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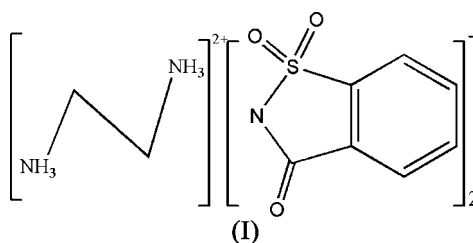
Key indicators

Single-crystal X-ray study
 $T = 292$ K
Mean $\sigma(\text{C}-\text{C}) = 0.004$ Å
 R factor = 0.045
 wR factor = 0.122
Data-to-parameter ratio = 14.2For details of how these key indicators were
automatically derived from the article, see
<http://journals.iucr.org/e>.

Ethylenediammonium disaccharinate

The asymmetric unit of the title compound, $\text{C}_2\text{H}_{10}\text{N}_2^{2+} \cdot 2\text{C}_7\text{H}_4\text{NO}_3\text{S}^-$, is composed of two saccharinate anions and one doubly protonated ethylenediamine cation. These are linked by $\text{N}-\text{H} \cdots \text{O}$ and $\text{N}-\text{H} \cdots \text{N}$ hydrogen bonds and aromatic $\pi-\pi$ stacking interactions, leading to a two-dimensional framework structure.Received 3 January 2006
Accepted 10 February 2006

Comment

Saccharin is a versatile polyfunctional ligand which has been used to build novel complexes with transition metals and some ancillary ligands (Falvello *et al.*, 2001; Yilmaz *et al.*, 2002). However, as far as the authors are aware, there are no structures reported in the literature where saccharin interacts with organic bases through hydrogen bonds to form supramolecular assemblies. Our research groups are currently investigating supramolecular structures of co-crystals containing saccharin and a series of organic bases. Here, we report the title co-crystal of saccharin, (I), incorporating the organic base ethylenediamine.The structure of (I) is illustrated in Fig. 1. The asymmetric unit consists of two saccharinate anions and one doubly protonated ethylenediamine cation. These ions are linked into a two-dimensional framework structure by a combination of $\text{N}-\text{H} \cdots \text{O}$ and $\text{N}-\text{H} \cdots \text{N}$ hydrogen bonds (Fig. 2, Table 1). Moreover, $\pi-\pi$ stacking interactions are observed between the C1–C6 benzene ring at (x, y, z) and the C8–C13 benzene rings of centrosymmetrically related molecules at $(-x, 1 - y, 1 - z)$ and $(1 - x, 1 - y, 1 - z)$, with centroid–centroid distances of 3.749 (4) and 3.726 (5) Å, respectively.

Experimental

All reagents were commercially available and of analytical grade. Saccharin (2.0 mmol, 0.376 g) and ethylenediamine (1.0 mmol, 0.06 g) were dissolved in water (20 ml). The mixture was stirred for 10 min at 353 K. The solution was then filtered and the filtrate was kept at room temperature. Colourless crystals of (I) were obtained from the filtrate after 3 d.

