

Product Data Sheet

Product Name: Sodium acrylate

Cat. No.: GC25941

Chemical Properties

Cas. No. 7446-81-3

Formula C₃H₄O₂.Na

M.Wt 94.04

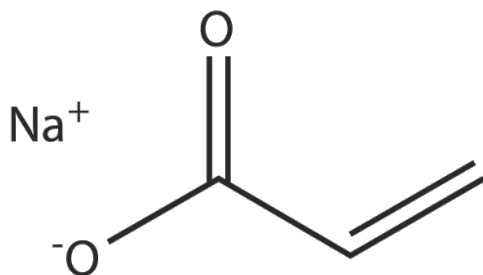
Solubility

Storage Store at -20°C

General tips For obtaining a higher solubility, please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution : ship with blue ice All other available size: ship with RT, or blue ice upon request.

Structure



Protocol

This experimental protocol only provides experimental guidance. The actual application must be modified according to your actual needs.

Sodium polyacrylate is an important functional polymer material, widely used in water-absorbing materials, medicine, agriculture and other fields. Its solid product is white or light-yellow powder, and its liquid state is colorless or light-yellow viscous liquid. In this experiment, Sodium acrylate is used as a monomer and aqueous solution polymerization is carried out under the initiation of ammonium persulfate to synthesize sodium polyacrylate [1][2].

Reagent preparation: Monomer: Sodium acrylate, initiator: ammonium persulfate, chain transfer

Caution: Product has not been fully validated for medical applications. For research use only.

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agent: isopropanol, solvent: deionized water.

Reaction steps:

1. Add deionized water and 34kg isopropanol to the reactor and heat it to 80-82°C.
2. Prepare an aqueous solution containing 170kg Sodium acrylate and prepare 14kg ammonium persulfate.
3. Slowly add the Sodium acrylate solution and ammonium persulfate to the reactor and react for 3h at a constant temperature of 80-82°C.
4. After the reaction is completed, cool to 40°C and adjust the pH value to 8.0-9.0 if necessary.
5. Evaporate the isopropanol and part of the water to obtain the sodium polyacrylate liquid product.
6. If a solid product is required, it can be further processed by spray drying to obtain powdered sodium polyacrylate.

Operation precautions:

1. Operate in a fume hood to avoid direct contact with the skin or inhalation of dust.
2. Pay attention to protection during high temperature operation to avoid splashing and pressure fluctuations.

[1]. Lee WF, Chen YC. Preparation of reactive mineral powders used for poly (sodium acrylate) composite superabsorbents[J]. Journal of Applied Polymer Science, 2005, 97(3): 855-961.

[2]. Xu N, Cao J, Liu X. Preparation and Properties of Water-Soluble Sodium Polyacrylates[J]. Journal of Macromolecular Science. Part B: Physics, 2015, 54(10): 1153-1168.

Background

Sodium acrylate is a metal salt that can be prepared by an acid-base reaction between sodium hydroxide and acrylic acid. It can be used in the preparation of poly (Sodium acrylate) using bulk, solution, emulsion, and suspension polymerization techniques. It results in the formation of a water-soluble polymer that can be used in a variety of industries and personal care applications [1][2]. Sodium acrylate can be used in tuning the grain size of iron oxide microparticles for potential

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applications in biological assaying and in chemical sensors. It can be used as a reducing and capping agent on gold nanoparticles which can be used in the biological application [3][4].

References:

- [1]. Hussain I, Brust M, Papworth AJ, et al. Preparation of Acrylate-Stabilized Gold and Silver Hydrosols and Gold-Polymer Composite Films[J]. Langmuir, 2003, 19: 4831-4835.
- [2]. Omidian H, Zohuriaan-Mehr MJ, Bouhendi H. Polymerization of sodium acrylate in inverse-suspension stabilized by sorbitan fatty esters[J]. European Polymer Journal, 2003, 39(5): 1013-1018.
- [3]. Xuan S, Wang YXJ, Yu JC, et al. Tuning the Grain Size and Particle Size of Superparamagnetic Fe₃O₄ Microparticles[J]. Chemistry of Materials, 2009, 21(21): 5079-5087.
- [4]. Njoki PN, Luo J, Kamundi MM, et al. Aggregative growth in the size-controlled growth of monodispersed gold nanoparticles[J]. Langmuir, 2010, 26(16): 13622-13629.

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