



Sweeteners

Jungbunzlauer

*From nature
to ingredients®*

Sweeteners

Novel low-calorie bulk sweeteners

ERYLITE®

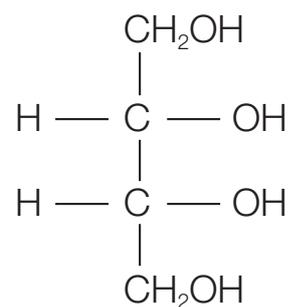
With the change in consumer's attitude towards sugar the food and beverage industry is looking for new, healthy and functional sweetening options. Most importantly, a natural origin is desirable and the taste must be flawless. Many alternatives to sugar exist but very few can take on all the different aspects of sugar in food and drinks. Only one delivers on all attributes considering taste, natural status and technological properties that promote healthy and desirable sweetness: ERYLITE®.

Enjoyable, "better for you" sweetness without excess calories – that is what the health conscious consumer is looking for. ERYLITE® is a bulk sweetener with minimal caloric content but a full sugar taste profile.

This sweetener, commonly known as erythritol, appears as white crystalline powder and is approximately 60-70% as sweet as sugar. It can be considered natural because it occurs in nature, plant based raw materials are used to manufacture it, and the process used to make it is a yeast fermentation. This production process qualifies ERYLITE® to be regarded as the first and only natural sugar alcohol.

Amongst other benefits, ERYLITE® has a unique metabolic profile. It is a 4 carbon sugar alcohol (polyol) with a very small molecular weight (122 g/mol). Proven through scientific studies, ERYLITE® is mainly absorbed in the small intestine and delivers only about 5% or less of the usual carbohydrate calories.

This unique property does not only qualify it as the polyol with the lowest caloric value (almost zero), it gives ERYLITE® also the highest digestive tolerance of all polyols and makes it non-laxative at typical polyol consumption levels. Moreover, ERYLITE® does not increase blood sugar levels and is easy to use for diabetics.

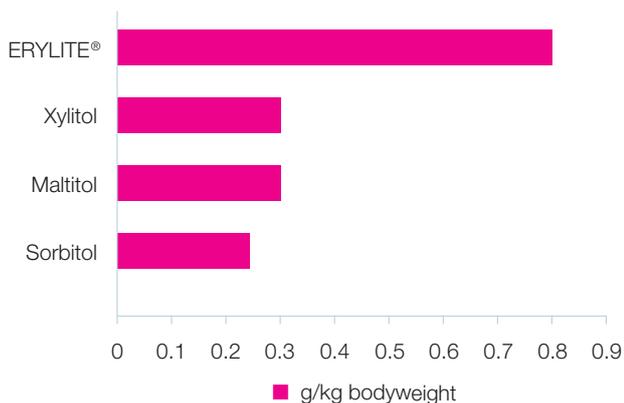


Key Benefits of ERYLITE®

In food applications – ERYLITE®

- is approved as zero calorie sweetener (EU and Japan). In the USA 0.2 kcal/g apply. In most countries ERYLITE® is approved as a low calorie sweetener.
- has a high digestive tolerance and is non-laxative at typical consumption levels.

Digestive tolerance of polyols



Sources: Oku et al, Bio Clinica

- has a clean sweet taste along a refreshing cooling sensation (based on a negative heat of solution) and is approximately 60-70% as sweet as sugar (sucrose). It has no aftertaste.
- exhibits interesting qualitative and quantitative synergies with stevia based sweeteners and artificial sweeteners (e.g. sucralose, aspartame, acesulfame-K).
- has a zero glycemic index and does not raise plasma glucose or insulin levels.
- has very low hygroscopicity.
- dissolves in water up to 61g / 100g at 25°C.
- may act as preservative agent as its small molecular size reduces the water activity of food systems efficiently.



