SIEGWERK LABEL explicit

Sustainability

1. Siegwerk's clear position on sustainability

A resolution adopted by Siegwerk's Board stipulates that all Siegwerk products must meet the social, economic and ecological needs of present and future generations.

Accordingly, every product from Siegwerk must ...

- satisfy strict requirements in the areas of environmental protection, health and safety,
- meet market criteria for performance and cost,
- contain renewable and recyclable materials wherever practical,
- be manufactured using environmentally compliant production technologies whilst involving the economical use of energy and other resources,
- support efficient processes from printing to utilisation and recycling of printing and packaging products.

2. Greenhouse gases and their relevance for printing inks

Greenhouse gases share some of the responsibility for the environmental consequences of human activities. The "carbon footprint" is measured in weight units of the greenhouse gas carbon dioxide (CO_2).

The following examples are intended to give an idea of the order of magnitude of carbon footprints:

- Watching a football game on television: 175 g CO_2
- Watching TV for 20 hours: 2,000 g CO_2
- Wearing a t-shirt for an extra day saves 41 g CO_2 for the ironing and 31 g CO_2 for the washing; accordingly 7,200 g CO_2 could be saved over 200 working days.
- An 11 km trip by train: 500 g CO_2; an 11 km trip by car: 1,700 g CO_2
- Leaving a notebook for four days in stand-by mode: 400 g CO_2
- Leaving a light burning for 3 hours: 100 g CO_2

Studies have shown that the ink and varnish layer on a printed item or a package is only responsible for a maximum of 0.3% of the CO_2 emission for the printed product in question and that the packaging only accounts for a share of approx. 0.8% of the overall CO_2 emission produced in the manufacture of foodstuffs (source: Foodchain, MMM 06/2008).

A study by the British potato crisp manufacturer Walker's has estimated that the CO_2 emission per package of crisps totals approx. 75 g. The share represented by the printing ink layer is thus about 0.2 g CO_2.
Studies by the REWE Group and the Henkel company came to similar conclusions:
REWE (study item = 500 g strawberries): 14.8% of the carbon footprint is tied to the PET tray.
Henkel: Production, packaging, distribution, driving to the shop and disposal together make up only 10% of the total carbon footprint for the "Persil" washing powder.
By taking consistent energy saving and environmental protection measures, Siegwerk has managed to further reduce the already low share of CO_2 emissions attributable to printing inks.

3. Usage of renewable raw materials

Printing inks consist to a large extent of renewable raw materials, i.e. vegetable oils as well as resin and fatty acid esters that form the basic materials for newspaper and commercial printing inks. Plant cellulose is the raw material for nitrocellulose, which represents the most important binding agent in packaging printing inks. Moreover, bioethanol is used as a solvent in this product segment.
For absorbent substrates like paper, water-based printing inks are used to a large extent in which water replaces the solvent (= volatile organic compound, VOC).
As a rule, 90% or more of Siegwerk's sheet-fed offset inks are based on vegetable raw materials. Siegwerk is also a leader in the development of UV inks based on renewable raw materials.

While UV inks hitherto have clearly lagged behind in the utilisation of renewable materials, Siegwerk launched a new UV flexographic ink series in the summer of 2009 over 50% of which consists of renewable raw materials.

4. New energy-saving UV technology

In co-operation with major manufacturers of printing presses, Siegwerk is hard at work creating new generations of ink that offer greater efficiency (e.g. higher press speeds) or greater safety in printing, have a larger share of renewable raw materials or require less energy during drying. At Labelexpo in Brussels in autumn 2009, Siegwerk presented a spectacular innovation in the form of UV flexographic printing inks, UV screen printing inks and UV overprint varnishes for the specific radiation spectrum of LED-UV light. New LED-UV lamps emit only a small range of the conventional spectrum of UV lamps. In particular, the high-energy IR radiation and the hazardous UV-B and UV-C radiation are absent. Compared to conventional UV lamps, the new LED lamps use at least 10 times less energy. This translates to a massive reduction in the carbon footprint for UV printing.

5. Low-migration and low-odour ink systems

Printing on packaging for the food and pharmaceutical sectors is one of the most sensitive areas in the printing industry. Here, compliance with very specific regulations is imperative. Ink odour transmission and migration must be avoided when printing food packaging. For such applications, Siegwerk has developed a number of reliable ink series which have proven their worth during practical use. They exhibit low migration and odour and, moreover, do not contain any problematic substances due to strict selection of the raw materials. A good example is the Tempo NUTRIPACK series developed for offset printing of food packaging which uses binding agents that consist entirely of vegetable raw materials.