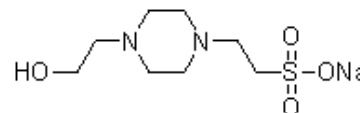


## Specification Comparison

HEPES Sodium Salt

### Sigma-Aldrich® HEPES Sodium Salt Physical Properties

|                          |   |                     |              |                        |           |
|--------------------------|---|---------------------|--------------|------------------------|-----------|
| <b>Synonyms</b>          | 4-(2-Hydroxyethyl)piperazine-1-ethanesulfonic acid sodium salt      |                     |              |                        |           |
|                          | N-(2-Hydroxyethyl)piperazine-N'-(2-ethanesulfonic acid) sodium salt |                     |              |                        |           |
| <b>Molecular Formula</b> | C <sub>8</sub> H <sub>17</sub> N <sub>2</sub> O <sub>4</sub> SNa    | <b>MDL Number</b>   | MFCD00036463 | <b>Useful pH range</b> | 6.8 - 8.2 |
| <b>Molecular Weight</b>  | 260.29  | <b>EG/EC Number</b> | 278-169-7    | <b>pKa (at 25)</b>     | 7.5       |
| <b>CAS Number</b>        | 75277-39-3  |                     |              |                        |           |



### Sigma-Aldrich HEPES Sodium Salt Specifications Comparison

|   | H7006              | H3784   | H8651  |
|---|--------------------|---|--|
| <b>Grade</b>                            | ≥99.5% (titration) | BioReagent, suitable for cell culture, ≥99.5% (titration) | BioXtra, ≥99.5% (titration)                  |
| <b>Purity</b>                           | ≥99.5%             | ≥99.5%  | ≥99.5%                                       |
| Reagent Testing                         |                    |   |  |
|   | H7006              | H3784   | H8651  |
| <b>Enhanced Quality Profile Buffers</b> | X                  | X   | X  |
| <b>290NM</b>                            | ≤0.05              | ≤0.05   |  |
| <b>260NM</b>                            |                    | ≤0.05   | <0.2   |
| <b>280NM</b>                            |                    | ≤0.05   | <0.2   |
| <b>IR</b>                               | X                  | X   |  |
| <b>pH</b>                               |                    |   | 10.0 - 12.0 (20 °C, 1 M in H <sub>2</sub> O) |
| <b>Karl Fischer</b>                     | ≤3.0%              | ≤3.0%   |  |
| <b>Insoluble Matter</b>                 |                    |   | <0.1%  |

### Total Impurities

#### Life Science Testing

|                  | H7006     | H3784       | H8651 |
|------------------|-----------|-------------|-------|
| <b>Endotoxin</b> |           | ≤0.1 eu/mg  |       |
| <b>SPC/TAMC</b>  | ≤20 cfu/g | ≤1000 cfu/g |       |
| <b>Cell test</b> |           | X           |       |
| <b>RNAse</b>     |           | X           |       |
| <b>DNase</b>     |           | X           |       |
| <b>Nickase</b>   |           | X           |       |
| <b>Protease</b>  |           | X           |       |

| Trace Elemental Impurities |          |          |          |
|----------------------------|----------|----------|----------|
|                            | H7006    | H3784    | H8651    |
| Ammonia(NH <sub>4</sub> )  |          |          | <0.05%   |
| Phosphorus(P)              |          |          | <0.005%  |
| Chloride(Cl)               |          |          | <0.05%   |
| Sulfate(SO <sub>4</sub> )  |          |          | <0.05%   |
| Aluminum(Al)               |          |          | <0.0005% |
| Arsenic(As)                |          |          |          |
| Barium(Ba)                 |          |          |          |
| Bismuth(Bi)                |          |          |          |
| Calcium(Ca)                |          |          | <0.0005% |
| Cadmium(Cd)                |          |          |          |
| Cobalt(Co)                 |          |          |          |
| Chromium(Cr)               |          |          |          |
| Copper(Cu)                 |          |          | <0.0005% |
| Iron(Fe)                   |          | ≤0.0005% | <0.0005% |
| Potassium(K)               |          |          | ≤0.005%  |
| Lithium(Li)                |          |          |          |
| Magnesium(Mg)              |          |          | <0.0005% |
| Manganese(Mn)              |          |          |          |
| Molybdenum(Mo)             |          |          |          |
| Nickel(Ni)                 |          |          |          |
| Lead(Pb)                   | ≤0.0005% | <0.0005% | <0.001%  |
| Strontium(Sr)              |          |          |          |
| Zinc(Zn)                   |          |          | <0.0005% |

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