Technical data sheet

Fumaric acid (FA)

Version: 06  date: April 2014

Synonyms
trans-2-Butenedioic acid; trans-1,2-Ethylendicarboxylic acid; Allomaleic acid, (E)-2-Butenedioic acid.

Formula
C₄H₄O₄

Structural formula

\[ \text{COOH} \]

\[ \text{HOOC} \]

Molecular weight: 116.1

CAS number
110-17-8

EINECS number
203-743-0

EEC number
E297

Product specification

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Unit</th>
<th>Value</th>
<th>Method*</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purity</td>
<td>%</td>
<td>99.7 min</td>
<td>GM005all01</td>
<td></td>
</tr>
<tr>
<td>Moisture</td>
<td>%</td>
<td>0.25 max</td>
<td>GM010</td>
<td>ASTM E-203</td>
</tr>
<tr>
<td>Colour in alcohol (5% sol.)</td>
<td>Hz</td>
<td>10 max</td>
<td>GM011all01</td>
<td>ASTM D-1209</td>
</tr>
<tr>
<td>Ash (Sulphated)</td>
<td>ppm</td>
<td>50 max</td>
<td>GM015</td>
<td>ASTM D-482</td>
</tr>
<tr>
<td>Iron</td>
<td>ppm</td>
<td>5 max</td>
<td>GM008</td>
<td></td>
</tr>
<tr>
<td>Arsenic</td>
<td>ppm</td>
<td>1 max</td>
<td>GM008</td>
<td></td>
</tr>
<tr>
<td>Heavy metals (as Pb)</td>
<td>ppm</td>
<td>10 max</td>
<td>GM008</td>
<td></td>
</tr>
<tr>
<td>Lead</td>
<td>ppm</td>
<td>1 max</td>
<td>GM008</td>
<td></td>
</tr>
</tbody>
</table>
### Microbiologic data
- **Bacteria**
  - CFU/g: < 10
- **Moulds & yeasts**
  - CFU/g: < 10
- **Total coliforms**
  - CFU/g: < 10
- **Faecal coliforms**
  - CFU/g: < 10
- **Salmonella**
  - absent

*Note: (1) This is a statistical control performed in an external laboratory and do not appear on the Certificate of Quality.*

*Internal methods available upon request.*

### Typical properties

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Unit</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melting point</td>
<td>°C</td>
<td>287</td>
</tr>
<tr>
<td>Solubility in water @ 20°C</td>
<td>g/100 ml</td>
<td>0.7</td>
</tr>
<tr>
<td>Bulk density</td>
<td>Kg/l</td>
<td>0.8 ± 0.9</td>
</tr>
</tbody>
</table>

### Granulometric analysis

<table>
<thead>
<tr>
<th>Granular FF</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>on 30 mesh sieve</td>
<td>%</td>
<td>2.5 max</td>
</tr>
<tr>
<td>on 140 mesh sieve</td>
<td>%</td>
<td>60 min</td>
</tr>
</tbody>
</table>
Main applications

Fumaric acid is mainly used as food/feed additives. Due to its reactivity FA is a useful material for a variety of industrial applications such as paper sizing, unsaturated polyester resins (U.P.R.), alkyd and allyl resins, adhesives, lubricants.

Polynt fumaric acid complies with the current edition of US FCC, USP-NF and Eu.Ph.

It is produced in accordance with

- ISO 22000 + PAS 220 and it complies with Commission Regulation (EC) No 231/2012 for food additives, in terms of specific purity requirement.

- FAMI-QS Code of Practice for Feed Additive and Premixture Operators and it complies with Regulation (EC) No 1831/2003 for additives used in animal nutrition. **Category:** Technological Additives (cat.1), **Functional Group:** Preservatives (a).

Fumaric acid is free from proteins, fibre, starches, vitamins, fats, preservatives, colours, antioxidants or milk products and every product having an animal origin.

It is suitable for the vegetarian, vegan, diabetic, Jewish or Muslim diets.

Polynt fumaric acid is Kosher certified.

Handling

**Packaging:**
- 25 kg or 50 lbs multi-wall paper bags with polyethylene liners;
- 500/1000 kg big bags;
- bulk in autosilos

**Storage:**
- it must be stored at room temperature, away from open flames or other potential ignition sources, in a dry and well-ventilated place.

**Shelf life:**
- 24 months from production date.

*The information contained in this sheet is correct and accurate and is based on our technical and scientific knowledge and on literature at the date of going to press. Such information relates only to use of the products in the pure state and for the purposes stated herein. Nothing stated here may be taken or construed as implying of any existing patents. Nor is any warranty, whether explicit or implicit, given with regard to results to be obtained through the use of the aforesaid information.*