Acesulfame-K

WHAT IS ACESULFAME-K?

- An intensive, low/non-calorie sweetener
- Also known as Ace-K, Acesulfame-Potassium or potassium salt of Acesulfame

PROPERTIES OF ACESULFAME-K

- 200x sweeter than sucrose

- Non-cariogenic
- Carries a metallic, bitter taste
- Quick onset of sweetness in comparison to aspartame and sucralose
- Does not leave a lingering sweetness and does not persist longer than the intrinsic taste of the food in which it is used
- Highly water-soluble
  - o Its solubility is greater than required for practical application in both aqueous systems and in syrups of sorbitol, glucose or glucose–fructose

- Good stability at low pH levels for carbonated beverages

- Ace-K is stable in dry preparations such as powdered beverages, desserts and tablets, as well as in products that have a low-water content, including hard candy or chewing gum
- Ace-K is stable under the normal heating conditions during food processing including:
  - o Pasteurisation and ultra-heat treatment used for dairy products
  - o Production of fermented milk products
  - o Spray-drying, foam-mat drying and drying in a fluidised bed
  - o Canning and sterilisation
  - o Baking

- Not metabolised by the human body and is excreted unchanged

FLAVOUR PROFILE

- The rapid sweetness perception of Ace-K combines advantageously with the taste profiles of sugar alcohols
- The resultant blends have a full and rounded sweetness and are normally rated better than the sweetness of sugar alcohols alone, which are sometimes perceived as 'flat'
  - o Dosages of sugar alcohols correspond to those necessary to replace the 'bulk' provided by sucrose in a formulation
  - o Ace-K is used in quantities necessary to adjust the sweetness to the required intensity
- As with sugar alcohols, Ace-K can also be combined with simple sugars
  - o Blends with glucose or glucose-fructose syrups can be used to mimic the sweetness profile of sugar using either Ace-K alone or a blend of sweeteners containing Ace-K
- Synergistic blends of Ace-K with aspartame, sodium cyclamate and sucralose raises the sweetness intensity and taste quality of a product
  - o The quantitative sweetness may be as high as 90%
  - o In binary blends of Ace-K and aspartame, it can still be in the range of 40–50%
  - o Ace-K is often blended with Aspartame, which does not react with other flavours, preventing the loss of flavour

ACESULFAME-K IN A NUTSHELL

Scientific Name	*Acesulfame-K*
Brand Name	*Sunett, Sweet One*
Sweetness Intensity	*200x sweeter than sucrose*
ADI Limit	*15mg/kg body weight*
Safe for Children?	*Yes*
Safe for Pregnant and Breastfeeding Women?	*Yes*
Nutritive Value	0 *kcal/g*

APPLICATIONS

- Table top sweetener
- Baked goods
- Frozen desserts
- Candies
- Beverages
- Pharmaceuticals
- Breath mints
- Cosmetics
- Ketchup and spicy sauces

REGULATORY STATUS/ADI

- Ace-K is approved as a 'general purpose sweetener and flavour enhancer'
  - o Ace-K can be used without formal limits in all non-standardised products and in standardised products when it is listed as such or by general reference to intense sweeteners or sweetening agents in the list of ingredients
- US Food and Drug Administration (US FDA) Approval
- General Standard for Food Additives (GSFA) of the Codex Alimentarius lists Ace-K for a wide variety of products

References
[1] Mérillon, J. and Ramawat, K. (2018). Sweeteners. Cham, Switzerland: Springer Nature.
[2] Hartel, R., von Elbe, J. and Hofberger, R. (2018). Confectionery Science and Technology. Cham: Springer International Publishing.
[3] O'Donnell, K. and Kearsley, M. (2008). Sweeteners and Sugar Alternatives in Food Technology. 2nd ed. New York, NY: John Wiley & Sons.