



**5 things to know about
packaging for drinking
yoghurt products.**

How should producers think when it comes to packaging standard drinking yoghurt or traditional beverage alternatives like Kefir, Mala, Lala, Laban? We spoke to Helena Andrén Wijkander, Technology Specialist Food System Interaction at Tetra Pak, to find out.

Where should a producer of dairy products start if they are looking to move into drinking yoghurt?

The starting point is always going to be whether you are aiming for an ambient or a chilled product, because this dictates everything from your processing setup to the hygiene level of your filling machine, to what type of package you should have.

This is also very much market dependent; in Scandinavia, they would not have an ambient product. But in China and some other countries, they do both ambient and chilled.

Whether you choose ambient or chilled can also depend on the refrigeration infrastructure in your market, but also of course what consumers want. Another important consideration in some markets is whether you can actually call your ambient yoghurt 'yoghurt', because its production requires additional heat treatment which kills the live bacteria. Whether or not you have those live bacteria, remember that there are still health benefits from the product's nutritional contents.

What functional aspects of drinking yoghurt packages do producers need to keep in mind?

Firstly, because usually this type of product is for on-the-go consumption, you need to have good opening and reclosing performance. The resealing

performance needs to be good so that if the consumer puts the package in their bag, they don't get yoghurt all over their stuff. Of course, a package also needs to perform in the distribution environment, maintaining its integrity and not being easily damaged. Then there are the barrier properties that protect the product. Some products are sensitive towards light, others are sensitive to oxygen. And you will want to keep the flavour inside, so you don't have aroma loss through the package, while at the same time not taking up other flavours while the package is standing in a consumer's refrigerator.

When it comes to the sustainability characteristics of the packaging material, these should not affect the drinking yoghurt itself. If you have a plant-based or fossil-based packaging material, you will have the same material properties and the same packaging functionality.

How should producers of other drinkable fermented dairy products think? What kinds of challenges do those product pose?

With traditional cultured milk, it is really important to understand your recipe. The starter culture in Kefir consists of mesophilic bacteria, which ferment at a lower temperature than yoghurt's thermophilic bacteria, but often also include yeast. This means that during the shelf life of the product, you run the risk of gas (carbon dioxide) formation which can cause the packages to bulge.

So you really need to understand the recipe and choose the right filling machine and package solution. There are starter cultures for Kefir without yeast, or that include a yeast that only forms a very limited amount of carbon dioxide. These only require agitation in the fermentation tank prior to filling. For products with continuing carbon dioxide formation during shelf-life, you could inject gas (carbon dioxide and/or nitrogen) into the head space in the packages. By doing so, the gas formed by the product will stay in the product due to the equilibrium between the gas and the head space. And the package won't bulge.

So that's Kefir, but what can happen to standard drinking yoghurt over its shelf life?

For chilled drinking yoghurt, the flavour changes over time. It can be affected by the starter culture, which can continue to acidify and affect the flavour. Light and oxygen can also affect flavour. When it comes to the product's colour, there's usually some kind of fading or browning over time. This does not happen so much with chilled products, but is a much higher risk with an ambient product.

You could also have whey separation where you get a watery liquid yellow on the top. Most often you can shake it and get it back into the product, but sometimes it is irreversible. There is also the risk of microbiological growth through yeast or mould, but if you have good hygiene, that should be quite low risk.

What challenges can particles pose from a packaging perspective?

There are limitations on particle size and amount when it comes to filling machines, and these can be quite tricky to navigate. If you have too many particles, you may experience dripping or splashing in the filling machine, which could negatively affect hygiene and cause spillage and stickiness on the outside of the package. So you need to stay within the specifications for optimal filling machine performance.

It is also worth bearing in mind that it is problematic to have a lot of particles if you have a lower-viscosity drinking yoghurt, as it is more difficult for the product to carry the particles. You can get uneven particle distribution, with some particles floating and some sinking.

For our ambient packaging solutions, we have developed particulate filling kit for our Tetra Pak® A3/CompactFlex and Tetra Pak® A3/Flex machines. Depending upon the type of particles, it is possible to fill soft particles up to 7% of total product weight, and up to 7mm in dimension are possible to be filled in the packages produced on these machines. It is recommended to seek the help of our experts before you take decisions on what packages and filling machine will be suitable for a given product formulation including particles.