

FOOD TECHNICAL SERVICES – PROJECT: HYDROCOLLOIDS AND AMBIENT STABLE PÂTÉ PRODUCTION

The Issue

Together with a regular client operating seafood smokehouse we'd embarked on developing a production process to enable export (to US/Asia) of premium quality smoked mackerel herring and salmon pâtés in ambient stable long life format. Their popular chilled product equivalents were restricted to UK short shelf life market thus ambient exportable quality pâtés were considered essential to business development.

During the product-process development period, numerous obstacles had to be overcome, one related to scaling up from pilot scale retort to commercial scale retort and making the pâté robust enough to cope with sterilisation (steam retorting - 121°C for 3min - a 12log cycle Botulinum cook).

The Smoked salmon variant which naturally had a lower fat and higher moisture than the Herring and Mackerel variants was suffering from syneresis (expulsion of aqueous phase). This occasionally caused an unsightly aqueous top layer and impacted on pâté texture.



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 and quality feel of the pâté.
- Allow us to keep 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,
- Flavour enhancing effects that may have otherwise been lost to the aqueous phase (eg salt).

The solution:

A call to industry associates led us to Andina – specialists in hydrocolloid applications.

- After briefing Andina, we were provided with samples of Guar flour, a heat tolerant hydrocolloid suitable for mixing into cold mix 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 food processing uses.
- Added as a powder at less 0.5% of the total pâté weight it worked perfectly.

