



In-mould-labelling

In-mould labelling (IML) is a highly efficient process for the labelling of plastic containers. The label is applied as the container is being made. No carrier material or adhesive is necessary. The label is permanently bonded to the material, forming a smooth, borderless surface with it.

IML labels are used for foodstuff packaging (dairy products, ice cream, salads, etc.) as well as for packaging in the cosmetics, chemical, automobile and DIY store sectors.

The principle advantages of IML are:

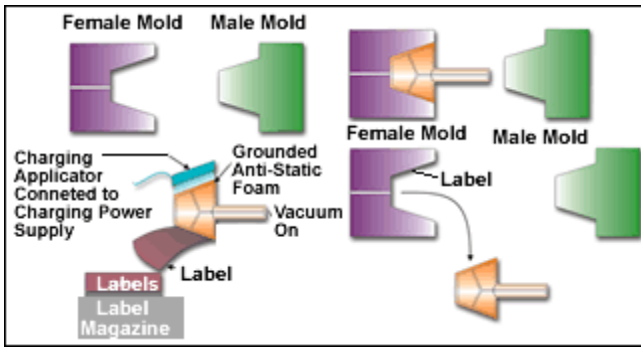
- High quality – the label is inseparably bonded with the packaging. It cannot fall off or fade in colour.
- Perfect print quality because the label is printed separately.
- IML offers great design freedom; containers can be decorated extensively.
- Elimination of carrier material and adhesive when applying the label.
- The containers, tubs or lids are completed in a single work step, needing no further finishing. Because the labelling process is integrated into the packaging manufacture, the containers can be taken hygienically packed straight to the filling unit.

- In-mould labels are permanently bonded to the container material, forming a continuous surface with it. Subject to the correct sequence of ink application, they are moisture and temperature-resistant (ideal for frozen products) and, if suitable ink systems are used, resistant to abrasion and also to chemicals.
- The packaging and the label are made of the same material, subsequently enabling the packaging to be recycled as a whole.

Two essentially different manufacturing processes are used for IML:

1. Injection moulding

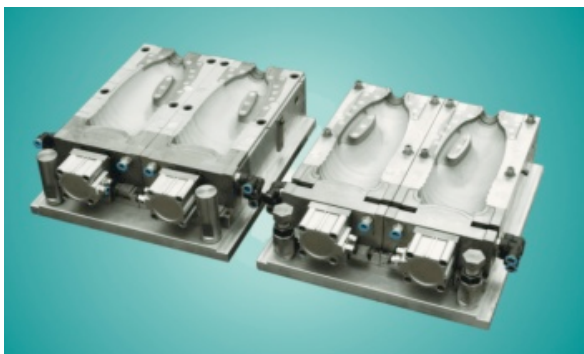
is used for the production of tubs, trays and many types of containers in HDPE, PP, PS, PET and PVC. Here, a label – generally of the same material as the container – is inserted into the injection-moulding tool by machine and then back-moulded with the plastic, thereby bonding with it. The label material is frequently white PP, matt on one side, gloss on the other (= printed side); normal material thickness 40–75 µ. During the application process, the label is introduced into the mould by means of vacuum or electrostatic charge and held in place there.



A spindle with suction device and antistatic coating picks up a label from the magazine while rotating, whereby the label is simultaneously given an electrostatic charge. The spindle transports the label into the mould, where it sticks in place due to the electrostatic charge. The spindle is withdrawn, the mould closed and the plastic injected. The antistatic coating on the spindle enables it to be withdrawn without the label slipping.

2. Blow-moulding

is used for example for the forming of plastic bottles, whereby PET plastic is blown into the mould. In contrast to injection moulding, the labels are already provided with a hot-melt adhesive at the printing stage which then creates the bond with the container in the hot mould.



Tried and tested ink systems from Siegwerk

In-mould labelling in the foodstuff area calls for low migration ink systems, a tried and tested speciality of the Siegwerk Group.

An example of an already well-established and highly regarded product for in-mould labelling use is the **Sicura PLAST LM UV offset series**. In addition to minimal migration potential and exceptionally low odour, this series stands out for its good runnability, good adhesion, attractive gloss and excellent durability.

In addition, a water-based varnish must also be applied in order to prevent the build-up of electrostatic charge when separating the labels. This should ideally be discussed in consultation with a Siegwerk application technician.