

Consultation Questionnaire Exemption No. 6c (renewal request)

Exemption for „Copper alloy containing up to 4 % lead by weight“

Abbreviations and Definitions

EEE Electrical and Electronic Equipment

Background

The Oeko-Institut and Fraunhofer IZM have been appointed within a framework contract¹ for the evaluation of applications for the renewal of exemptions currently listed in Annexes III of the new RoHS Directive 2011/65/EU (RoHS 2) by the European Commission.¹

Contribution

The response to the contribution of Mitsubishi Shindoh of 07 October 2015 is submitted on behalf of the participating industry associations and companies listed below (Applicant 3 in the 2015 consultation of RoHS exemption 6c):

Association of Equipment Manufacturers (AEM)



IPC-Association Connecting Electronics Industries



Communications and Information network Association of Japan (CIAJ)

マークカラー-英文100%



Japan Business Council in Europe (JBCE)
ID: 68368571120-55



European Committee of Domestic Equipment Manufacturers (CECED)
ID: 04201463642-88



Japan Business Machine and Information System Industries Association (JBMIA)
ID: 246330915180-10



European Coordination Committee of the Radiological, Electromedical and Healthcare IT Industry (COCIR)
ID: 05366537746-69



Japan Electrical Manufacturers' Association (JEMA)



DIGITALEUROPE
ID: 64270747023-20



Japan Electronics and Information Technology Industries Association (JEITA)
ID: 519590015267-92



¹ Contract is implemented through Framework Contract No. ENV.C.2/FRA/2011/0020 led by Eunomia

European Copper Institute (ECI)
ID: 04134171823-87



Knowles



European Garden Machinery industry Federation (EGMF)
ID: 82669082072-33



LIGHTINGEUROPE
ID: 29789243712-03



European Partnership for Energy and the Environment (EPEE)
ID: 22276738915-67



Littelfuse



European Passive Components Industry Association (EPCIA)
ID: 22092908193-23



Orgalime, the European Engineering Industries Association
ID: 20210641335-88



European Power Tool Association (EPTA)
ID: 85810161889-67



Wirtschaftsvereinigung Metalle (WVM)
ID: 9002547940-17



European Semiconductor Industry Association (ESIA)
ID: 22092908193-23



ZVEI - German Electrical and Electronic Manufacturers' Association
ID: 94770746469-09



Information Technology Industry Council (ITI)
ID: 061601915428-87



Mitsubishi Shindoh who is the owner of the patent on ECO BRASS[®] made on 07th of October 2015 a contribution on the use of ECO BRASS[®] in the electrical and electronic industry. According Mitsubishi Shindoh:

“Although it is not possible for ECO BRASS to replace all leaded copper alloys, ECO BRASS can be a substitute material for many components especially where high electrical conductivity is not critical.”

A similar contribution was already made by Mitsubishi Shindoh on 10th of December 2014 regarding exemption 3 of ELV.

The findings on ECO BRASS[®] in the electrical and electronic industry are consistent with those in the automotive industry. The automotive industry associations ACEA, CLEPA, JAMA, KAMA et al. have provided several contributions that disagreed with Mitsubishi Shindoh which we strongly concur with.

Among others:

The automotive industry associations gave the following statement:

“These results have shown that the substitution of lead by silicon in brass strongly deteriorates technical issues like micro-machining, electrical conductivity, galvanic corrosion, mechanical relaxation, tribological behavior, etc.”²

In all six applications on extension of RoHS exemption 6c it was shown that ECO BRASS[®] was tested for a high number of applications and it failed to be an acceptable substitute.

Some parts of the contribution of Mitsubishi Shindoh can be highlighted:

As already stated in the applications from the automotive industry in context of ELV directive as well as the electrical and electronic industry under RoHS, both are only small consumers of brass compared to plumbing and drinking water applications. Thus an increase of the sales of ECO BRASS[®] cannot be interpreted as increase of the use in automotive and E&E industry. There are other reasons like laws specific for drinking water applications as named by Mitsubishi Shindoh. In addition many companies bought ECO BRASS[®] for testing purposes which also caused an increase in the sales.

Mitsubishi Shindoh states that for more than 20 million of sliding components of vehicle air conditioner ECO BRASS[®] replaced C36000. We can unfortunately not confirm this statement. It seems Mitsubishi Shindoh just divided the complete amount of ECO BRASS[®] sold to automotive industry by the weight of one sliding component and thus got this very high number. But not all ECO BRASS[®] is used just for one sliding component but also for tests and so on. Furthermore ECO BRASS[®] did not replace the leaded copper alloy as it was never used for such kind of component. ECO BRASS[®] is used instead of another material like for example stainless steel.

Mitsubishi Shindoh estimates as the shape of some electronic applications is similar to those of drinking water applications the material could be changed from C36000 to ECO BRASS[®]. It was shown very clearly that only because an article looks as intended it does not mean that it will show the required properties. Thus it is strongly rejected that the parts could be made from ECO BRASS[®] only because they look similar.

The too low electrical and thermal conductivity of ECO BRASS[®] compared to CuZn39Pb3 of only 1/3 was already mentioned by Mitsubishi Shindoh.

Regarding the machinability of ECO BRASS[®] all six applications as well as the contribution by the automotive industry showed that adequate machining behavior especially in case of micro-machining could so far not be achieved when using ECO BRASS[®].

It was already shown by the automotive industry that silicon brass scrap cannot be mixed with leaded brass scrap and specific constraints on silicon brass scrap exist in various brass mills.³

We agree with Mitsubishi Shindoh that some properties of ECO BRASS[®] are superior to that of leaded brass. These properties may be important in case of drinking water applications but they are mainly not required in the electrical and electronic industry. Thus these superior properties do not give a benefit for applications in the electrical and electronic industry.

Basically, material manufacturers cannot grasp all about what condition applications are used in and what properties are required for applications. Material users of applications should judge about

² http://elv.exemptions.oeko.info/fileadmin/user_upload/Consultation_2014_1/Ex_3/20141217-ACEA_comment_Mitsubishi_AnnexII_3.pdf

³ „Leaded copper alloys for automotive applications: a scrutiny“, J.-M. Welter, 2014, pp. 38-39. http://elv.exemptions.oeko.info/fileadmin/user_upload/Consultation_2014_1/Ex_3/E3_02_Welter_2014_leaded_copper_alloys_for_automotive_applications-a_scrutiny.pdf

whether used materials are applicable or not based on specifications of applications. Therefore, we think that it is not appropriate for Mitsubishi Shindoh to make comments about applicability of ECO BRASS[®] to electrical and automotive applications in the consultation document.