

FOOD TECHNICAL SERVICES

PROJECT: AMBIENT STABLE PATE PRODUCTION

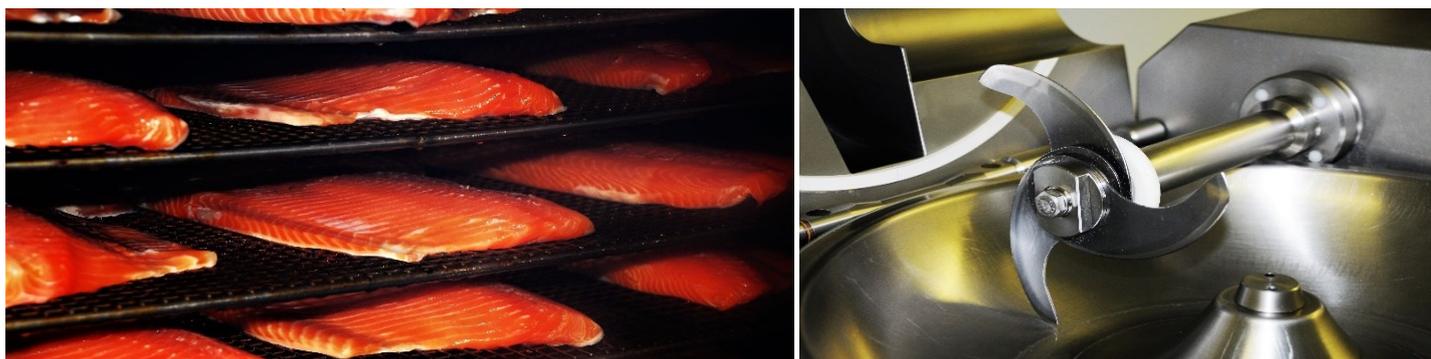
Use of Food Technology – Hydrocolloids to improve product stability and quality

The Issue

Together with a client operating a seafood smokehouse, we embarked on developing a production process to enable export (from Scotland to USA/Asia) of a range of premium quality smoked mackerel herring and salmon pâtés in ambient stable long life format. Their existing range of chilled product equivalents had proven popular but were restricted to the UK short shelf life market; thus a range of ambient exportable quality pâtés were considered to be essential for the business.

During the product-process development period, numerous obstacles had to be overcome. The main obstacle related to scaling up from pilot scale retort to commercial scale retort and making the pâté robust enough to cope with sterilisation, ie: steam retorting at 121°C to achieve a 12log cycle Botulinum cook.

The Smoked salmon variant (which had a higher moisture than the other pâtés) was suffering from syneresis (expulsion of aqueous phase), this occasionally caused an unsightly aqueous layer and impacted on texture and flavour. It had to be resolved.



Trials and Investigations:

Several recipe changes were tried (& failed), followed by a search for functional ingredients that'd:

- Stabilise the aqueous phase and not detract from the flavour, texture and quality perception of the pâté.
- Allow a "clean label" ie one free of ingredients that could deter customers.

Hydrocolloids were considered for the hydrophilic (water liking) properties we were looking for.

Used even in minute quantities they can stabilise/retain the aqueous phases within foods, thus retain:

- Product appearance,
- Texture,
- Flavours (that may have otherwise been lost to the aqueous phase).

The solution:

Conversations with industry associates lead us to Andina – specialists in hydrocolloid applications.

- After briefing the specialists, we were provided with samples of Guar flour, a heat tolerant hydrocolloid suitable to our cold processing methods ie cold pates filled into pack and heated under pressure to 121°C.
- Guar flour is a polysaccharide rich constituent of Guar plant seeds (a Legume from arid areas of India). It helps seeds retain water during drought, thus has many uses in food processing industries.
- Added as a powder at less 0.5% of total pâté weight at the cold mixing stages, it worked perfectly.

