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Carl-Otto Gensch
Technical Expert
Project Leader & Exemption Evaluation
Oeko-Institut
P.O. Box 17 71
D - 79017 Freiburg
Germany

Reference: Exemption 6c

Dear Mr. Gensch:

I have been tracking with interest the work of the Oeko Institut regarding the renewal of exemptions for the European Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment. The work is important because the decision makers in the European Community will rely on the recommendation of the Oeko Institut. The recommendation must accurately reflect the balance between technical feasibility and negative environmental, health and consumer safety impact. The Oeko Institut is leading this consultation with the intention of bringing all of the stakeholders knowledge together to form an accurate and practical recommendation.

GENBAND is a company that provides telecommunications equipment to many of the telecommunications companies in Europe and the rest of the world. That puts GENBAND squarely in the target group “EEE Industry”. GENBAND purchases electrical components and products from other OEM manufacturers. But GENBAND does not do research into the material selection or material engineering. Thus GENBAND is not able to comment directly on the technical aspects of material selection. GENBAND component selection ensures that the end use requirements of the product are met, without researching the basis for our supplier’s designs and material selections. While GENBAND is an OEM, and therefore not directly knowledgeable about the material and manufacturing technologies, we do track very carefully the RoHS status of all the products we ship to Europe. GENBAND has just completed a thorough review of all the products and all the components supplied to GENBAND for the European

market. We are in a position to assist in understanding the scope of application for the exemptions. We support the renewal of exemption 6c.

While GENBAND could provide insight on the application of many of the exemption renewal requests, our contribution will be limited to Exemption 6c. The reason for selecting this exemption is that there is an error in the comprehension of the renewal request that could adversely affect GENBAND, the telecommunications industry and the computer industry, as well as impact the safety of telecom central offices, server farms and even individual consumers.

The understanding of the failure mechanism in connectors must be clearly understood. In the Consultation Questionnaire Exemption No. 6c (renewal request) on the second page, under the heading "Other components" there is the following statement.

> *"The applicant PHOENIX Contact GmbH&Co. KG and HARTING KGaA indicate contact spring legs, crimp contacts and also gear pinions as applications of leaded copper alloys. PHOENIX Contact GmbH&Co. KG and HARTING KGaA generally refer to the following functions of lead as chip breaker, internal lubricant, increase of corrosion resistance, prevention of cracks, but specify the following characteristics for the following components:*
>
> *a high relaxation behaviour achieved with leaded copper alloys reduces the contact forces in spring contacts;"*

What PHOENIX describes in their renewal application is that the "leaded copper alloys" have a lower reduction in contact force than the potential replacement materials. The point should be phrased:

> the lower relaxation behaviour achieved with leaded copper alloys maintains the contact forces in spring contacts;

I have taken the liberty of adding a few notes to Figure 4 from the PHOENIX Renewal Request to make the Pass/Fail Criteria clear.

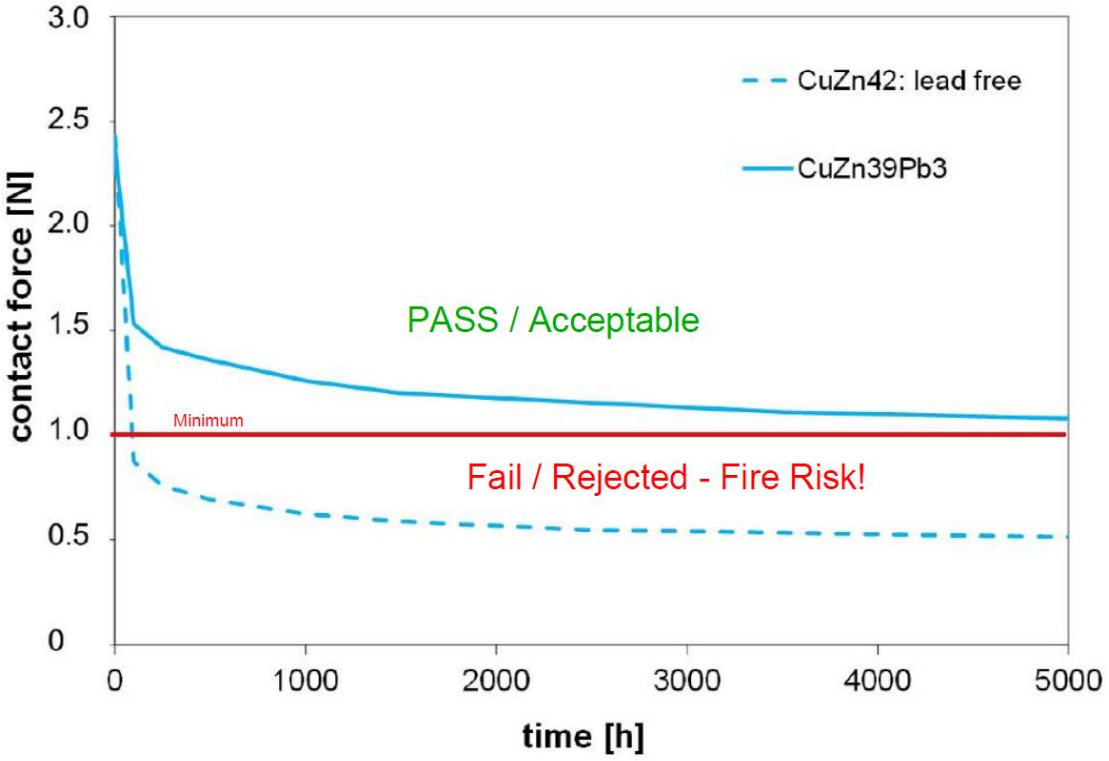

Figure 4: Contact force in relation to time at 125 °C.

Please note that the lead free alternative fails and is a fire risk. The fire risk is created as the contact metal relaxes, causing the contact force to drop, increasing the contact resistance, increasing the heat in the connector, leading to melting and potentially fire.

Now I will proceed with responding to the 6c Consultation Questionnaire.

Question 1

Not able to comment.

Question 2

a) GENBAND cannot provide an exhaustive list. But we can provide the following list of applications where GENBAND products use this exemption.

OEM products use the 6c exemption. OEM products range from full equipment bays to individual circuit cards.

Connectors use the 6c exemption.

Power supplies use the 6c exemption.

Fans use the 6c exemption.

Heatsinks use the 6c exemption.

Electrical switches use the 6c exemption.

Potentiometers use the 6c exemption.

EMI gaskets use the 6c exemption.

b) Not able to comment.

c) Not able to comment.

Question 3

Not able to comment.

Question 4

Not able to comment.

Question 5

Not able to comment.

Question 6

Not able to comment.

Question 7

a) Contact Resistance and Relaxation Resistance are properties identified by PHOENIX that affect connectors.

   The Mitsubishi-Shindoh in their contribution indicate that electrical and thermal conductivity are affected by the lead content. This makes their material not suitable for electrical conductors.

b) Not able to comment.

c) Not able to comment.

Question 8

No.

Sincerely,

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Component Engineer

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