

10 December 2009

Tartaric Acid: Why synthetic Tartaric Can't be Used

Tartaric acid is a natural acidulant derived from grapes and some stone fruit. It has a slightly tarter taste profile than citric acid, and can be derived from natural sources (such as grapes) or synthesised naturally.

According to Linan (2009) Tartaric acid can be produced industrially from malic acid or fumaric acid by reacting it with potassium permanganate, which produces a mixture of different isomers. This process produces Tartaric acid in three different Isomers or forms: dextro-, levo-, and meso-. The dextro- and levo- forms are optically active while the meso- form is optically inactive. The racemic acid is a mixture of equal parts of the dextro- and levo- forms.

Recently synthetic of tartaric acid has been offered for food use. However this ingredient does not comply with Australian and New Zealand Food Regulations.

Standard 1.3.4 (Identity and Purity) of the Food Standards Code states that a substance must comply with a relevant monograph from the Combined Compendium of Food Additive Specifications FAO JECFA or from Food Chemicals Codex (FCC).

The FCC monograph specifically states that Tartaric Acid shall have a specific optical rotation $[\alpha]_{25}^D$ of +12.0 to +13 .

Only the natural L-(+)-tartaric acid meets this optical rotation requirement. By-products of Tartaric Acid such as Cream of Tartar and Rochelle Salt are also covered by this requirement, and accordingly must also be from a natural source.

References:

Linan 2009, Linan Euro-China Co., Ltd www.lec.cc