

# REACH workshop PCB-SMT WG

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European Space Agency

PCB/SMT WG of the Component Technology Board CTB



Space Agencies



PCB manufacturers ESA qualified







ThalesAlenia RUAG

### Leading European OEMs









which is a CMR (Carcinogen, Mutagen or Reprotoxic) product.

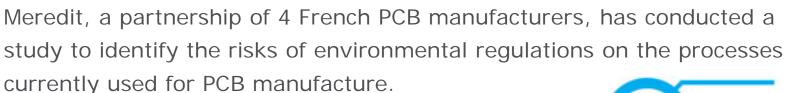
Process used by several PCB manufacturers contains a salt of mercury as a stabilizer. Mercury will be banned around 2017 according to a European Directive on quality of water.

In addition all current electroless processes contain Formaldehyde

- 1) Electroless Copper

1) MEREDIT







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#### 2) Tin/Lead finish

Two different routes to Tin/Lead finish

- the lead-<u>methanesulfonate</u> route: the product is a CMR and in the REACH SVHC list
- the fluoroborate route: <u>boric acid</u> used in this process is a CMR and in the REACH SVHC list
- ⇒ Both Tin/Lead processes are under the threat of obsolescence.
  (And in addition affected by an exemption to RoHS regulation)





### 3) ENEPIG finish

ENEPIG is considered as a possible substitution for Tin/Lead and ENIG.

- <u>Nickel Sulfate</u> used in these processes is a CMR classified product.
  But it is currently not in the Reach List.
- 4) electrolytic Nickel/Gold finish
- Process uses Boric Acid, already in the REACH list.

# 1) MEREDIT – full list



PROCESS	BRAND NAME	SUBSTANCES	CONCERN	REMARKS
ARGENTIC FILM S DEVELOPPERS		HYDROQUINONE	CMR	NO ALTERNATIVE
ELECTROLESS COPPER	CIRCUPOSIT NEUTRALISER 3319	HYDROXYLAMINE NITRATE	CMR	SUBSTITUTION POSSIBLE NO TESTS
	CUPOSIT 328Q	PHENYLMERCURY ACETATE	WATER DIRECTIVE Hg PHASE OUT	SUBSTITUTION EXISTS NOT TESTED FOR HIREL
	CUPOSIT 328A ET Y OR	FORMALDEHYDE (FORMOL)	CMR	POSSIBLE SUBSTITUTION IS BEING DEVELOPPED TO BE TESTED FOR HIREL
	Cupraluux ini NOVIGANTH HC			
TIN/LEAD FINISH	LEAD METHANE SULFONATE	LEAD	CMR LISTE SVHC REACH	NO SUBSTITUTION
	NTS 340	THIOUREE BORIC ACID	CMR PROBABLE CMR	
	Bain SN/pb	Bonde neib	LISTE SVHC REACH	

# 1) MEREDIT – full list



PROCESS	BRAND NAME	SUBSTANCES	CONCERN	REMARKS
SN CHIMIQUE	STANNATECH 2000 CONC STANNATECH SN SOL CORRECTIVE	THIOUREE	CMR PROBABLE	NO SUBSTITUTION
NICKEL-OR CHIMIQUE	AUROTECH CNN A	NICKEL DE NICKEL	CMR	NO SUBSTITUTION
NICKEL ELECTROLYTIC		BORIC ACID	CMR LISTE SVHC REACH	SUBSTITUTION INVETIGATED
SERIGRAPHIE	ENCRE MARQUAGE XZ81 METECH 8621 / 8631	FORMALDEHYDE	CMR	SUBSTITUTION INVESTIGATED
SOLDERMASK	PROBIMER77/9000	IRGACURE 907	CMR	GENERAL PROBLEM OF VARNISHES



 The industry has to investigate with the chemical manufacturers whether they will **ask for authorization** of these substances.

Or

 Evaluate alternative processes when available which need to be qualified for space.

Considering the time constraint probably a combination of both will be needed.



### REACH risk assessment for PCB manufacturing; Lead (II) bis (methanesulfonate) used at Electolytic deposition of SnPb

A summary of the Lead (II) bis (methanesulfonate) compound status was give at MPTB Meeting November 2014. ESA/TR indicated that this is a significant substance for space manufacturing operations and that this issue and its status would be raised further in coordination with ESA/SH with the CTB.

AI26-005 ESA/TR to coordinate with ESA/SH and notify the CTB on the present status of Lead (II) bis (methanesulfonate) in the authorisation process.



Qualified PCB manufacturers have been requested to provide a company strategy for the possible obsolescence of qualified processes due to REACH, RoHS and/or conflict minerals legislation