In personal care applications – ERYLITE®

- is a premium moisturiser, without stickiness in skin care formulations or any unpleasant odour. It outperforms glycerine as a primary skin moisturiser in creams and lotions. Furthermore it is improving hair feel and wet comb-out in shampoos and conditioners.
- is tooth-friendly and works in dental care products as powerful cariostatic agent: Its continued usage leads to a significant reduction of dental plaque and lowers the level of adverse *Streptococcus mutans* bacteria.

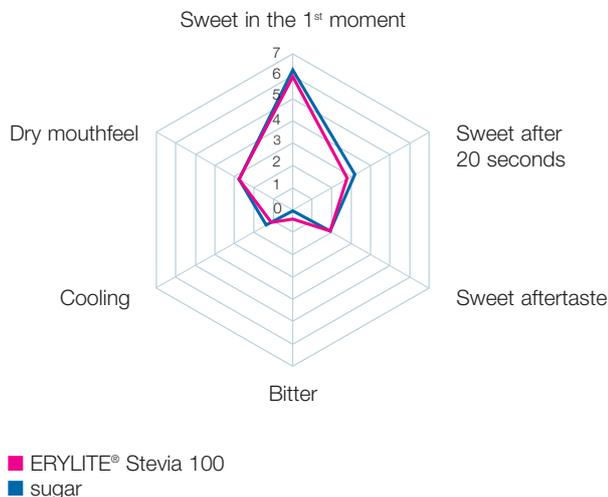


ERYLITE® Blends

ERYLITE® Stevia

Taste characteristics of ERYLITE® Stevia 100 and sugar

5% sugar equivalent



ERYLITE® Stevia is Jungbunzlauer's unique blend of ERYLITE® and Rebaudioside A, a highly pure stevia plant extract. This blend unites the taste quality, the digestive tolerance and the bulking functionality of ERYLITE® with the sweetening capacity of stevia plant extracts. The result is a sweetening system with a calorie content close to zero, an excellent taste, full bulk sweetener functionality and which can be considered natural as well. ERYLITE® Stevia is available in a range of different sweetness levels with individual suitability to food and beverage applications:

Type	Sweetness equivalent
ERYLITE® Stevia 100	Same sweetness as sucrose
ERYLITE® Stevia 200	2x the sweetness of sucrose
ERYLITE® Stevia 400	4x the sweetness of sucrose

The uniqueness of ERYLITE® Stevia is based on the concept of simplicity: to create a clean sugar-like taste profile where no additional ingredients like flavours or masking agents are needed. ERYLITE® Stevia is innovative and pure – healthy sweetness based on the essential.

Key benefits of ERYLITE® Stevia

- Calorie content close to zero
- Well tolerated
- Provides mouthfeel and bulk
- Pure sugar-like taste free from any off-notes
- No effect on the blood sugar level (zero glycemic index)
- Tooth-friendly and non-cariogenic
- Inseparable and easy to use



ERYLITE® Bronze

ERYLITE® Bronze is Jungbunzlauer's version of brown raw sugar: A low calorie sweetener of mild sweetness with the characteristic bronze colour and the pleasant flavour of brown raw sugar. It consists of ERYLITE®, a colouring fruit extract and a natural flavour creating its unique taste sensation.

Its functionalities are the same as regular ERYLITE® and it has the same favourable physiological benefits: a zero glycemic index, a high digestive tolerance and tooth-friendliness.

The gentle sweetness and the mild flavour combined with bulking properties qualifies ERYLITE® Bronze to open new ways for replacing brown raw sugar without compromising on taste.

Regulatory Status and Application Areas

Jungbunzlauer's sweeteners are specified according to the latest editions of the European food additive regulations and the US Food Chemicals Codex. In most food categories they may be used for sweetening as well as for other purposes. For individual regulatory and technical consultancy to the applications of our sweeteners Jungbunzlauer provides professional customer support and offers individual solutions tailor-made to the requirement of our customers.

