



# A Guide for Healthcare Professionals

(SPLENDA® Brand Sweetener)



**Frequently  
Asked Questions**



## The Science of Sucralose

### (SPLENDA® Brand Sweetener)

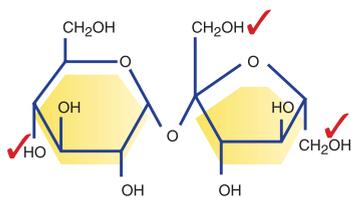
#### What is sucralose?

Sucralose is the sweetening ingredient in SPLENDA® Brand Sweetener Products, which include SPLENDA® No Calorie Sweetener and SPLENDA® Brown Sugar Blend products. Sucralose is manufactured

in a patented multi-step process that starts with sugar and selectively replaces 3 hydrogen-oxygen groups on the sugar molecule with 3 chlorine atoms. Sucralose is sold as SPLENDA® Brand Sweetener.

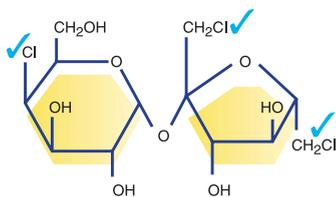
### Sucralose: Made from sugar, tastes like sugar, but it's not sugar

#### Chemical structures of sucrose and sucralose (the sweetener in SPLENDA® Brand Sweetener)



Sucrose ( $C_{12}H_{22}O_{11}$ )

Three hydrogen-oxygen groups on the sucrose molecule are selectively replaced with 3 chlorine atoms. These tightly bound chlorine atoms are exceptionally stable, and



Sucralose ( $C_{12}H_{19}Cl_3O_8$ )

prevent sucralose from being metabolized for energy. Studies show that sucralose does not elevate blood glucose or serum insulin levels.

## Safety Profile of SPLENDA® Brand Sweetener

### What role do the chlorine atoms on the sucralose molecule play?

These tightly bound chlorine atoms are exceptionally stable and prevent the molecule from being metabolized for energy, making sucralose calorie-free. The chlorine atoms also provide heat stability, enabling sucralose to withstand the rigors of cooking and baking without losing sweetness. Note also that chlorine is a natural element present in many foods and beverages. It is added to most public water supplies and is found in foods such as lettuce, tomatoes, mushrooms, melons, peanut butter, and table salt.

### Is sucralose safe?

Yes. Sucralose (SPLENDA® Brand Sweetener) has been the subject of more than 100 scientific studies to establish its safety.<sup>13</sup> The results have been independently evaluated by Health Canada, the Food and Drug Administration (FDA) and international experts from a variety of scientific disciplines. As a result, Health Canada and other important health authorities have concluded that sucralose is suitable for use by everyone, including people with phenylketonuria.\* Sucralose is now approved for use in over 80 countries and is used in more than 4,000 products worldwide.

Conclusions based on the sum of sucralose safety studies include:

- No known side effects
- No toxicity, even in tests simulating the sweetness of 40+ pounds of sugar per day for life
- No bioaccumulation
- No carcinogenicity
- No genotoxicity
- No effects on fetal or neonatal development
- No neurotoxicity

\* *Phenylketonuria is a rare disease related to metabolism of phenylalanine. Sucralose (SPLENDA® Brand Sweetener) contains no phenylalanine.*

### **Do products sweetened with sucralose have to carry any warning labels or health information statements?**

No. The regulatory agencies, health authorities, and scientific experts that have reviewed the sucralose scientific data do not require any warning or health information statements on foods and beverages sweetened with sucralose.

### **Is sucralose (SPLENDA® Brand Sweetener) suitable for people with diabetes?**

Yes. Clinical trials have shown that sucralose has no effect on insulin levels, fasting or postprandial blood glucose levels, or long-term blood glucose control (hemoglobin A1C).<sup>3,5</sup> A multi-centre study demonstrated that daily sucralose consumption of triple the maximum projected daily intake for 3 months had no effect on glucose homeostasis in patients with type 2 diabetes.<sup>5</sup>

### **Can pregnant and nursing women consume sucralose?**

Yes. Studies to support the safety of sucralose during pregnancy and nursing have been performed. Studies in animal models showed that sucralose is not actively transported across the mammary gland into breast milk. While mothers typically have higher nutritional needs during pregnancy and nursing, sucralose may help women avoid excess calorie intake during these times. For some women, sucralose may be part of an important strategy to reduce the risk of unnecessary weight gain.

