

## Questionnaire

1) Contact Information

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2) Area of Activity

Industry

3) Substance of concern

TBBA

4a) TBBA is used as reactive component to obtain a modified epoxy resin of class V0 acc. UL 94

( FR-4 resin )

4b) The modified resin is used to produce glass reinforced, copper cladded base materials for the production of printed circuit boards for the electronic industry.

4c) Some resin systems can be modified with phosphorous and/or nitrogen components to obtain halogen free systems.

5a) We are using appr. 500 jatos TBBA to produce accordingly resin systems. We do not use it as additive!

5b) The share of halogen free systems is currently < 5%. A forecast for the comming years is very difficult. But halogen free systems will never substitute 100% of the brominated systems assuming that the international standards will not change.

6a) see comments

6b) see comments

## **Comments**

We would like to comment the TBBA-ranking of the Austrian Umweltbundesamt GmbH as follows :

- 1) We are missing a clear differentiation between TBBA as additive and TBBA as reactive component.
- 2) The evidence of waste relevance is a major argument to identify TBBA to be of second highest priority.

We quote :"formation of PCDD/Fs, PCBs, PAHs and VOC during combustion is very likely"

We would be very interested to receive studies showing that brominated components can be transformed into chlorinated components by combustion !

We quote again : "workers had elevated blood levels"

If they are talking about an elevated TBBA-level than it's only because of TBBA as additive.

If TBBA is reacted into epoxy resins, as it is true in our products, it will never show elevated blood levels.

Isola is very interested to discuss all TBBA issues on an objective and scientific base as we did it in the past.

Thus, we are astonished about the superficial knowledge of the Austrian Umweltbundesamt and the resulting ranking of TBBA.