The application area of Jungbunzlauer sweeteners is not limited to food & beverages but also includes health and personal care applications:



Application area	Sweetener of choice	Key Benefits
Beverages	ERYLITE® ERYLITE® Stevia	In sugar-reduced or sugar-free beverages, ERYLITE® works well in combination with intense sweeteners. Due to its powerful masking and flavour enhancing properties, ERYLITE® helps to create a sugar-like taste and a harmonious and pleasant flavour profile. ERYLITE® Stevia is particularly well suited for instant mixes.
Sugar & Chocolate Confectionery	ERYLITE® ERYLITE® Stevia	In gum and sugar confectionery, ERYLITE® improves the flavour profile by masking off-notes of intense sweeteners and by giving a strong refreshing cooling effect. In sugar-free chocolate, ERYLITE® and ERYLITE® Stevia provide bulk, melting characteristics and a glossy shine. At the same time, a high calorie reduction can be achieved.
Dairy & Frozen Desserts	ERYLITE® ERYLITE® Stevia	In yogurt or ice cream applications, ERYLITE® and ERYLITE® Stevia work as bulking agents that allow high calorie savings by offering a sugar-like taste sensation. ERYLITE® works also well in combination with other intense sweeteners.
Table Top Products	ERYLITE® ERYLITE® Stevia ERYLITE® Bronze	The whole Jungbunzlauer sweetener range is perfectly qualified as table top sweetener. ERYLITE® can be used single or in combination with intense sweeteners for an improved and enhanced taste profile. ERYLITE® Stevia and ERYLITE® Bronze are the ready-to-use solution.
Supplements	ERYLITE® ERYLITE® Stevia ERYLITE® Bronze	In instant beverage and direct sticks, ERYLITE® improves the flavour profile by masking off-notes of active ingredients and intense sweeteners and by giving a refreshing cooling effect. ERYLITE® Stevia creates a sugar-like sweetness sensation. ERYLITE® Bronze is particularly well suited for tablets.
Oral Care	ERYLITE® ERYLITE® Stevia	In toothpaste, mouthwash or chewing gum, ERYLITE® functions as a strong anti-caries agent as its continuous usage leads to significant reduction of plaque formation by inhibiting the growth of <i>Streptococcus mutans</i> . ERYLITE® Stevia works also as taste enhancing agent by adding a pleasant sweetness, covering bitter notes of other compounds and by rounding up the taste profile.
Skin Care	ERYLITE®	In face creams, body lotions or lip balm, ERYLITE® functions as moisturising agent by increasing the skin moisture significantly. Moreover, ERYLITE® has no adverse effects and is not sticky like other moisturisers (e.g. glycerin).
Hair Care	ERYLITE®	In shampoo and conditioner products, ERYLITE® works as moisturising agent and helps to fight frizzy hair as well as to make hair smoother and more manageable.



Jungbunzlauer Group

Jungbunzlauer is represented in all major markets. Our global network of sales companies and distributors covers more than 130 countries.

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From nature to ingredients®

Jungbunzlauer is one of the world's leading producers of biodegradable ingredients of natural origin. The Swiss-based, international company's roots date back to 1867. Today, Jungbunzlauer specialises in citric acid, xanthan gum, gluconates, lactics, specialties, special salts and sweeteners for the food, beverage, pharmaceutical and cosmetic industry as well as for various other industrial applications.

Jungbunzlauer's products are manufactured utilising fermentation technology, a natural process. All its products can be used, transported and disposed of in a secure and ecologically safe way. The Group operates manufacturing plants in Austria, Canada, France and Germany.

A worldwide network of sales companies and distributors with a thorough understanding of target markets and client requirements underlie Jungbunzlauer's high level of market and customer proximity. Committed to its rigorous quality standards, Jungbunzlauer guarantees for the excellence and sustainability of its products and services.

Headquarters **Jungbunzlauer Suisse AG** · CH-4002 Basel · Switzerland · Phone +41-61-2955 100 · headquarters@jungbunzlauer.com

www.jungbunzlauer.com

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