# What You Need to Know About the First GMO Apples

An apple a day keeps the doctor away, right? Apples are a perfect, portable snack loved by adults and kids alike. They are low in calories, high in fiber and are a great source of Vitamin C. The bad news? Apples are one of the dirty dozen, one of the most pesticide-laden fruits or vegetables on the market. The news is about to get worse for real food lovers. The first GMO apples will be going on sale in the Midwest as early as this February.

## About the GMO Apples

The GMO, or genetically modified apples, were developed from the Golden Delicious variety and are sold under the Artic brand produced by Okanagan Specialty Fruits of Summerland, B.C. The apples are sold pre-sliced in plastic pouches. Instead of using citric acid to delay browning, the apples were genetically modified to reduce the amount of the enzyme, polyphenol oxidase (PPO), in the fruit. This enzyme is what causes the fruit's flesh to oxidize, or turn brown, when exposed to air. The result is an apple that, once sliced, will not brown for up to three weeks.

## What is Oxidation?

Oxidation is a natural chemical process that occurs in all living cells. When the skin of an apple is broken, the cell walls and membranes rupture,  allowing oxygen in. The process is accelerated by PPO, which results in the browning of the apple flesh.

What's the big deal about browning apples? Well, for starters, it's unattractive. Oxidation causes some loss of nutrients and

causes the apple's flesh to soften. For apple processors, this makes handling the fruit and getting it to market a delicate dance.

Now, there's an apple that will not brown for 3 weeks when exposed to air. This is revolutionary for apple processors. This apple will allow some apple processors to limit additives to their apple products to prevent browning. It also ensures a longer shelf life for pre-cut apples.

## Is it Safe?

In tomatoes, PPO is vital. It acts as a defense to ward off pests and pathogens. According to Arctic, PPO plays no active role in modern apples. Their scientific team used "gene silencing" to reduce the amount of PPO released by the apples, thereby practically eliminating PPO production in the Golden Delicious apples.

Is this breakthrough in the quest of making a non-browning apple safe for consumers? The USDA gave the GMO apples their stamp of approval, but like many GMO plants, only time will tell. Although Artic studied the "non-target" or side effects of the apple plants for 12 years, as with other GMO foods, no testing of long-term consumption by humans has been completed. For many of these foods, generational studies on animals were never completed either.

## Alternatives

If you're not ready to jump on the GMO brown-free bandwagon, here are few natural ways to keep apple oxidation at bay.

- Slice the fruit in water.
- Toss apple slices in lemon juice.
- Soak the slices in salt water or apple cider vinegar water.
- Sprinkle the slices with ascorbic acid (Vitamin C) powder.

• Wrap a rubber band around a sliced apple to put it back together.

These methods will keep your apple slices brown-free for several hours. Or, you can always just eat an apple in its entirety. For all the time, money and effort that went into keeping apples from oxidizing for three weeks, the reality is that brown apples won't kill you! Skip the GMO apples and spend your money on organic ones.

**Further Reading:**

- *Scientists Against GMOs – Hear From Those Who Have Done the Research*
- *GMO Pink Pineapple Is Coming – Ever Heard of Pink Pineapple Disease?*
- *Understanding and Detoxifying Genetically Modified Foods*
- *Monsanto Company Profile*
- *Holistic Guide to Healing the Endocrine System and Balancing Our Hormones*

**Sources:**


- *How'd we "make" a nonbrowning apple?* – Arctic Apples
- *Dirty Dozen* – EWG