

C☆Eridex IN BEVERAGES

APPLICATION OVERVIEW

Over the last 20 years the market for 0/low calorie drinks has established itself to reach a significant market share globally. The development of intense sweeteners was clearly the driving force behind the technical ability to make a low calorie product.

Today, consumer expectations are beyond calorie reduction. Quality and health benefits are now becoming essential. An incredible number of so-called new age drinks (as sport drinks, recovery drinks, ice teas and coffees, energy drinks, herbal drinks and wellness drinks) offering various functionalities are being developed to answer this new consumer demand.

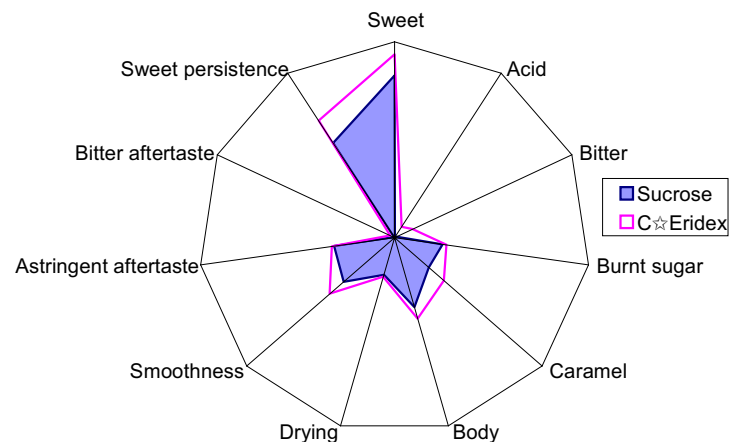
C☆Eridex, Cerestar's erythritol brand, is ideal for use in traditional and new low calorie beverages around the globe.

What makes C☆Eridex a key ingredient for this application?

- Since it is **all natural, non-caloric (<0.2 kcal/g)** and **very well tolerated** (by far the highest digestive tolerance of all polyols – more information available at <http://www.eridex.com/nutrition.html>). C☆Eridex is very well suited for new-age functional drinks to which it confers a healthy image.
- C☆Eridex contributes to an improved **taste quality**. Most of the currently available low calorie “diet” drink products on the

market remain very different from the sugar-based versions as they lack the taste quality and mouthfeel provided by sucrose.

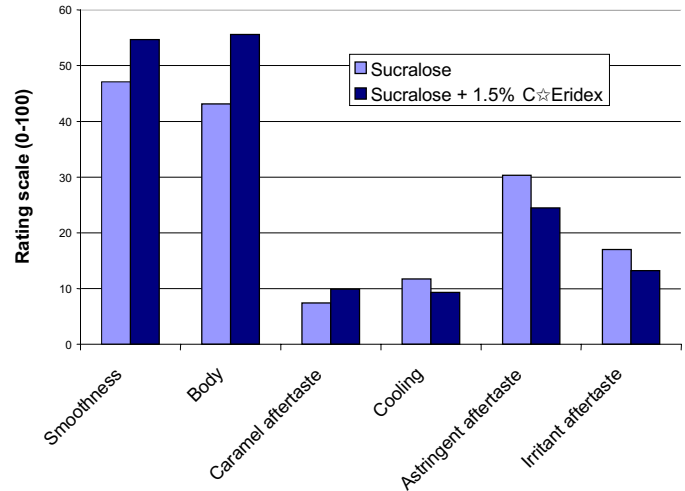
- ⇒ C☆Eridex is a bulk sweetener with a sweetness of 60 to 70% that of sucrose.
- ⇒ It has a very clean sweet taste and its bulk properties contribute to an improved mouthfeel and body in aqueous solutions.



- ⇒ More importantly, this benefit translates into finished low calorie beverages such as carbonated and still drinks, teas and coffees. In these various categories the ideal level for C☆Eridex used alone or in combination with intense sweeteners (aspartame, sucralose, aspartame/acesulfame-K blends, etc.) lies between 1% and 3%.

- ⇒ C☆Eridex significantly improves the flavour profile of the beverage by providing mouthfeel and by masking potentially unpleasant characteristics exhibited by intense sweeteners.

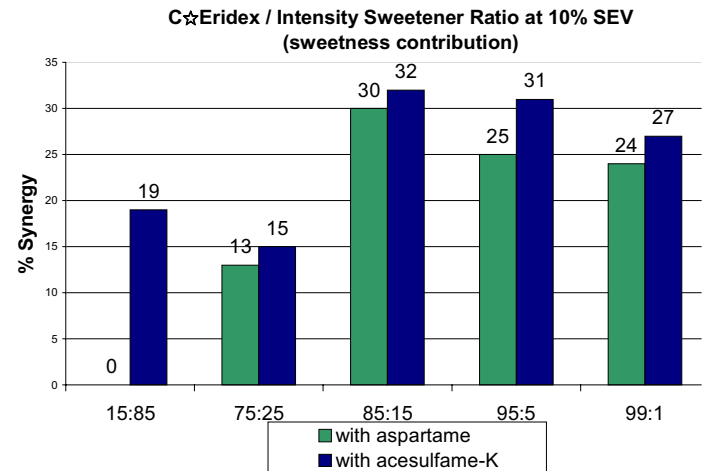
*Chart 2 - Taste profile of sucralose and sucralose/C☆Eridex blend in water at 10% SEV
C☆Eridex increases the smoothness and body mouthfeel as well as the natural caramel aftertaste and decreases potentially unpleasant characteristics such as astringent, irritant and cooling.*



- ⇒ When C☆Eridex is the major contributor to the sweetness, additive sweetness synergy is exhibited in combination with aspartame. Additive synergy was also observed in blends with acesulfame-K at various ratios.

- ⇒ This additive synergy translates not only into an enhanced sweetness, but also into an improved quality of the sweetness and of the flavours of the beverage.

Chart 3 - Additive sweetness synergy of C☆Eridex/aspartame and C☆Eridex/acesulfame-K blends Only minute amounts of aspartame or acesulfame-K are necessary to boost the sweetness intensity of C☆Eridex by about 30%.



- Beyond its significant taste benefits, C☆Eridex also exhibits an important **stability under the acidic and processing conditions used in beverage manufacturing, and upon storage.**

- ⇒ C☆Eridex remains stable under prolonged exposure to a pH in the range of 2 to 10.

- ⇒ Its excellent heat stability ensures no product decomposition and/or discoloration at a temperature up to 160°C. Furthermore, C☆Eridex does not undergo Maillard browning reaction. This

enables great flexibility in processes such as pasteurisation, hot pack, HTST and UHT treatments.

- ⇒ In drinks sweetened with aspartame or aspartame-acesulfame-K blends, C☆Eridex’s stability upon storage will substitute part of the sweetness of aspartame degraded over time as well as mask potential off-flavours developing upon storage. Hence, C☆Eridex improves the overall taste quality of aspartame sweetened drinks and extends their shelf life.

C☆Eridex GRADE

C☆Eridex 16952, a highly purified crystalline base grade is recommended for

use in beverage applications. It easily dissolves in cold or hot water (the solubility is 37% at 25°C).

With today's consumer becoming increasingly aware of health issues while very demanding in taste quality, C☆Eridex is offering major advantages to beverage manufacturers.

Our Application Specialists are experts in finding the right products for your finished formulation needs. With Cerestar's global structure and commitment to customer partnership, we would like to begin working with you today.

Call us today and start seeing a difference tomorrow.