

To whom it may concern

Feedback on exemption request for elongation of RoHS 4(f) from VDMA and Lighting Europe

Klumpp Coatings GmbH, a medium-sized family-owned company in its fourth generation, was integrated into **SIC Holding** as a reliable and experienced partner. In this way we create values for the next generation. Klumpp Coatings GmbH develops and produces high-quality and innovative coatings systems for wood-, cork-, HDF/MDF- and plastic (PVC-/LVT-/WPC-/MPC-, etc.) surfaces for the panel-, furniture and flooring industry. The company operates internationally (EU/Southeast Asia/China/North and South America) and occupies approx. 180 employees.

We create coating systems for surfaces according to customer requirements regarding optic, haptic, resistance classes and lifetime with preferably environmentally friendly coating processes. Thereby, we use a variety of drying and curing systems. The **specialization in radiation-curing coatings** enables the significant reduction of VOC emissions by using **water-dilutable** as well as **100% UV systems**. Additionally, we achieve a fast parts availability with lower space requirement of the coating systems. With the present and future UV coatings offered by Klumpp we can achieve high abrasion and scratch-resistant, easy-care, and visually appealing **floor coverings for all areas of life at home, in the office and in public buildings** with low coating film layers at an application **efficiency of 1**.

To achieve the described advantages of UV coatings, the coating materials require high-energy UV radiation for chemical curing of the coating matrix. For this purpose, our technical department uses mercury (Hg)-containing, also doped medium- and high-pressure UV lamps in our UV curing units. In lacquer processing companies, such emitter units are in use in multiples according to the processing parameters. The layout of the number of lamps, the energy input, the required radiation emission (wavelength, intensity, etc.) and the curing components on a continuous UV coating unit is always determined by optimization work in the technology centres of the equipment manufacturers and in our R&D department. We thus ensure that a **minimum of UV lamps** result in the **maximum of surface performance**. Hence, in cooperation with all parties involved, we pay attention to the resource-saving and safe use of UV-Hg lamps.

This is also where the **educational work of the coating, equipment, and lamp manufacturers** for the return of used UV-Hg lamps begins. According to our information, the actual consumption of Hg in the field of UV curing and disinfection is about 0.03% of the consumption per year within the EU. Since **99.8% of mercury** can be recycled in a **certified process**, the actual consumption is significantly lower. The waste lamps are handed over to a suitable disposal company. Whereas waste UV lamps from curing plants and disinfection units can be returned in airtight packaging to the lamp manufacturers and suppliers for disposal. The lamp manufacturers have the collected mercury professionally reprocessed.

We also pay attention to the **LED-UV technology**. Until today we **reach chemical, physical, and economic limits**. One example is the **monochromatic** long-wave light. The long wavelength leads to lower scratch resistance of the surface and thus to increased wear. The wavelength spectrum and energy densities of LED lamps alone make it difficult in the field of furniture and flooring substrates to precisely maintain the physically necessary lamp-substrate distances to ensure a defined energy density due to fluctuating material thicknesses and in 3D applications. Certainly, LED technology has its place in film and paper coating. We believe that in the future LED UV curing will be another technology, in addition to the UV Hg lamp and will find complementary applications.

To underline the necessity of the further use of UV-Hg lamps, we would like to mention that we, as an SME, have currently upgraded our R&D department with a **UV excimer system** with an **investment of approximately € 250,000**. We are convinced that this future-oriented technology, equipped with special UV-Hg lamps, enables us to generate effective, economically highly durable coating surfaces. We are now able to create **matt and extreme matt surfaces** meeting the high demands of the flooring industry. The application in the kitchen, residential, and office furniture segment provide an opportunity to approach the responsible use of all coating raw materials even more considerate for humans, animals, and the environment.

We are only involved in the production of flooring substrates with a **small share**. The big picture is found in nature as timber, cork and close to natural materials produced thereof. In addition, all types of plastics, petroleum-based and recycled substrates made from them in the recyclable material life cycle are used. However, this **small share** of UV-cured coating materials puts the value chain on a far-reaching economic good cushion, which is based in Europe. If we were not able to offer the coating materials for UV curing due to the ban on UV-Hg lamps our major European customers who have already located their production facilities outside Europe would relocate further production facilities to **non-EU countries**. The production depth will disappear and consequently, we would lose the customers for our main product "UV coatings". Furthermore, a ban on Hg leads to the fact that our European customers must abandon established processes with which VOC emissions were reduced. For us, the UV Hg lamp is **essential** because it is the only possibility to produce resistant flooring substrate surfaces with **low VOC coating** materials and **green energy** in an economical working process. In this way, we maintain the competitiveness of the European Community and secure our jobs.

Only the production location brings the purchasing power!

Stuttgart, May 2021

A handwritten signature in black ink, appearing to read 'Vaihinger', written in a cursive style.

ppa. Thilo Vaihinger
Head of R&D