AeroSpace and Defence Industries Association of Europe

Position Paper

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ASD feedback to the Oeko Institut consultation linked to the review of the list of restricted substances under RoHS

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About ASD

The AeroSpace and Defence Industries Association of Europe represents the aeronautics, space, defence and security industries in Europe in all matters of common interest with the objective of promoting and supporting the competitive development of the sector. Its membership comprises major European aerospace and defence companies as well as national associations.

ASD thanks the Oeko Institut for giving stakeholders the opportunity to provide input in their preparation of the study to support the review of the list of restricted substances under RoHS 2.

ASD wishes to make some general comments on the overall evaluation of the seven substances short-listed for the Oeko Institut's assessment. In addition, ASD highlights specific issues related to five of them.

General comments

The European Chemicals Agency, through the REACH legislation, will also be evaluating these same seven substances/substance groups during the forthcoming two years. Consequently, we have concerns that there is a real possibility of divergence between the conclusions of these two risk assessments.

Whilst we have no issues with the ongoing process and the beneficial intent of the Oeko Institut's activities such divergence would lead to severe difficulties in the supply chain of our business.

Despite most of Aerospace and Defence applications (transportation modes, equipment which is necessary for the protection of the essential interests of the security of Member States and equipment designed to be sent into space) being outside of the scope of RoHS, the associated supply chain can nonetheless be affected by RoHS as a result of its wider customer base. Thus, as Aerospace and Defence applications represent a small part of the electronics markets, our concern is that inclusion of new substances in the Annex II of RoHS will lead to obsolescence and we may find it increasingly difficult to obtain products that use some of the chemicals currently discussed, although we currently have no viable alternative for these uses.

The Aerospace and Defence sector is governed by strong regulation to protect product integrity. Once a product is certified, the data describing the certification basis is frozen, any change is tightly controlled and requires strong substantiation. The certification basis includes the configuration bill of material, design definitions and drawing, materials and processing data, and in some cases, the method of manufacture and source of supply. In addition to this, substantial qualification testing and analysis data at component, assembly and product level is needed, as well as substantiated evidence to satisfy a range of certification conditions and standards, maintenance/repair data, technical publications and operating manuals.

Furthermore, qualification will not necessarily prove the longevity of redesigned electronic equipment. Only careful monitoring of in-service use data over a number of years can do that. A change from one chemical to another may well take more than five years to safely introduce, since many introductions require flight hours to verify equivalency.

The cumulative effect of numerous changes to electronic equipment, especially where the changes are made over a short period of time, can potentially lead to a substantial and unmanageable increase in the scale of this activity.

Specific issues

- TBBPA is the flame retardant of choice for over 90% of high reliability PCB's. Changes to the fire retardant may result in a weakening of the PCB resin because greater percentages of the substitutes are required. The potential for reduced availability of PCBs containing TBBPA is a concern because the substitutes are unlikely to perform sufficiently well when subjected to heat / vibration in high-stress environments.

- Beryllium in copper is found in a significant range of Aerospace application. However, the total usage is small. Due to its non-magnetic and spark-free properties beryllium is of great importance as a material for e.g. switching contacts.
- Nickel chemicals are used in creating ENIG finish to PCB's and are widely used as a surface plated finish in electronics and power usage equipment. After the restriction of lead plating, use of nickel plating became essential as a suppressor of Tin whisker growth on PCBs and electronic components. Cobalt might be a potential replacement alternative to Nickel in some applications, but Cobalt is also in the scope of this review. This eliminates a possible alternative for individual applications.
- Indium Phosphide is beginning to be used in high frequency in power electronics due to its superior semiconducting properties. Indium Phosphide is also used in optoelectronics (LED, lasers, photo-detectors…).
- Cobalt chemicals are intermediate process chemicals and unlikely to remain on the finished product.

Conclusions

ASD calls for avoiding any inconsistency between REACH and RoHS when it comes to the evaluation of the seven selected substances. Should the parallel evaluations result in any inconsistency, this would lead to severe difficulties in the supply chains of our business.

ASD also highlights specificities of five of the substances under scrutiny which make their possible inclusion under RoHS concerning.

[Signature on file], Jan Pie, ASD Secretary General, 14th June 2018