances (declaration threshold 0.1%).

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