### **Can children use sucralose?**

Yes. Sucralose can be used by everyone. Foods sweetened with sucralose can be a great addition to healthy meal plans designed for children's needs.

## How Sucralose is Metabolized

### What happens to sucralose after it is ingested?

Sucralose (SPLENDA® Brand Sweetener) is about 600 times sweeter than sugar. This means that average daily intakes are very small (estimated at 1 mg/kg/day).

#### *Absorption and distribution*

The majority (about 85%) of consumed sucralose is not absorbed and passes through the gastrointestinal tract unchanged. Approximately 15% of ingested sucralose is passively absorbed, which is related to the fact that sucralose is a very small, very water soluble molecule. Because it is highly water soluble, absorbed sucralose is distributed to essentially all tissues. Sucralose is not lipophilic and does not bioaccumulate. Radiolabel studies show that sucralose is not actively transported across the blood-brain barrier, the placental barrier, or the mammary gland.

#### *Metabolism*

Sucralose is not recognized by the body as a carbohydrate—it is not broken down for energy and provides no calories. Approximately 2% of ingested sucralose is biotransformed into toxicologically insignificant components and excreted in the urine. Sucralose does not bind to blood protein or other proteins and there is no dechlorination. Nor is sucralose broken down in the body to its component monosaccharide-like derivatives.

#### *Elimination*

Most ingested sucralose is eliminated unchanged in the stool and this occurs without gastrointestinal effects. With the very small amount of sucralose intake that can be expected from foods and beverages containing sucralose, osmotic effects that are known to occur with some poorly absorbed substances would not be expected. Of the small amount of sucralose that is absorbed, most is eliminated in the urine within 24 hours. The effective half-life for sucralose is relatively rapid and there is no bioaccumulation.

## SPLENDA® Brand Products Profile

### What are the available formulations of Sucralose?

**SPLENDA® No Calorie Sweetener** contains sucralose and small amounts per serving of food ingredients commonly found in other no calorie sweeteners. These provide less than 5 calories and 1 gram carbohydrate per serving.<sup>†</sup> Foods with less than 5 calories per serving meet the Health Canada standard for no calorie foods. SPLENDA® No Calorie Sweetener is available in two products:

- **SPLENDA® Packets:** The familiar yellow, single-serving packets used for sweetening beverages and sprinkling on food.
- **SPLENDA® Granular:** Larger packages for use in cooking and baking. Measures cup for cup like sugar.

### SPLENDA® Blends

- **SPLENDA® Brown Sugar Blend:** A mix of sucralose and brown sugar, with half the calories and carbohydrates of brown sugar per serving. Provides molasses-like flavour along with baking performance more like brown sugar. Patients with diabetes and others on carbohydrate-restricted meal plans need to consider the sugar and carbohydrate content in

SPLENDA® Brown Sugar Blend and foods made with it. Although this is a reduced-sugar product, sensible eating, including prudent control of portion size, is also needed to achieve effective control of calorie and carbohydrate intake.

**Sucralose (SPLENDA® Brand Sweetener)** is also available in thousands of food and beverage products internationally.

### In terms of taste, how does sucralose compare to other sweeteners?

Sucralose (SPLENDA® Brand Sweetener) provides a great sugar-like taste, although it is not sugar, without an unpleasant aftertaste associated with some other non-nutritive sweeteners. Sucralose also stays sweet in cooking and baking, whereas some other sweeteners lose their sweetness when heated.

### How do SPLENDA® products help in calorie control?

SPLENDA® products offer a healthy alternative to sugar. They are an easy way to help reduce the amount of calories and sugar in the diet.

Eliminating just 250 calories a day can turn into 1/2 lb of weight loss per week.

<sup>†</sup>The calories and carbohydrates in SPLENDA® No Calorie Sweetener products come from maltodextrin and/or dextrose. These are common food ingredients that add bulk, but only minimal calories and carbohydrates, to each serving of SPLENDA® No Calorie Sweetener products. Note that up to 8 teaspoons (40 mL) of SPLENDA® Granular or up to 4 packets of SPLENDA® No Calorie Sweetener is considered a free food in a diet for diabetes and can fit easily into a meal plan for people with diabetes.

# SPLENDA® Brand Sweetener (sucralose): Made from sugar, tastes like sugar, but it's not sugar.

For more information about sucralose or SPLENDA® Brand Products,  
contact us at **1-800-561-0070**, or visit **[www.splenda.ca](http://www.splenda.ca)**.



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