



## Low migration UV ink systems

**The potential for migration with conventional UV inks is a well-known problem. Packaging and labels for foodstuff packaging must therefore be printed using low-migration ink systems. Responsibility for choosing the right UV ink rests with the printer.**

The printing of packaging for the foodstuff sector ranks among the most sensitive areas in the printing industry. Compliance with special regulations is obligatory. Transfer of ink odours or ink migration is not allowed to occur when printing foodstuff packaging. For these applications, Siegwerk has developed a number of reliable ink series that have proven their worth in practical use. They exhibit low migration and odour and, moreover, do not contain any problematic substances due to strict selection of the raw materials.

### **Why are there two types of UV ink systems?**

Conventional UV inks and varnishes contain low-molecular photoinitiators, acrylate monomers or other materials with a relatively high migration potential. These are substances with short molecular chains that exhibit a tendency to migrate. Materials of this nature may migrate through the substrate and also through the label and into the foodstuff in the absence of a secure barrier such as glass or aluminium between the contents and the packaging material or where there is a possibility of set-off. (Set-off may occur in the roll or stack

if the inside of the packaging comes into contact with the printed exterior).

Since conventional UV inks are cheaper and technically efficient, they are employed for all applications in which migration and set-off issues do not arise.



**Siegwerk's low migration UV inks and varnishes on the other hand are formulated exclusively with higher molecular weight photoinitiators and acrylates, thereby reducing the migration tendency to a minimum.**

### **When is a barrier regarded as safe?**

Without prior testing, only sealed aluminium bags, glass containers and thick PET bottles are deemed to be functional barriers. An internal plastic bag, plasticised paper or unsealed aluminium film does not represent an adequate barrier against migra-

tion. Metallised plastic film which looks like aluminium or thin PET bottles, for example, are not deemed to be reliable barriers unless proven otherwise. In the event of doubt, the printer/packer is required to have a migration analysis carried out because he has a responsibility to the consumer to ensure that the packaging complies with the legal requirements.

### Safety is important

Siegwerk offers a 6-page summary for printers showing the possibility and nature of risks in specific cases for a wide range of printed products and packaging. The customer information brochure in question goes by the name **«Selection of Siegwerk UV Low Migration Systems»**. Depending on the application, it indicates where the use of LM inks and varnishes is mandatory or where – in situations in which migration and set-off are irrelevant – conventional UV inks may be employed. This customer information brochure also lists the addresses of accredited analytical institutions that will test a printed packaging in respect of its migration potential.

More extensive information on the migration mechanism and the safe use of low-migration inks for foodstuff packaging can be found in the brochure **«Know-how – guidelines for customers: Printing inks for foodstuff packaging»**. The brochure can be downloaded from <http://www.siegwerk.com/productsafety> (3.8 MB).

### New legal provisions

A new ordinance, in force in Switzerland since 2010, stipulates that only those inks contained in a positive list are permissible for use on foodstuff packaging and, moreover, that specific migration limit values to be measured on the finished packaging must be adhered to. Accordingly, UV-printed foodstuff packaging is required to meet migration threshold values of < 10 ppb or < 50 ppb. The competent national authorities in the Federal Republic of Germany are in the process of drawing up similar legal provisions.



### Optimum low migration UV ink systems from Siegwerk

With an extensive programme of LM inks, LM gloss and matt varnishes, as well as LM metallic inks encompassing the entire spectrum of UV printing processes, Siegwerk sees itself as the market leader in this field. The most important series are: Sicura 39-10 LM, Sicura 39-20 LM, Sicura LM 361, Sicura PLAST LM, and Sicura PLAST 41 WL LM.