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Sodium Acetate

Sodium acetate is an inorganic salt that is widely used in various industries for its diverse properties. It is a white crystalline powder that is derived from acetic acid and sodium hydroxide.

In the food industry, sodium acetate is commonly used as a food preservative and flavor enhancer. It is also used as a buffering agent to regulate the acidity of certain foods, such as pickles and sauces.

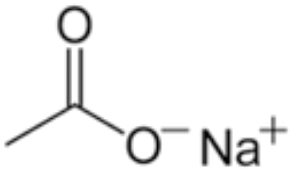
Sodium acetate is also used in the production of various industrial products, such as dyes, pharmaceuticals, and photographic chemicals. It can also be used as a component in heating pads, as it can be easily melted and then solidified to release heat.

In chemistry, sodium acetate is often used as a source of acetic acid in reactions. It can also be used as a pH buffer, as it can help to maintain a consistent pH in a solution.

It can be harmful if ingested or inhaled in large quantities, and can cause skin and eye irritation.

Chemical Identity

Name: Sodium Acetate
Chemical name (IUPAC): Sodium acetate
Synonyms: Hot ice (sodium acetate trihydrate)
CAS number: 127-09-3 (anhydrous)
6131-90-4 (trihydrate)
Molecular formula: $C_2H_3Na\ O_2$
$C_2H_3NaO_2.\ 3H_2O$
Structure:



Physical/ Chemical Properties

Property	Value
Physical state Form	Solid
Color	White deliquescent powder White
Odor	Odorless
Melting point	Vinegar (acetic acid) odor when heated to decomposition
Boiling point	324 °C (Anhydrous) 58 °C (Trihydrate)
Relative density	881.4 °C (Anhydrous) 122 °C (Trihydrate)
Self-ignition temperature Molecular weight	1.528 g/ cm^3 (Anhydrous) 1.45 g/ cm^3 (Trihydrate)
Water solubility	600 °C
Flash point	82.034 g/mol
	Soluble
	> 250 °C

Uses & Applications

- **PHARMACEUTICALS**

Heating pads: Sodium acetate can be used in the form of heating pads as it has the property of retaining heat for a long period of time.
Buffering agent: Sodium acetate is often used as a buffering agent in biological and biochemical applications, including in DNA extraction and in the production of vaccines.

FOOD APPLICATION

- **Food industry:** Sodium acetate is commonly used as a food preservative, flavor enhancer, and buffering agent.

OTHER APPLICATIONS

- **Chemical industry:** It is used in the production of dyes, pharmaceuticals, and photographic chemicals.

Textile industry: Sodium acetate is used in the textile industry to neutralize sulfuric acid in the dyeing process.
Deicing agent: Sodium acetate can be used as a deicing agent, as it can melt ice at a lower temperature than water.
Concrete admixture: Sodium acetate can be used as a concrete admixture, as it helps to improve the setting time of concrete.
pH adjustment: It is used as a pH adjuster in various industrial processes, including in the production of paper, textiles, and leather.

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Potassium Acetate

Potassium acetate is a inorganic salt that is widely used in various industries for its diverse properties. It is a white crystalline powder that is derived from acetic acid and potassium hydroxide.

In the food industry, potassium acetate is commonly used as a food preservative and acidity regulator. It is also used as a flavor enhancer in certain foods, such as baked goods and dairy products.

Potassium acetate is also used in the production of various industrial products, such as antifreeze, deicer solutions, and cement additives. It can also be used as a buffering agent in certain chemical reactions.

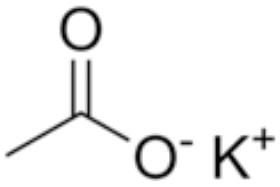
In medicine, potassium acetate is used as an electrolyte supplement in intravenous fluids to help maintain proper fluid balance and prevent dehydration.

It can be harmful if ingested or inhaled in large quantities, and can cause skin and eye irritation.

Chemical Identity

Name: Potassium Acetate
Chemical name (IUPAC): Potassium acetate
CAS number: 127-08-2
Molecular formula: $C_2H_3KO_2$

Structure:



Physical/ Chemical Properties

Property	Value
Physical state	Hygroscopic Solid
Form	White deliquescent
Color	powder White
Odor	Faint vinegar odour
Melting point	292 °C
Boiling point	Decomposes
Relative density	1.8 g/ cm^3 @ 20 °C
Molecular weight	98.142 g/mol
Water solubility	Soluble

Uses & Applications

- **PHARMACEUTICAL**

Electrolyte solution: Potassium acetate is used as an electrolyte solution in medicine and scientific research. It is used in intravenous fluids to help correct electrolyte imbalances, such as low potassium levels.

- **FOOD APPLICATION**

Food additive: Potassium acetate is used as a food preservative and acidity regulator. It is commonly used in baked goods, dairy products, and meat products to help extend their shelf life and improve their flavor.

- **OTHER APPLICATIONS**

Deicing agent: Potassium acetate is an effective deicing agent that is often used as an alternative to traditional chloride-based deicers, such as calcium chloride and sodium chloride. It has a lower environmental impact and is less corrosive than chloride-based deicers.
Buffer solution: Potassium acetate is used as a buffer solution in laboratory experiments. It helps maintain a stable pH in a solution and prevents the solution from becoming too acidic or too basic.
Heat transfer fluid: Potassium acetate is used as a heat transfer fluid in certain industrial applications, such as in refrigeration and air conditioning systems. It has a lower toxicity and flammability compared to other heat transfer fluids, such as ethylene glycol and propylene glycol.
Fire extinguisher: Potassium acetate is used in certain types of fire extinguishers. It works by disrupting the chemical reaction that fuels the fire, making it an effective extinguishing agent for fires involving flammable liquids and electrical equipment.

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