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Guidance document for an „ideal process approach“ for the introduction of new/modified lacquers into the market (Version 1.0 – 28 November 2017)

1. Introduction

Lacquer systems are subject to change. This change may be triggered by the relevant parties in the supply chain (hereinafter referred to as “parties”):

- Lacquer suppliers
- Packaging producers
- Fillers

or external influences (e.g.)

- Raw material suppliers
- Regulatory bodies

The parties have all sorts of reasons which make the introduction of new or modified lacquers necessary, e.g.:

- General regulatory requirements or company policies (restrictions on or banning of substances)
- Discontinuation of raw material or lacquer production for environmental, health, safety and/or economic reasons
- Technology or process changes (e.g. new materials/alloys)
- New packaging designs (e.g. shapes)
- Reformulation of filling goods
- Entrance into new markets

The aim of this document is not to hamper innovation but to give a clear guideline for the efficient introduction of new/modified lacquers into the market and to safeguard compliance with competition law regulations on information exchange.
Experiences have shown that the introduction of new or modified lacquers has often been carried out by means of an insufficient trial-and-error process lacking a useful information flow along the supply chain.

In order to come to a structured approach when it comes to the development of new or modified lacquers, it is necessary to define the responsibilities and deliverables of the parties in the supply chain at each step of the development and qualification

process. Thus, a structured approach is needed in order to avoid inefficient, time-consuming and costly shortcomings in the process.

This document, which was developed by leading European lacquer manufacturers, aerosol can and flexible tube producers and fillers, lays down a guideline for an “ideal process approach” to reach this aim taking into account all relevant process steps.

2. Definition phase

Be it a new or reformulated filling good, basic information on the required compatibility of the new or modified formulation and the lacquer is needed. Thus, the filler has to ensure a comprehensive information flow about the principal components of the filling good and their properties, the conditions which the final application has to meet (e.g. temperature range, humidity) and his general company policies to the other parties in the supply chain so that the lacquer supplier is able to choose the right substances and recipe for the lacquer system according to the relevant safety and environmental regulations.

In case of the categorization of a certain substance to be of concern there is the necessity to change the formulation of the existing lacquer system, the filler also has to provide information on the end-uses and application conditions (e.g. country specific requirements, laws, regulatory requirements) of the lacquers in question.

In addition, the packaging producer defines the conditions which the required lacquer systems will have to fulfill during packaging production as far as pretreatment, application on the substrate, washing and curing is concerned.

Only if these framework conditions of the filler and packaging producer are fully known, the lacquer supplier can check the suitability of the coating formulation to meet the new needs and formulate the lacquer system accordingly.

In order to avoid an inappropriate choice by the lacquer producer of raw materials for the composition of the lacquer system, the raw material supplier has to confirm that no starting substances are listed, for example, in the so-called CoRAP list (Community Rolling Action Plan) of the European Chemical Agency (ECHA) or other relevant national lists.

In case of polymers, mixtures etc. the provision of a migration certificate is acceptable which says that the polymers, mixtures used comply with current legislation and/or specific filler requirements for the defined application.

To assure long-term planning within the supply chain it is desirable that the raw material supplier provides information on the supply security for starting substances, polymers, mixtures etc.

The lacquer supplier does a screening of the different lacquer options and technologies (e.g. liquid or powder systems) based on the information given by the parties in the supply chain.

3. Neutral communication of results/experiences

Ideally, after the definition phase of fillers, packaging producers and lacquer manufacturers a consolidation of all identified conditions and requirements should be done by a neutral body (e.g. industry association representative, experienced independent freelancer), which ought to be defined by the parties, so that it can check whether all relevant aspects have been considered. In addition, the involvement of such a body can – based on the available information from other players in the supply chain - avoid that due to missing information the qualification process is delayed. This non-compulsory step has to comply with relevant internal/company and external legal requirements.

If the neutral body identifies justified shortcomings in the definition phase these should be sorted out first in coordination with the parties before the next steps are taken.

The neutral body observes that sensitive information provided by a lacquer manufacturer is not shared with respective other lacquer manufacturers but only with packaging producers and fillers along the supply chain. The neutral body likewise observes that sensitive information provided by packaging manufacturers and fillers is not shared on a horizontal level with competing entities. A corresponding summary of all information collected by the independent body is reported back only to those supply chain partners which have provided input. This summary shall only be distributed to the parties in the supply chain, if at least three individual members of the party along the supply chain (lacquer supplier *or* packaging producer *or* filler) participated in the data collection.

4. Feasibility check

As soon as green light is given by all parties involved on the requirements and framework conditions a joint verification of the targets and the feasibility is carried out. Only if the feasibility is mutually agreed by the parties, can the development process of the new lacquer start.

5. Lacquer development and verification of lacquer suitability

As a first step, the filler has to provide a reasonable number of representative samples of the entire filling good (e.g. bulk and propellant) including pressure requirements to the lacquer producer.

During the lacquer development phase a continuous verification of starting requirements/framework conditions against possible lacquer options has to be made. In

addition, the lacquer producer ideally conducts stability tests to achieve first experimental results to come to a kind of “proof of principle” for defined applications.

Only if the “proof of principle” is meeting the agreed success criteria, the next step will be tackled.

6. Pre-testing on small scale

After finalization of the “proof of principle”, the lacquer manufacturer starts the lacquer production on a small scale.

At this stage, several packaging producers conduct first application tests under real production conditions in order to see whether the systems are running properly on the production lines and are stable under different line configurations.

7. Experimental compatibility test

The filler carries out suitable compatibility tests to make sure that the targeted lacquer system complies with all requirements under real market conditions.

8. Neutral communication of results/experiences

Ideally, after the pre-testing on a small scale, a summary of all results should be prepared by the neutral body so that it can check whether all relevant aspects have been considered. In addition, the involvement of such a body can – based on the available information from other tests conducted by the parties – avoid that due to missing information the qualification process is delayed. This non-compulsory step has to comply with relevant internal/company and external legal requirements.

9. Upscaling of lacquers

As soon as the parties agree that the pre-tests have provided satisfactory results the lacquer producer will scale up the production of the identified lacquer system.

10. Process validation / Industrialization

The packaging producer identifies and defines a manageable operation window. The aim is to come to a robust process with a reproducible quality and to the compatibility of the filling good with the packaging. This includes the identification of appropriate quality characteristics by means of corresponding tests.

11. Stability / Compatibility

The filler makes sure that the production-grade packaging are undergoing pack tests following individual company approval processes.

12. Release for production

After a successful approval process the final product is ready for production.

In order to ensure an efficient control of the stability of the ongoing packaging production, meaningful tests must be defined amongst the supply chain partners which can be quickly carried out and which as closely as possible reflect the quality of the packaging.

In this context a continuous check of weaknesses and strengths of currently existing standard tests are recommended.

13. Compliance

All activities conducted by the parties and/or the neutral body related to the aim of this document shall always comply with all applicable laws.