

March 17, 2021

**Subject: Application for prolongation of the existing exemption No. 4 (f) under Directive 2011/65/EU for mercury-containing UV discharge lamps; support of the exemption request submitted by VDMA e.V..**

Dear Sir or Madam,

Constantia Flexibles is one of the world's leading manufacturers of flexible packaging. Under the guiding principle **"People Passion Packaging"**, 8,350 employees (as of March 2021) manufacture tailor-made packaging solutions at numerous sites around the globe. Many international companies and local market leaders from the consumer, home & personal care and pharma industries choose our high-quality products to pack and protect their valuable goods.

In this context Constantia Flexibles also produces on nearly 25% of our printing presses primary food and pharmaceutical packaging materials with UV printing technologies using mercury-containing UV discharge lamps. The so produced packaging specifications have to fulfill strict requirements of the European food and pharma contact regulations.

Besides curing UV inks with mercury-containing UV discharge lamps there are also LED lamps on the market which cannot be used for our application up to now because of the following reasons:

In complex nutrition and pharma packaging print structures (primer, white, colours, overprint varnishes) fast curing has to be ensured for all ink layers to avoid migration. Well-established and safe low-migration photo initiators work in defined absorption-areas to guarantee through cure, surface cure and special interactions with ink ingredients. LED lamps only emit in (or in the range of) 395 nm and only a very few photo initiators are able to efficiently absorb light in this area. A switch from mercury-containing UV discharge lamps to LED would therefore result in a very strong limitation of suitable photo initiators. Curing would then be hindered. In addition to this, those LED-curable photo initiators also negatively affect the rheology of inks. Press-stability, print quality and resulting waste-situation would be worsened.

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Above mentioned influence of curing speed and -quality with LED lamps would lead to a substantial reduction of maximum machine speeds and consequently to a considerable reduction of capacities and availability of printed matters. The change to LED would lead to a significant increase of lead times as well as material shortages and in addition to a huge cost impact, maybe even making low migration UV-applications impossible if curing cannot 100% guaranteed. Constantia is also using nitrogen atmosphere for UV curing to further improve the migration performance and the organoleptic inertness which is not yet state of the art for LED technology.

The switch to LED reduces the number of suitable photo initiators by nearly 90%. Impacts on raw material supply for photo initiator-precursors would then have dramatic influence on the supply situation which could endanger the whole UV-printing technology for flexible packaging. Ink suppliers currently have some degree of freedom to pick alternative photo initiators if one runs short. This will be more difficult or even impossible, when LED-curing will be enforced.

The broad light spectrum of mercury lamps is needed to minimize migration via curing, fulfill food law-requirements (e.g. Swiss Ordinance; EU 1935/2006, EU 2023/2003...) for the final packaging materials, and guarantee consumer safety. Like mentioned before, a switch to LED would lead to less good curing and a higher remaining amount of migrants in our products which is not acceptable and would lead to a non-compliance with actual foods laws.

To sum up, we consider mercury-containing UV discharge lamps as still irreplaceable and vital for the production of affordable and compliant UV-curable printed primary flexible packaging for food and pharma products.

Best regards,



Pim Vervaat