18.7 Acidulants and Acidity Regulators

Sprouting in rye and wheat results in a high level of amylase activity in the grain itself with the usual effects on baking properties. It is generally known that even flours with very low Falling Numbers can produce good baking results if well acidified.
However, not every bread consumer likes acidity and bakeries may also have less and less time and personnel available to develop acidity by sour dough fermentation. Other ways are available, and these consist in adding fruit acids, the salts of these and also carbonates and phosphates approved for use in foods. It is then possible to adjust the pH of the dough slightly so that it moves out of the range in which the enzymes of the grain have their strongest effect.

Moreover, these substances influence the swelling of the flour constituents and the pro-

tein structure, and this helps to counteract the negative effects of excessive enzyme activity (e.g. water release). The most suitable preparations are those that stabilize the pH at the level to which it has been adjusted, i.e. so-called buffer substances, mixtures of different salts or acids. In most cases the dosage is in the range of about 50 to 200 g to 100 kg of flour. Fig. 136 shows the effect of an alkaline buffer agent on the Falling Number and on the volume yield.

Nevertheless, with the inorganic phosphates and carbonates care has to be taken not to exceed the limits of the flour grades, as these substances pass into the ash. With sprouted grain it is in any case advisable, whatever the treatment, to use a smaller proportion of the enzyme-rich outer layers of the grain (reduce the yield) and produce lighter-coloured flours that then tolerate the addition of flour improvers containing ash.