# 71188 Sodium acetate trihydrate (Acetic acid sodium salt)

CAS number: 6131-90-4

### **Product Description:**

Appearance:	Clear colorless to very faint yellow liquid
Molecular formula:	$CH_3COONa \bullet 3 H_2O$
Formula weight:	136.08 g/mol
Solubility:	3 M in $H_2O$ , 20°C, complete, colorless
pH:	8.5-10.0 (3 M in H <sub>2</sub> O, 25°C)



This product designated as BioUltra grade is suitable for different applications like purification, precipitation, crystallisation and other applications which require tight control of elemental content. Trace elemental analyses have been performed. The Certificate of Analysis provides lot-specific results.

## **Applications:**

Sodium acetate is a widely used reagent in molecular biology applications. It is used as a buffer in conjunction with acetic acid, in the buffering range of pH 3.6 - 5.6. Sodium acetate is used in the purification and precipitation of nucleic acids,<sup>1,2,3</sup> protein crystallization,<sup>4</sup> staining of gels in protein gel electrophoresis,<sup>5</sup> and HPLC.<sup>6</sup> Large scale applications of sodium acetate include its use as a retardant in plastics manufacturing, as a mordant in dyeing, and in the tanning of leather.<sup>7</sup> A DNA microarray study of *E. coli* response to different levels of sodium acetate has been reported.<sup>8</sup> Protein unfolding during reversed phase chromatography in the presence of varying salts, including sodium acetate, at different ionic strengths has been investigated.<sup>9</sup> Sodium acetate has been used in conjunction with sodium carbonate to enhance the activation of freeze-dried subtilisin Carlsberg in organic solvents.<sup>10</sup> Sodium acetate may be used as a substrate for acetokinase (acetate kinase; EC 2.7.2.1).<sup>11</sup>

#### **Preparation Instructions**

Sodium acetate is soluble in water (3 mol/l), yielding a clear, colorless solution. The pH of a 0.1 M aqueous sodium acetate solution at  $25^{\circ}$ C is 8.<sup>9.8</sup>

#### **References:**

- 1. Evans, J. K., et al., Simultaneous purification of RNA and DNA from liver using sodium acetate precipitation. BioTechniques, 24, 416-418 (1998).
- 2. Molecular Cloning: A Laboratory Manual, 3rd ed., Sambrook, J. F., et al., Cold Spring Harbor Laboratory Press (Cold Spring Harbor, NY: 2001), pp. 6.26-6.27, A8.12-A8.16.
- 3. Wallace, D. M., Large- and Small-Scale Phenol Extractions, Meth. Enzymol., 152, 33-41 (1987).
- 4. Baniecki, M. L., et al., Adenovirus proteinase: crystallization and preliminary X-ray diffraction studies to atomic resolution. Acta Crystallogr. D Biol. Crystallogr., 58 (Pt 9), 1462-1464 (2002).
- 5. Bjellqvist, B., et al., A nonlinear wide-range immobilized pH gradient for two-dimensional electrophoresis and its definition in a relevant pH scale. Electrophoresis, 14, 1357-1365 (1993).
- Clark, T. N., et al., Determination of 3'-azido-2',3'-dideoxyuridine in maternal plasma, amniotic fluid, fetal and placental tissues by high-performance liquid chromatography. J. Chromatogr. B Biomed. Sci. Appl., 755(1-2), 165-172 (2001).
- 7. The Merck Index, 12th ed., Entry# 8711.
- 8. Polen, T., et al., DNA microarray analyses of the long-term adaptive response of *Escherichia coli* to acetate and propionate. Appl. Environ. Microbiol., 69(3), 1759-1774 (2003).



- 9. McNay, J. L., et al., Protein unfolding during reversed-phase chromatography: II. Role of salt type and ionic strength. Biotechnol. Bioeng., 76(3), 233-240 (2001).
- 10. Ru, M. T., et al., Towards more active biocatalysts in organic media: increasing the activity of saltactivated enzymes. Biotechnol. Bioeng., 75(2), 187-196 (2001).
- 11. Rose, I., Acetate Kinase of Bacteria (Acetokinase), Meth. Enzymol., 1, 591-595 (1955)

#### **Precautions and Disclaimer**

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

The vibrant M and Sigma-Aldrich are trademarks of Merck KGaA, Darmstadt, Germany or its affiliates. Detailed information on trademarks is available via publicly accessible resources. © 2018 Merck KGaA, Darmstadt, Germany and/or its affiliates. All Rights Reserved.

The life science business of Merck KGaA, Darmstadt, Germany operates as MilliporeSigma in the US and Canada.



The vibrant M and Sigma-Aldrich are trademarks of Merck KGaA, Darmstadt, Germany or its affiliates. Detailed information on trademarks is available via publicly accessible resources. © 2018 Merck KGaA, Darmstadt, Germany and/or its affiliates. All Rights Reserved.



