Saccharin

1 Nonproprietary Names

BP: Saccharin
JP: Saccharin
PhEur: Saccharin
USP–NF: Saccharin

2 Synonyms

1,2-Benzisothiazolin-3-one 1,1-dioxide; benzoic acid sulfimide; benzoic sulfimide; benzosulfimide; benzo-2-sulphimide; benzoylsulfonic imide; 1,2-dihydro-2-ketobenzisosulfonazole; 2-sulfobenzoic acid imide; 2,3-dihydro-3-oxobenzisosulfonazole; 2,3-dihydroxy-1,2-benzisothiazol-3-one-1,1-dioxide; E954; *Garantose*; glucid; gluside; *Hermesetas*; kandiset; saccharin acid; saccharin insoluble; saccharine; saccharimide; saccharinol; saccharinose; saccharol; saccharinum; *o*-benzoic sulfimide; *o*-benzoyl sulfimide; *o*-sulfobenzimide; *o*-sulfobenzoic acid imide; saxin; *Syncal*; sykose.

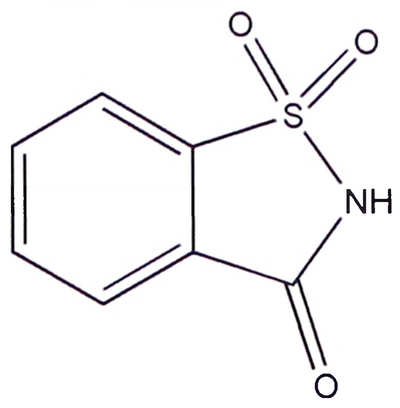
3 Chemical Name and CAS Registry Number

1,2-Benzisothiazol-3(2*H*)-one 1,1-dioxide [81-07-2]

4 Empirical Formula and Molecular Weight

$C_7H_5NO_3S$ 183.18

5 Structural Formula



6 Functional Category

Sweetening agent.

7 Applications in Pharmaceutical Formulation or Technology

Saccharin is an intense, artificial and non-nutritive sweetening agent used in beverages, food products, table-top sweeteners, and oral hygiene products such as toothpastes and mouthwashes. In oral pharmaceutical formulations, it is used at a concentration of 0.02–0.5% w/w. It has been used in chewable tablet formulations as a sweetening agent.[1,2]

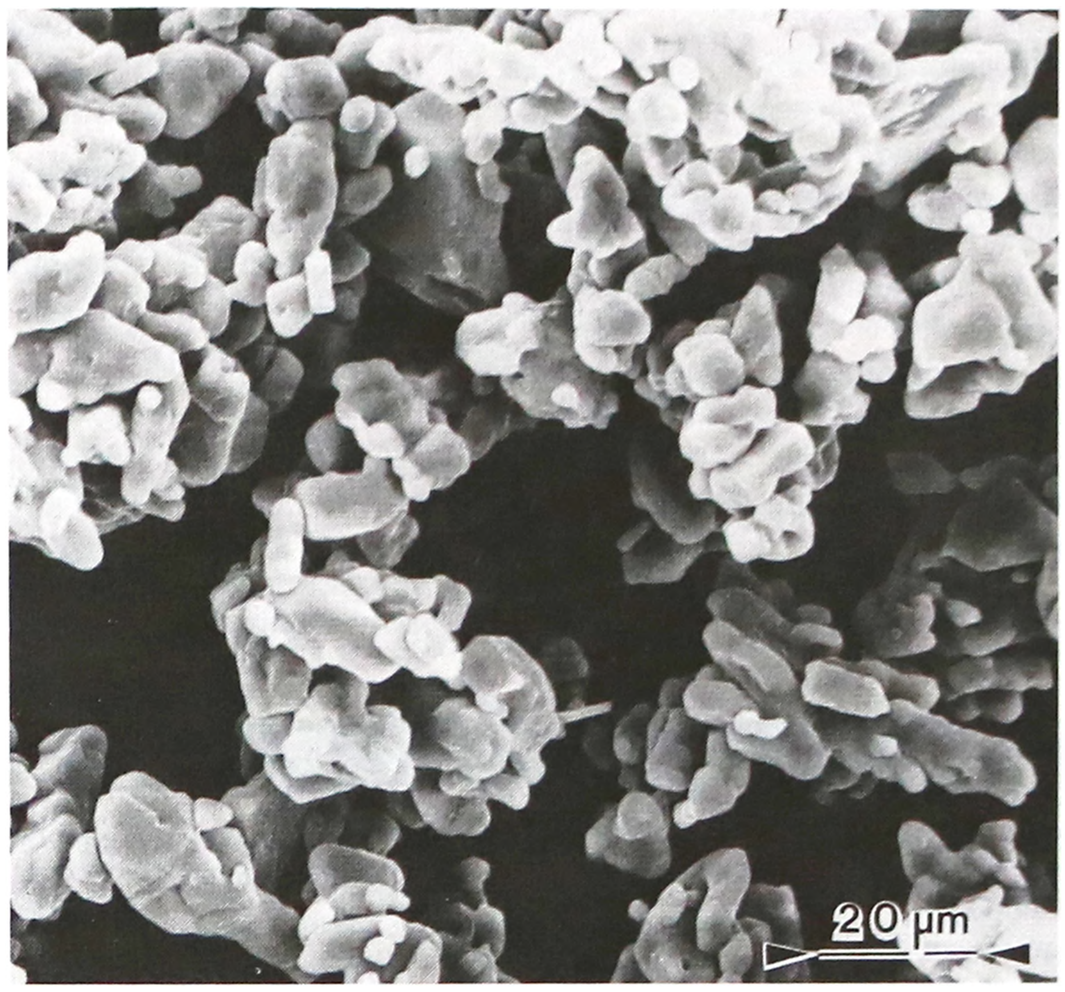
Saccharin has been used as a dissolution enhancer for solid dispersions to form salts, various pharmaceutical cocrystals and coamorphous systems, which have improved stability of their amorphous states.[3–7]

