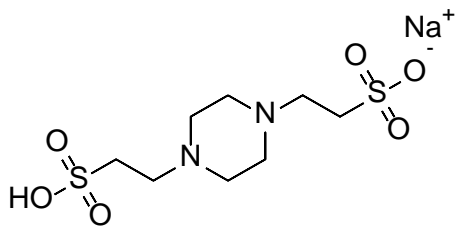


Product data sheet



MedKoo Cat#: 464428 Name: PIPES monosodium CAS: 10010-67-0 Chemical Formula: C ₈ H ₁₇ N ₂ NaO ₆ S ₂ Molecular Weight: 324.3418	
Product supplied as:	Powder
Purity (by HPLC):	≥ 98%
Shipping conditions:	Ambient temperature
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years. In solvent: -80°C 3 months; -20°C 2 weeks.

1. Product description:

PIPES is frequently used as a buffering agent in biochemistry. It is useful in cell culture work. It has been documented to minimize lipid loss when buffering glutaraldehyde histology in plant and animal tissues.

2. CoA, QC data, SDS, and handling instruction

SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under “QC And Documents” section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
TBD	TBD	TBD

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	3.08 mL	15.42 mL	30.83 mL
5 mM	0.62 mL	3.08 mL	6.17 mL
10 mM	0.31 mL	1.54 mL	3.08 mL
50 mM	0.06 mL	0.31 mL	0.62 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator

Please refer the product web page under section of “Calculator”

6. Recommended literature which reported protocols for in vitro and in vivo study

In vitro study

- Xu M, Sun M, Lu C, Han Y, Yao X, Niu X, Xu M, Zhu Q. Influence of epicatechin on oxidation-induced physicochemical and digestibility changes in porcine myofibrillar proteins during refrigerated storage. *J Sci Food Agric.* 2021 Jan 30;101(2):746-753. doi: 10.1002/jsfa.10687. Epub 2020 Aug 19. PMID: 32706121.
- Hugel S, Kadiri N, Rodeau JL, Gaillard S, Schlichter R. pH-dependent inhibition of native GABA(A) receptors by HEPES. *Br J Pharmacol.* 2012 Aug;166(8):2402-16. doi: 10.1111/j.1476-5381.2012.01956.x. PMID: 22452286; PMCID: PMC3448902.

In vivo study

- Nie J, Mahato S, Zelhof AC. Imaging the Drosophila retina: zwitterionic buffers PIPES and HEPES induce morphological artifacts in tissue fixation. *BMC Dev Biol.* 2015 Feb 3;15:10. doi: 10.1186/s12861-015-0056-y. PMID: 25645690; PMCID: PMC4320506.

7. Bioactivity

Biological target:

PIPES is frequently used as a buffering agent in biochemistry.

In vitro activity

The incubation of MP (myofibrillar protein) suspensions (20 mg mL⁻¹ in piperazine-N,N'-bis(2-ethanesulfonic acid) buffer, with 0.6 mol L⁻¹ sodium chloride, pH 6.25) at 4 °C for 24 h under an iron-catalyzed hydroxyl radical generating system (Fenton reaction) promoted the formation of thiobarbituric acid reactive substances and protein carbonyls, which was attenuated by EC (5, 50, and 100

Product data sheet



$\mu\text{mol g}^{-1}$ protein). Reduced protein sulfhydryl content, tryptophan fluorescence, protein solubility, as well as increased surface hydrophobicity were found by the co-incubation of EC. Analysis by scanning electron microscopy revealed increased protein aggregation and fragments in oxidized MP, which were further enhanced by the addition of EC. However, the protein digestibility of MP was not affected.

Reference: J Sci Food Agric. 2021 Jan 30;101(2):746-753. <https://pubmed.ncbi.nlm.nih.gov/32706121/>

In vivo activity

This study found that piperazine-N,N'-bis(ethanesulfonic acid) (PIPES) and 4-(2-hydroxyethyl)-1-piperazineethanesulfonic acid (HEPES), two zwitterionic buffers commonly used in tissue fixation, can cause severe lumen and cell morphological defects in *Drosophila* pupal and adult retina; the inter-rhabdomeral lumen becomes dilated and the photoreceptor cells are significantly reduced in size. Correspondingly, the localization pattern of Eyes shut (EYS), a luminal protein, is severely altered. In contrast, tissues fixed in the phosphate buffered saline (PBS) buffer results in lumen and cell morphologies that are consistent with live imaging.

Reference: BMC Dev Biol. 2015 Feb 3;15:10. <https://pubmed.ncbi.nlm.nih.gov/25645690/>

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.