

## **pH meter in the food industry**

### pH value in the production of jams and marmalades

Beside sugar, fruit and fruit mixes are the main components in jams and marmalades. The natural content of acid in fruit is determined by the organic fruit acids and their salts contained in the fruit and can fluctuate naturally and production-related. In this connection, the pH value and the acid content are important during gelling. Since both variables influence gelling with pectins, it is necessary to artificially reduce the pH value to pH 2.8 ... 3.2, for example by using citric acid. PH control measurements are carried out by means of a pH meter and a suitable pH food electrode. A lack of acid and insufficient pectin are reasons for poor gelling. The acid content is determined through titration as a „titratable acid“. As food is not regarded as a pure aqueous solution, a special pH sensor must be used for pH measurement in these media to ensure reliable pH values.

### pH value in sour doughs

To know the pH value and the acid content of a sour dough is an important control parameter. The lower the pH value of a sour dough, the lower is the degradation of starch and the more stable the baked loaf of bread.



In sour doughs, values around pH 3.8 are sufficient during production. When determining the degree of acidity in a sour dough, the quantity of acid contained in the sour dough is identified. To know this makes it possible to check for possible acid errors or to evaluate bread crumbs for the correct acidity to avoid reductions in quality. The determination of the degree of acidity is carried out by way of base titration with 0.1 M caustic soda up to an endpoint of pH 8.5. The degree of acidity of a dough is specified in °Sr and is equivalent to the consumption of added 0.1 M caustic soda in ml.

Some reference values are: the degree of acidity in white and mixed wheat breads is approximately pH 4.8 ... 5.6 with low acidity between 3 and 7. Rye-wheat bread and wholemeal rye bread has a pH value of pH 4.6 ... 4.8 and a degree of acidity between 7 and 14.