

**REACH workshop  
PCB-SMT WG**

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# PCB/SMT WG of the Component Technology Board CTB



## Space Agencies



## PCB manufacturers ESA qualified



## Leading European OEMs



# 1) MEREDIT

Meredit, a partnership of 4 French PCB manufacturers, has conducted a study to identify the risks of environmental regulations on the processes currently used for PCB manufacture.



## 1) Electroless Copper

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

## 2) Tin/Lead finish

Two different routes to Tin/Lead finish

- the lead-methanesulfonate route: the product is a CMR and in the REACH SVHC list
- the fluoroborate route: boric acid 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)

# 1) MEREDIT



## 3) ENEPIG finish

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

- Nickel Sulfate 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 Cupraluux ini NOVIGANTH HC	FORMALDEHYDE (FORMOL)	CMR	POSSIBLE SUBSTITUTION IS BEING DEVELOPPED TO BE TESTED FOR HIREL
TIN/LEAD FINISH	LEAD METHANE SULFONATE  NTS 340 Bain SN/pb	LEAD  THIOUREE BORIC ACID	CMR LISTE SVHC REACH  CMR PROBABLE  CMR LISTE SVHC REACH	NO SUBSTITUTION

# 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 INVESTIGATED
SERIGRAPHIE	ENCRE MARQUAGE XZ81 METECH 8621 / 8631	FORMALDEHYDE	CMR	SUBSTITUTION INVESTIGATED
SOLDERMASK	PROBIMER77/9000	IRGACURE 907	CMR	GENERAL PROBLEM OF VARNISHES

# 1) MEREDIT – conclusion

- 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 Electrolytic deposition of SnPb**

A summary of the Lead (II) bis (methanesulfonate) compound status was given 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.*

### 3) REACH strategy from PCB manufacturers



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