



# NEOHESPERIDINE DC

## DESCRIPTION

Neohesperidine DC (INS 959, E 959) is a low-calorie sweetener and flavour modifier which may be produced by hydrogenation of neohesperidine, a flavonoid occurring naturally in bitter oranges.

## RELATIVE SWEETNESS

Neohesperidine DC is 1500-1800 times sweeter than sucrose at threshold levels. At practical use levels, it is about 400-600 times as sweet as sucrose.

## STRUCTURE AND METABOLISM

Neohesperidine DC is a flavonoid dihydrochalcone. While neohesperidine DC has not yet been found in nature, structurally related flavonoids and their corresponding dihydrochalcones occur naturally in many plants. Ingested, neohesperidine DC is not absorbed to a significant extent. However, it is metabolised by the intestinal flora, yielding the same or similar breakdown products as its naturally occurring analogues.

## BENEFITS

Neohesperidine DC is typically used in combination with other sweeteners. In such mixtures, it exhibits remarkable synergistic effects and can enhance the quality of sweetener blends. Even at very low concentrations, neohesperidine DC can improve the overall flavour profile and mouthfeel of foods. Under such conditions, neohesperidine DC acts as a flavour enhancer and modifier rather than as a sweetener. Neohesperidine DC also has bitterness-reducing properties.

Neohesperidine DC is stable in solid form and in aqueous solutions of pH 1-7 ( $t_{1/2} > 1$  year, 20° C). It is heat stable and can therefore be used in foods requiring pasteurization or UHT processes.

Neohesperidine DC does not promote tooth decay and may be used in products for diabetics.

## APPLICATIONS

Neohesperidine DC can be used in a wide range of food and beverages in combination with other sweeteners for its sweetening and flavouring properties:



- chewing gum
- candy
- carbonated beverages
- non-carbonated beverages
- yoghurt
- ice cream
- desserts
- table-top sweeteners
- toothpaste
- pharmaceutical products

## **SAFETY AND STATUS**

The safety of neohesperidine DC was confirmed in 1988 by the Scientific Committee on Food (SCF) of the European Commission - now the European Food Safety Authority (EFSA).

Neohesperidine DC is authorised in the EU as a sweetener under Directive 94/35/EC and as a flavour enhancer in certain applications under Directive 95/2/EC.

The functionality of neohesperidine DC as a flavour modifier at low concentrations has steadily gained recognition. Approvals as a flavour or flavour ingredient exist in countries such as the United States, Japan, Australia and New Zealand, and further approval is being sought elsewhere.

## **ADI**

The Acceptable Daily Intake (ADI) for neohesperidine DC has been set at 0-5 mg/kg body weight by SCF.