A Briefing on Numerous Industrial Uses of Sodium Nitrite

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Article published on April 16th 2012 | Business

Sodium Nitrite or NaNO2 is a chemical compound primarily utilized in food preservatives, pyrotechnics and dyes, smoke bombs, fertilizers and as a colour fixative. This chemical is flammable, a strong oxidant and highly toxic. It looks like a small white or slightly yellow crystals and is widely recognized for its reactivity and solubility in water. It is also known as Soda niter, Chile saltpeter, nitrate, cubic niter and sodium saltpeter. This chemical is utilized in several industrial applications.

Uses of Sodium Nitrite:

Food Preservative:

This compound is commonly utilized in the food industry as an additive and a stabilizer. It boasts of antibacterial properties that restrain the formation of disease-causing bacteria and harmful pathogens. It is utilized to preserve meats and fish like luncheon meats, hot dogs and smoked fish. It averts meats from developing botulism- a severe disease caused by the bacterium Clostridium botulinum in food. The FDA restricts the utilization of this compound to 200 parts per million in eatables in the U.S.

Dyes & Pigments:

NaNO2 is utilized as a dyeing and bleaching agent. It is utilized to make acid dye, azoic dyes, sulphur dye, diazo, basic dye and acid dye. NaNo2 dye can irritate the respiratory system and therefore, it must be handled with utmost care.

Fertilizers:

Sodium Nitrite is utilized as an ingredient in numerous fertilizers, as a means to augment nitrogen content in soil. Furthermore, helping avert soil erosion and helps roots become strong and thick by increasing the production of carbon in plants, which further increases biomass. Most mixed fertilizers comprise of NaNO2, or some other nitrogen-based compound as one of their chief ingredients. According to FDA, when selecting a mixed fertilizer, the volume of nitrogen will be the first listed on the packaging and generally represents a percentage amount.

Pesticides:

Numerous pesticides use NaNO2, including insecticides (for killing bugs and insects), predacides (killing large pests such as skunks and rats) and rodenticides (for killing rodents such as rats and mice). According to Environmental Agency, NaNo2 does not directly poison these pests; rather it chemically reacts with other compounds to combust charcoal. All this takes place inside of a cartridge, which then dribbles out a toxic gas that is generated by the combustion.

Fireworks:

The vivacious colours associated with fireworks are the outcome of burning metals salts like barium chloride and calcium chloride. According to Environmental Agency, the atoms in each salt produce specific hues as they combust, which is a mechanism of how much energy they produce. When NaNO2 combusts, the heated sodium electrons turn excited and eventually produce energy at 200kj/mol approximately.

The huge popularity of sodium nitrite as an industrial chemical compound is primarily due to its brilliant oxidizing properties and ability to produce nitrous acid in acidic solutions.

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Article Keywords:
sodium nitrite, epoxy resin