

Successful packaging must meet government regulations as well as consumer expectations.

Preserve and protect

Packaging should play an invisible role in how consumers perceive the taste and odour of foods, beverages and other delicate goods.

Preserving the quality and freshness of edible products and protecting them from heat, light and oxygen puts heavy demands on packaging. Packaging should also preserve the taste and odour of foods so that consumers get what they are expecting every time. Achieving all of this is a complicated task that requires a combination of chemical and human sensory analyses.

At Iggesund's Laboratory for Sensory and Chemical Analyses in Iggesund, Sweden, a sensory team works with an external panel of about 40 experts who are trained to determine whether food and other goods have been tainted by their packaging. Simply put, the panel spends a lot of time sniffing and tasting. A chemical analysis is then conducted in this accredited laboratory to determine the source of any tainting and to rectify the problem.

"Chocolate is commonly used on the testing table", says Sara Jonsson, a development engineer at the laboratory. The chocolate is placed in a jar together with paperboard so that volatile compounds from the paperboard can be absorbed to see if the chocolate changes flavour. "Chocolate is convenient to use and rather fat, so it absorbs volatile compounds easily," she adds.

Migration and flavour scalping should be avoided as much as possible. In migration, odours and flavours from the packaging material are transferred to the product in the package. Flavour scalping occurs when flavours from a product are transferred to the packaging material.

"Packaging is there to protect the foodstuffs and maintain flavours," Jonsson says. "If necessary you can use a barrier with the paperboard such as aluminium foil to restrict flavour loss."

Her colleague, chemist Torgny Ljungberg, adds that it's all right for packaging to have a slight odour, as long as it doesn't influence the flavour of the contents. "If it smells strange, however, it makes you suspicious and more negative towards the product," Ljungberg says. "The first thing you do when you open a package is to sniff, and if something from the printing ink or varnish gives off an unpleasant smell, then you won't eat whatever is in the package."

Such was the case when a German chocolate producer switched to a package that released a smell of varnish. "The varnish was not interacting with the chocolate

or compromising it in any way, but the company lost customers due to this odour,” Ljungberg says.

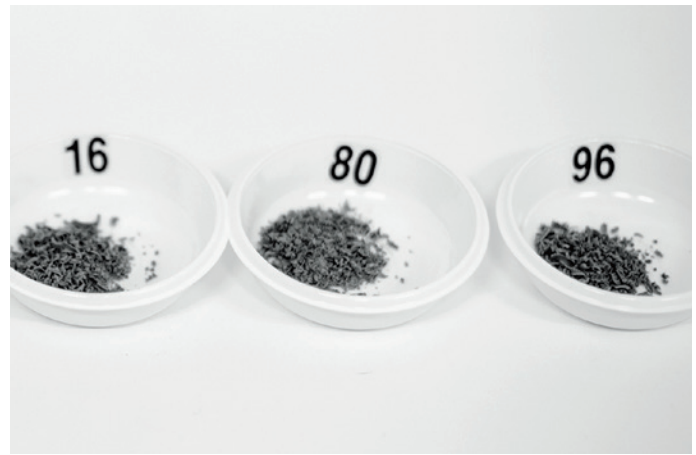
Today, most producers of sensitive foodstuffs know which varnishes, inks and glues to avoid, he says. There are also strict regulations regarding what can be used from a health and safety standpoint.

National legislation states which chemicals are allowed in packaging that is in direct contact with food. “If you want to be on the safe side, it’s best to use virgin fibre paperboard, but there are ways to use barriers to avoid the transfer of volatiles in packaging,” Ljungberg says.

Board made from virgin fibre is highly suitable for the packaging of sensitive foodstuffs because it is clean, stable, and has good printability and convertibility so it can both promote and protect its contents, says Edvin Thurfjell, product manager, Graphics and Packaging, for Invercote. “Taint, odour and microbial contamination are as minimal as we can make it, and these properties are stable over time. This is something you wouldn’t achieve with non-virgin fibres.”

In addition to health and safety features, consumers want consistency. “When you buy a special brand, you want that brand to always taste the same from one year to the next,” Ljungberg says. “In the 1980s we tried to convince a chocolate manufacturer in England to use our board rather than his recycled board, which interacted more with the flavour. They refused to switch, saying, ‘Our customers expect our chocolate to have a board flavour!’”

It’s best not to underestimate consumer expectations, as Ljungberg points out with another example: “Milk in a carton doesn’t taste like milk directly from the cow. It has bit of a carton flavour, but this is what we are used to and



Sara Jonsson and Torgny Ljungberg work to make sure that packaging protects the contents without interfering with them.

have come to expect. We don’t like the taste of fresh milk from cows.”

So before making a packaging change for food carefully weigh every aspect of how the paperboard and products will interact with each other.

Pills and packages

- Paperboard is often used as secondary packaging for foodstuffs and almost always as secondary packaging when it comes to other “delicate” products like pharmaceuticals.
- The rules for food and pharmaceutical packaging differ, but the principle is the same, says Ieva Brink, who is responsible for product safety and regulatory affairs for Invercote. “Paperboard cannot have any negative impact on the packaged product,” she says.
- Printability and the visual purity of the paperboard become even more important with pharmaceutical packaging, as it is vital that instructions be printed accurately and clearly.
- “In many cases you must be able to print Braille on the pharmaceutical package, something not common for food packages,” says Edvin Thurfjell, product manager, Graphics and Packaging, for Invercote. “The level of dust from converting the paperboard can also be important, as it could affect the printability and clean room environments with pharmaceuticals.”

Rules and regulations

- In the EU, food contact materials and articles must comply with Regulation 1935/2004 of the European Parliament. According to this regulation, food contact materials under normal and foreseeable conditions of use may not transfer their components to food in quantities that could endanger human health, cause unacceptable change to the composition or deteriorate the organoleptic characteristics of the food.
- In the absence of harmonised legislation for paper and paperboard, products have to fulfil relevant requirements in the countries where the products are used.