

29-Jan-2024

TTM PCB REACH SVHC STATEMENT

EU REACH (1907/2006) impact on unpopulated printed circuit boards (PCBs) manufactured by TTM Technologies, Inc. (TTM)

TTM is a “build to print” manufacturer of custom unpopulated printed circuit boards (bare boards). Each part is manufactured to order and in accordance with the design and material specifications provided by the part designer when each order is placed.

TTM is a non-EU producer of articles only. Therefore registration of substances used to manufacture TTM products is not required under the REACH regulation. TTM products do not have any intentional release of chemical substances during normal use.

Bare boards manufactured by TTM:

- Do not violate any REACH Annex XVII restriction(s) last updated on 12-Dec-2023 ([ECHA Substances restricted under REACH](#)).
- Do not contain any substances on the REACH Annex XIV “Authorization List” last updated on 08-Apr-2022 ([ECHA Authorisation List](#)).
- Meet the REACH Article 3.3 definition of “article”, but may also be “complex objects”;
- Do not contain any reportable “SVHC” ingredients listed on the REACH Candidate List last updated on 23-Jan-2024 at a concentration of 0.1% or greater with the potential exception of those substances listed in Table 1 below ([ECHA Candidate List of substances of very high concern for Authorisation](#)).

Table 1

Substance	CAS No.	Details
Lead (Pb)	7439-92-1	This SVHC is reportable if tin/lead solder was required by the customer’s design AND the weight of the SVHC divided by the weight of the bare board is 0.1% or greater.
4,4'-isopropylidenediphenol (Bisphenol A, BPA)	80-05-7	The SVHC may be reportable in some laminate and prepreg materials used by TTM, including but not limited to Panasonic Megtron 4® (R-5725/R-5620) and TUC ThunderClad 1+® (TU-863+). Megtron 4 is reported by the manufacturer to always contain BPA in excess of 0.1%.
Hydrogenated Terphenyl	61788-32-7	The SVHC is reportable if Henkel ECCObond® 45 Black Epoxy Fillet was required by the customer’s design AND the weight of the SVHC divided by the weight of the bare board is 0.1% or greater. Note: ECCObond 45 is only used on flex and flex-rigid board designs.
N,N-Dimethylacetamide (DMAc)	127-19-5	The SVHC may be reportable in some rigid and flexible laminate materials used by TTM. After copper is removed during the board imaging process, some printed circuit boards may contain a reportable level of DMAc.

Substance	CAS No.	Details
1,3,5-Triglycidyl isocyanurate (TGIC)	2451-62-9	This SVHC is reportable in certain soldermask products used by TTM if the weight of the SVHC divided by the weight of the bare board after soldermask application is 0.1% or greater. This SVHC is likely only reportable on very thin boards.
2-Methyl-1-(4-(methylthio)phenyl)-2-morpholinopropan-1-one	71868-10-5	This SVHC is reportable in certain soldermask products used by TTM if the weight of the SVHC divided by the weight of the bare board after soldermask application is 0.1% or greater. This SVHC is likely only reportable on very thin boards.
2-Benzyl-2-dimethylamino-4'-morpholinobutyrophenone	119313-12-1	This SVHC is reportable in certain soldermask products used by TTM if the weight of the SVHC divided by the weight of the bare board after soldermask application is 0.1% or greater. This SVHC is likely only reportable on very thin boards.
Melamine	108-78-1	This SVHC is reportable in certain soldermask products used by TTM if the weight of the SVHC divided by the weight of the bare board after soldermask application is 0.1% or greater. This SVHC is likely only reportable on very thin boards.

Should you have any questions on this information, please contact your TTM representative.

Sincerely,



Meaghan Jones
Environmental and Sustainability Manager
TTM Technologies, Inc.