Jungbunzlauer

*From nature to ingredients®*

# Acidification and pH regulation

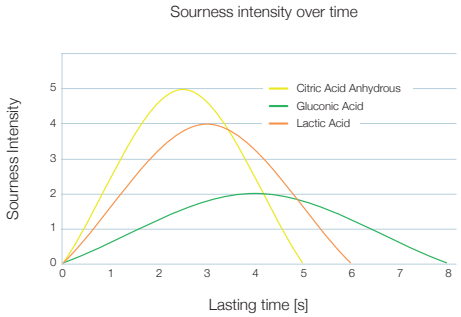
In Beverages

## Benefits at a glance

### Acid-sweetness balance

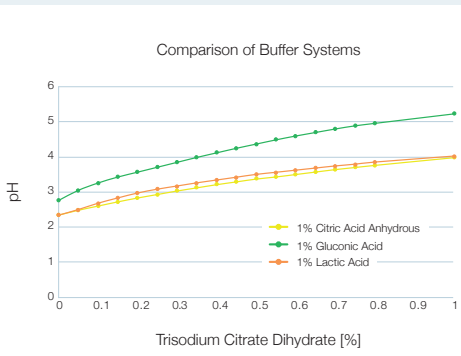
Achieving a **harmonious balance of sweetness and refreshing acidity** enhances flavour and supports the overall taste of the beverage

- Different acids provide **unique sourness intensity** and **duration**
- The combination of acids influences the overall acidic experience, helping to **counterbalance high-intensity sweeteners** and **prolong the perception of tartness**




### pH control

- Regulating pH is essential for **product stability**, ensuring consistent quality and extended shelf life
- **Prevents oxidation** while preserving colour, flavour and nutrients
- Offers effective **buffering capacity** to maintain long-term product integrity
- Various buffer salts allow for **control in different pH ranges**




### Natural acidification

- Different acids can **decrease pH at varying rates**, allowing for tailored acidification
- **Replacement of synthetic acids** with combinations of fermented acids for a more natural approach

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# Jungbunzlauer ingredients in function

- Citric Acid Anhydrous
- Citric Acid Monohydrate
- LIQUINAT® (Citric Acid Solution)
- Trisodium Citrate
- Tripotassium Citrate
- Glucono-delta-Lactone
- Gluconic Acid
- Sodium Gluconate
- L(+)-Lactic Acid

# Limitations in usage levels

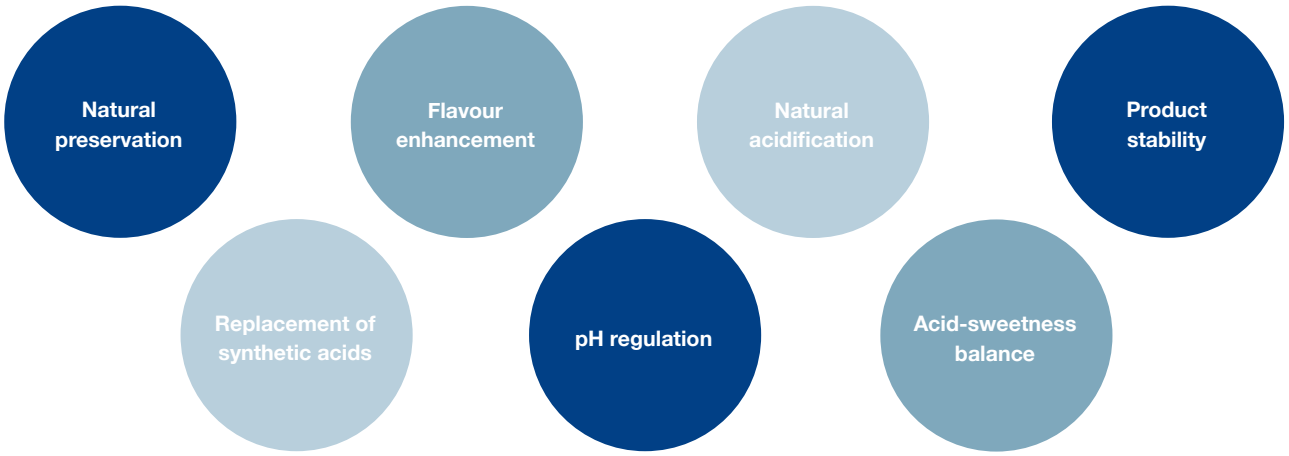
**EU**

- Citric Acid (E330), Trisodium Citrate (E331), Tripotassium Citrate (E332), Glucono-delta-Lactone (E575), Gluconic Acid (E574), Sodium Gluconate (E576) and Lactic Acid (E270) are approved as food additives under Regulation (EC) No 1333/2008 and can be used in food products under the quantum satis principle
- It is recommended to check for any specific limitations applicable to certain food categories under Regulation (EC) No 1333/2008

**USA**

- The following ingredients are listed as GRAS (Generally Recognized As Safe) for use in food according to current Good Manufacturing Practices (GMP), without specified upper limits:
  - Citric Acid 21 CFR § 184.1033
  - Trisodium Citrate 21 CFR § 184.1751
  - Tripotassium Citrate 21 CFR § 184.1625
- Glucono-delta-Lactone is listed as GRAS for use as a food additive, including as a pH control agent, with no limitations other than current GMP (21 CFR Ch. I §184.1318)
- Sodium Gluconate is listed as GRAS for use in food as a sequestrant (21 CFR §182.6757) or nutrient supplement, without limitations other than current GMP
- Lactic Acid is listed as GRAS for use as a food additive, including as a pH control agent, with no limitations other than current GMP (21 CFR § 184.1061)

# Value proposition

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