Saccharin can be used to mask some unpleasant taste characteristics or to enhance flavor systems. Its sweetening power is approximately 300–600 times that of sucrose.

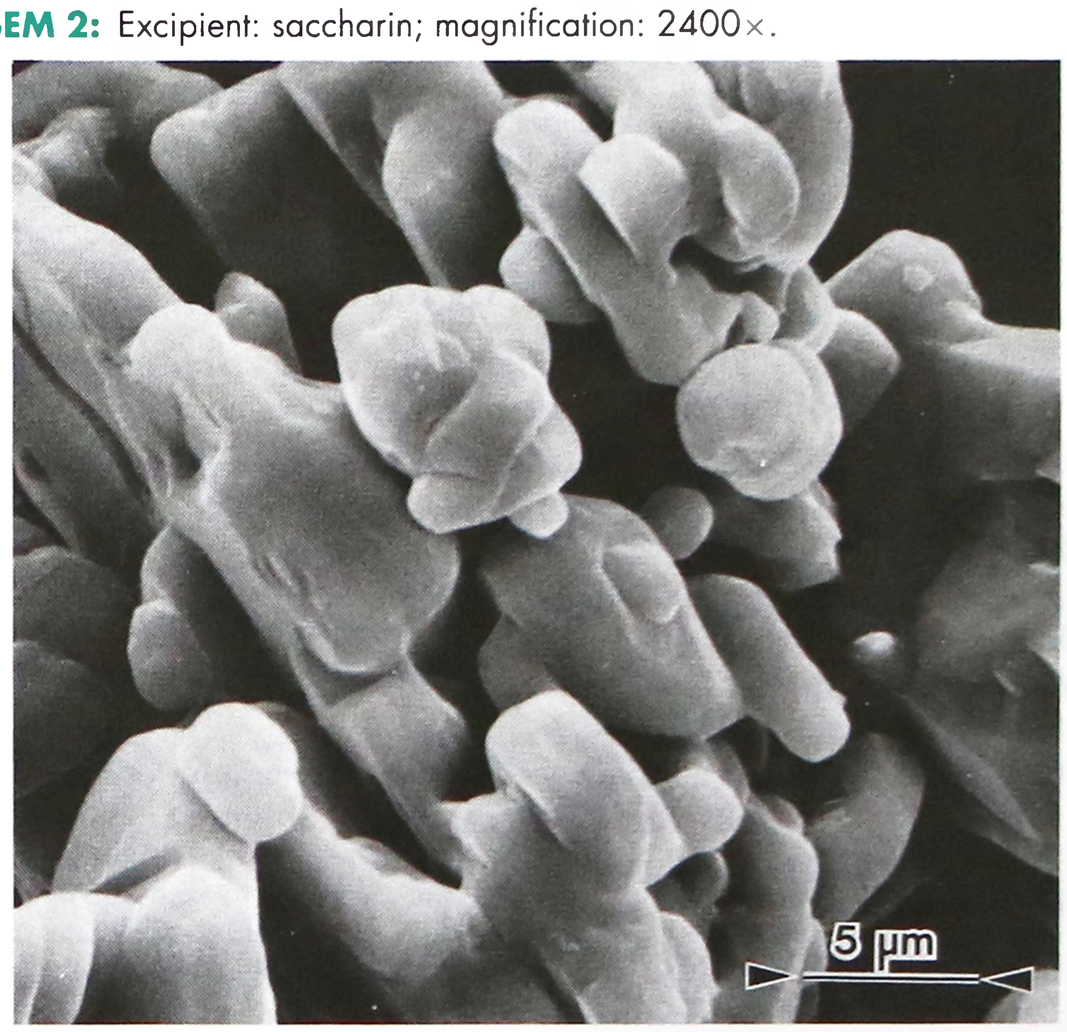
8 Description

Saccharin occurs as odorless white crystals or a white crystalline powder and can have a faintly aromatic odor. It has an intensely sweet taste, which is detectable in aqueous dilutions of 1:100 000. It has a metallic or bitter aftertaste that at normal levels of use can be detected by approximately 25% of the population. The aftertaste can be masked by blending saccharin with other sweeteners.

SEM 1: Excipient: saccharin; magnification: 600×.



SEM 2: Excipient: saccharin; magnification: 2400×.



9 Pharmacopeial Specifications

The pharmacopeial specifications for saccharin have undergone harmonization of many attributes for JP, PhEur, and USP–NF.

See Table I. *See also* Section 18.