Anti-mould

Mould growth

especially affects moist products
(tin breads, brioche, etc…)
and wrapped products
(tin breads, pitta breads, etc.)

Contamination by moulds, such as Penicillium, Aspergillus, Fusarium or Cladosporium, is the most common encountered, although other microorganisms, such as bacteria can also develop in bakery goods.

CONDITIONS FAVOURING THE DEVELOPMENT OF MICROORGANISMS

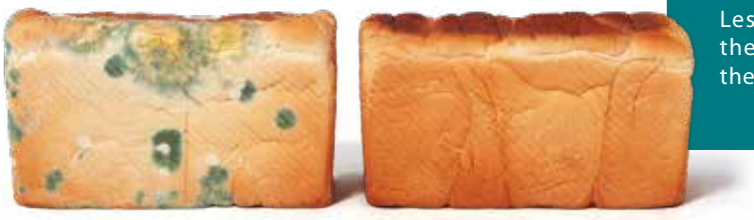
Microorganisms require the following conditions in which to thrive:

- **A substrate:** this is be the bread itself, since it contains the necessary carbon source, i.e. starch

- **An ideal temperature:** most of the time, bread is stored at ambient temperature, which does not slow down the growth of microorganisms most commonly occurring in bread.

- **sufficient water activity (Aw):** microorganisms can only develop if the Aw is high. Since the crumb is moister than the crust, the risk of mould growth is greatest in the crumb. With an Aw of around 0.97, moulds can easily develop since most of their growth are inhibited at an Aw below 0.7 (e.g. jams, preserves). Crust as a medium is less favourable medium, since it has an Aw of around 0.8. Nevertheless, during the cooling process in a damp atmosphere or inside the packaging, the Aw of the crust can rise significantly and make the medium more favourable to mould growth.

- **a relatively neutral pH:** an acidic pH can slow, if not inhibit, mould growth. It is rare however, for the pH of bakery products to reach a sufficient level, even in sourdough bread, since consumers generally prefer a sweeter taste for this type of product.



REDUCING MOULD FORMATION

Mould formation can be prevented through:

- **Controlling certain process factors:**

  - **the workshop atmosphere** (especially the packaging area).
  - **product formulation,** especially by lowering the Aw with the aid of an Aw reducer (salt, sugar, etc.). It is also possible to spray alcohol onto the crust prior to packaging.

- **Ingredients** that inhibit the growth of mould colonies, such as:

  - **food additives** belonging to the preservatives group (E200). The most commonly used additive in baking is SSL propionate and its salts, but sorbic or acetic acids and their respective salts can also be added;
  - **preservatives,** in this case, bacteriostatic or fungistatic preservatives. The dosage levels in use do not allow to reduce the bacteria or mould count, but they do limit growth;
  - **sourdough** also allows to reduce mould formation. During fermentation, sourdough microorganisms, especially bacteria, naturally produce organic acids that have an inhibiting effect on mould growth.

LESAFFRE SOLUTIONS

Lesaffre is able to formulate **preservative** based products to optimise their efficiency and reduce their negative organoleptic impact. Thanks to its knowledge of fermentation processes, Lesaffre can also supply devitalised sourdough, **live sourdough** or **cocktails of microorganisms** to help increase the shelf-life of finished products without adversely affecting the flavour.
Lesaffre's experience allows maximising the effect of preservatives by combining them with specific types of sourdough.