What is malic acid in sweets?

From the sweeties.net wiki

Malic acid is the acid that makes apples sharp. It is found in all fruits and many vegetables, and it is made by all living things as part of their metabolism. In sweets it is used to make them sour, sometimes very sour. On an ingredients list it appears as malic acid or by its E number, E296.

The apple acid

The name comes from m?lum, the Latin word for apple. The chemist Carl Wilhelm Scheele first isolated malic acid from apple juice in 1785, and two years later the chemist Antoine Lavoisier proposed the name acide malique. In German it is simply called Apfelsäure, apple acid.

Malic acid is the main acid in many fruits, including apricots, blackberries, blueberries, cherries, grapes, peaches, pears, plums and quinces, and it is found in smaller amounts in citrus fruit. It gives unripe apples their sourness, and sour apples contain a lot of it. Its taste is very clear and pure in rhubarb, where it is the main flavour: see rhubarb and custard

It turns up in savoury food too. It is responsible for the tart flavour of sumac, the spice, and it is used in some artificial vinegar flavours, such as salt and vinegar crisps.

Why sweet makers use it

Malic acid is sourer than citric acid, the acid of lemons. So it is used with citric acid, or in place of it, in sour sweets. It is also one of the three acids, along with citric and tartaric acid, in sour sanding, the sour sugar that coats sweets such as lemon drops. And it can be the acid in sherbet, where it reacts with bicarbonate to make the fizz: see what is citric acid in sweets?

The warning on sour sweets

Because it is so sour, malic acid can be too much of a good thing. Some sour sweets made with it carry a warning that eating too many can irritate your mouth. If your tongue or cheeks start to sting, it is time to stop. For why sourness makes your face screw up, see why do sour sweets make your mouth pucker?

How it is made

The malic acid in nature is one form, known as L malic acid. Industrially, malic acid can be made from a chemical called maleic anhydride, which gives a mixture of the natural form and its mirror image, while the natural form on its own can be made by fermentation. In 2000, production capacity in the United States alone was 5,000 tons a year.

Is it safe?

Malic acid is part of everyday food: anyone who eats an apple eats it, and our own bodies make it as part of the citric acid cycle. It is approved as a food additive in the European Union, the United States, and Australia and New Zealand. It provides about 2.4 kilocalories per gram.