

# Sucralose Toxicity Information Center

---

\*\*\* Also see the sucralose/Splenda reviews by Dr. Joseph Mercola at: \*\*\*

[http://www.mercola.com/2000/dec/3/sucralose\\_dangers.htm](http://www.mercola.com/2000/dec/3/sucralose_dangers.htm)

[http://www.mercola.com/2000/dec/3/sucralose\\_testimonials.htm](http://www.mercola.com/2000/dec/3/sucralose_testimonials.htm)

<http://www.mercola.com/cgi/pf/2004/jul/21/splenda.htm>

[http://www.mercola.com/2003/nov/8/splenda\\_dangers.htm](http://www.mercola.com/2003/nov/8/splenda_dangers.htm)

<http://www.truthaboutsplenda.com/> (Sugar Association Website)

---

## [Splenda Toxicity Reaction Samples \(Updated 2/13/2006\)](#)

Splenda, also known as sucralose, is artificial sweetener which is a **chlorinated** sucrose derivative. Facts about this artificial chemical follows:

- **Pre-Approval Research**

Pre-approval research showed that sucralose caused shrunken thymus glands (up to 40% shrinkage) and enlarged liver and kidneys. The manufacturer put forth two arguments in an attempt to claim that sucralose is not toxic:

1. The dose of sucralose in the experiments was high. However, for **chemicals that do not have generations of safe use**, the dosage tested must be adjusted for variations in potential toxicity within the human population and between humans and rodents. In order to this, toxicologists estimate a variation of effects in the human population of 10 times. In other words, one person may not have effects until a dose of 10 mg per kg of body weight (10 mg/kg) is reached, while another person may have chronic toxicity effects at 1 mg per kg of body weight (1 mg/kg). In addition, it is well known that many chemicals are much more toxic in humans than in rodents (or even monkeys). For example, the chemicals that the sweetener aspartame breaks down into vary from 5 to 50 times more toxic in humans than in rodents. Therefore, toxicologists estimate a further 10 times the dose for differences between human and rodent toxicity for a total of 100 times (10 \* 10).

In order to estimate a potential safe dose in humans, one must divide the lowest dose in given to rodents that was seen to have any negative effects on their thymus glands, liver or kidneys by 100. That dose is then known as the maximum Tolerable Daily Intake (TDI) for lifetime use. Keep in mind that the TDI is just an estimate. Some chemicals are much more than 10 times more toxic in humans than in rodents (or will cause cancer in humans in low-dose, long-term exposure and do not cause cancer in rodents at all). A person ingesting the TDI for some chemical may find that it causes cancer or immune system or neurological problems after many years or decades of use. So, if the manufacturer claims that the dose was equivalent to 50 diet sodas, then the TDI would be one half (1/2) of a diet soda, and even that dose may or may not be safe.

2. The manufacturer claimed that the sucralose was unpleasant for the rodents to eat in large doses. They said that starvation caused the shruken thymus glands. From the New Scientist (23 Nov 1991, pg 13):

[Toxicologist Judith] Bellin reviewed studies on rats starved under experimental conditions, and concluded that their growth rate could be reduced by as much as a third without the thymus losing a significant amount of weight (less than 7 percent). The changes were much more marked in rats fed on sucralose. While the animals' growth rate was reduced by between 7 and 20 percent, their thymuses shrank by as much as 40 percent.

Other adverse effects reported in pre-approval research included:

- Shrunken thymus glands (up to 40% shrinkage) (EO56)
- Enlarged liver and kidneys. (EO57 & E161)
- Atrophy of lymph follicles in the spleen and thymus (EO51, EO56, EO151)
- Increased cecal weight (E151)
- Reduced growth rate (EO57)
- Decreased red blood cell count (EO55)
- Hyperplasia of the pelvis (EO57)
- Extension of the pregnancy period
- Aborted pregnancy (E134)
- Decreased fetal body weights and placental weights (EO32)
- Diarrhea

- **Recent Research**

A possible problem with caecal enlargement and renal mineralization has been seen in post approval animal research.

- **Sucralose Breaks Down**

Despite the manufacturer's mis-statements, sucralose does break down into small amounts of 1,6-dichlorofructose, a chemical that has not been adequately tested in humans.

- **Independent, Long-Term Human Research**

None. Manufacturer's "100's of studies" (some of which show hazards) were clearly inadequate and do not demonstrate safety in long-term use.

- **Chlorinated Pesticides**

The manufacturer claims that the chlorine added to sucralose is similar to the chlorine atom in the salt (NaCl) molecule. That is not the case. Sucralose may be more like ingesting tiny amounts of chlorinated pesticides, but we will never know without long-term, independent human research.

- **Conclusion**

While it is unlikely that sucralose is as toxic as the poisoning people are experiencing from Monsanto's [aspartame](#), it is clear from the hazards seen in pre-approval research and from its chemical structure that years or decades of use may contribute to serious chronic immunological or neurological disorders.

- **Addendum (October 2, 2000)**

Occasionally, persons emailing ask questions about sucralose research. What follows is a copy of a response one such question. The answer starts by summarizing the aspartame (NutraSweet) issue and then addresses the sucralose issue.

Let me start by saying that, as you may know, there is a quickly growing body of evidence demonstrating the toxicity of [aspartame](#). This includes:

- Recent European research showing that ingesting aspartame leads to the accumulation of formaldehyde in the brain, other organs and tissues (Formaldehyde has been shown to damage the nervous system, immune system, and cause irreversible genetic damage in humans.)
- An extremely large number of toxicity reactions reported to the FDA and other organizations
- A recent report showing that nearly 100% of independent research has found problems with aspartame.

Why is this relevant to the sucralose question? Similar to the aspartame situation 15 years ago:

4. Pre-approval test indicated potential toxicity of sucralose.
5. There are no \*independent\* controlled human studies on sucralose (similar to 15 years ago for aspartame).
6. There are no long-term (12-24 months) human studies of sucralose's effects.
7. There is no monitoring of health effects. It took government agencies decades to agree that there were countless thousands of deaths from tobacco. Why? Simply because there had been no monitoring or epidemiological studies. Without such monitoring and studies, huge effects can easily go unnoticed.

So, without even addressing the pre-approval research showing potential toxicity, it is clear that sucralose has a) no long history (e.g., decades) of safe use, b) no independent monitoring of health effects, c) no long-term human studies, and d) no independent human studies. I would hope that the Precautionary Principle, now commonly used in Europe, would be a guiding force for people who are interested in health. Otherwise, we might as well just use any poorly tested, artificial (lab-created) chemical that has shown potential for long-term toxicity.

As far as the pre-approval research related to sucralose.... As you probably know, pre-approval research is rarely published. It is only available from the FDA by filing a Freedom of Information Act request. However, you can see a very short summary regarding sucralose and shrunken thymus glands in the "New Scientist" (23 November 1991, page 13).

It is very important that people who have any interest in their [health](#) stay aware from the highly toxic sweetener, [aspartame](#) and other dangerous sweeteners such as sucralose (Splenda), and acesulfame-k (Sunette, Sweet & Safe, Sweet One). Instead, please see the extensive resources for sweeteners on the [Healthier Sweetener Resource List](#).