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By email to rohs.exemptions@oeko.de

Comments for the stakeholder consultation regarding the RoHS exemption requests for the use of Cadmium in displays and lighting ("Pack 15")

Dear Sirs,

we are submitting this letter to comment on the joint evaluation of three RoHS exemption requests for a new or extended Exemption 39a of Annex III of Directive 2011/65/EU (for the use of Cadmium in displays and lighting).

Since 2016, Merck KGaA is collaborating with UK-based Nanoco Technologies Ltd. in the development of Cadmium-free quantum dot solutions for the display industry. Our specific focus is on formulations containing Cadmium-free quantum dots which are typically applied in displays, e.g. for patterned color conversion layers for disruptively boosting the color gamut of TVs.

Nanoco Technologies Ltd. has submitted a detailed response to the "Consultation Questionnaire for the Joint Evaluation of Three Requests for Exemption, dealing with Cadmium Quantum Dot Applications" dated May 13th, 2019.



We support the statement and are convinced that there is no need to exempt Cadmium-based quantum dots for displays and lighting beyond the current expiration date.

Why?

- For Merck the most important argument is: The two leading companies Samsung Display and LG Display announced that all their products will be 100% Cadmium-free. They follow the strict policy not to use any Cadmium in their devices.

Samsung is currently the only quantum dot film TV supplier and uses Cadmium-free quantum dots. Their quantum dot based display products exceed the 100% DCI-P3 color gamut and show one of the highest color gamuts in the consumer device market.

- Referring to the latest global quantum dot TV market analysis published by GfK¹ in April 2019 , we can conclude the following:
© (GfK 2019 – not for publication)
- Samsung is clearly the market leader for quantum dot film TVs, followed by Hisense and some other, mainly Chinese suppliers, Samsung and Hisense together covering more than 90% of the market.
- During the last reported year (March 2018 – February 2019), between 182 and 450 thousand TV units (TUnits) containing a quantum dot film had been sold monthly.
- Quarterly averaged monthly unit sales in March 2018 – May 2018 (190 TUnits) increased strongly to the last reported quarter December 2018 – February 2019 (312 TUnits).
- The share of Cadmium-containing quantum dot TV sets sold by Hisense dropped – on a global base – substantially from 38% to 22% compared to the Cadmium-free TV sets of Samsung. Unfortunately, sales data for Europe only was not published but it is known in the market that Hisense is particularly strong in their home market China and, therefore, should have an even lower market share in Europe anyway.

¹ GfK: TV Demand Projector Update APR-19, page 46 Quantum Dot LCD TVs, April 2019

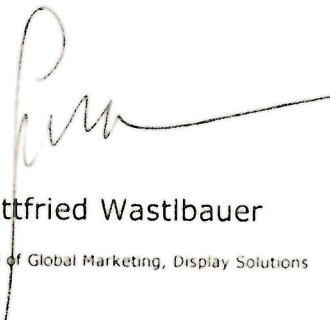


- This shows clearly that TV sets with Cadmium-free quantum dot films are widely accepted by the market and their share is constantly increasing in the market. Most quantum dots in TVs had been already substituted by Cadmium-free solutions which are commercially available in sufficient quantity.

A new or extended exemption would slow-down the continuing substitution of Cadmium by Cadmium-free solutions. Therefore, we do not vote for any new or extended exemption for the use of Cadmium in displays.

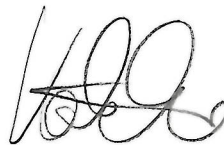
If you have any questions regarding this contribution, please do not hesitate to contact us.

Yours sincerely



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