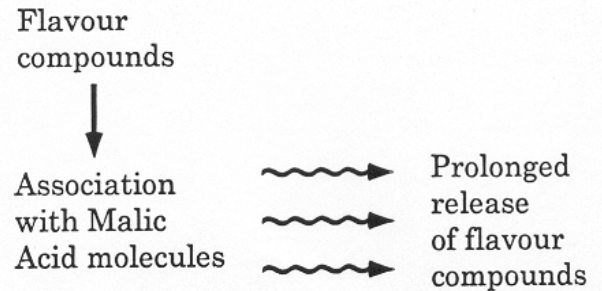


Malic Acid in Processed Tomato Products

Enhanced Tomato Flavour

Malic Acid enhances tomato flavours by prolonging their release. Olfactory receptor cells are stimulated by these flavours over a longer period of time. This prolonged stimulation is interpreted by the brain as **stronger tomato flavour**.



Same or Lower pH as Citric Acid

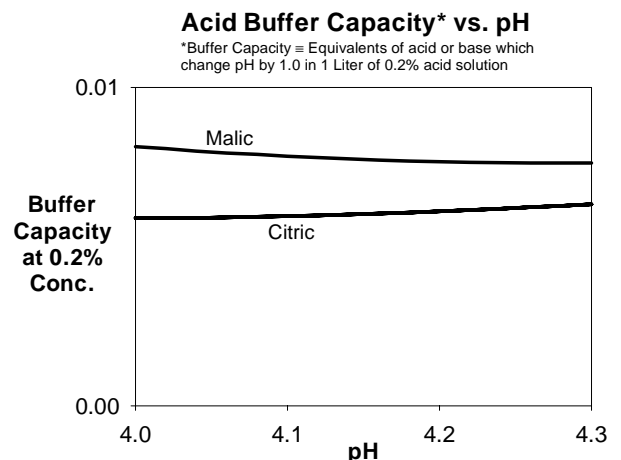
Trials conducted in Bartek laboratories have shown that the final pH achieved by adding Malic Acid to tomato concentrates was **equivalent or lower** than that achieved by adding equal levels of Citric Acid.

Regulatory Approval

FDA Standards of Identity for Canned tomatoes (21CFR§155.190), Tomato concentrates (21CFR§155.191), and Catsup (21CFR§155.194) all allow the use of GRAS organic acids. **Malic Acid is a GRAS organic acid** and can be used for this application at levels up to 0.7% (21CFR§184.1069).

Less pH Variation Due to Improved Buffer Capacity

Malic Acid reduces pH variation because it has a higher buffer capacity than Citric Acid at the pHs of processed tomato products, as shown in the graph at right. With less variation in pH from lot to lot, there is **more consistent texture, flavour and colour**.



RECOMMENDATIONS FOR USE: Normal use levels range from 0.1 – 0.5%. Application methods used for Citric Acid will also work for Malic Acid.