

Are butyl acetate production processes sustainable?

As previously discussed, to the best of our knowledge, most studies regarding butyl acetate production processes have only been carried out in terms of process design and economics. Nevertheless, with regard to environmental sustainability, only two works have come to our attention.

Can reactive distillation be used to produce butyl acetate?

Several studies in the literature investigated the utilization of reactive distillation for the production of butyl acetate [2, 8, 23, 24]. The RD technology can be utilized in a conventional multi-unit process to reduce energy and capital costs by five times .

Can a membrane reactor produce butyl acetate?

A novel process based on a membrane reactor was designed for butyl acetate production. The membrane reactor was modeled and validated with the experimental data, and a good agreement was found. The MR-based process was developed and designed for an annual capacity of 92,500 metric tons of BuAc.

Can n-butyl acetate be produced by transesterification?

Several reactive hybrid distillation configurations are demonstrated for the n-butyl acetate production via transesterification with two blending reactive feeds, namely MM20 (70 wt% methanol, 30 wt% methyl acetate) and MM80 (35 mol% methanol, 65 mol% methyl acetate).

What is the conventional process for butyl acetate synthesis?

The conventional process for butyl acetate synthesis was studied by Shen et al., and a continuous stirred-tank reactor (CSTR) and three distillation columns were utilized for the process configuration . The downside of the conventional process is that the esterification reaction is limited by the thermodynamic equilibrium.

Are butyl acetate processes hazardous?

For the CTF indicator, the best and worst values are 0 and 10 7 m 3 /kg, respectively. In this regard, we can infer that the butyl acetate processes are fairly non-hazardous. 5.4. Eco-efficiency comparison Since single metrics are not sufficient to establish a well-founded comparison, a joint evaluation of the indicators was required.

Butyl acetate (BuAc) is widely used as a solvent in many applications, mainly in the food and pharmaceutical industries. The conventional process for BuAc production is both capital and energy ...

The reactive distillation process for the synthesis of n-butyl acetate via transesterification of ethyl acetate with n-butyl alcohol catalyzed by immobilized lipase was simulated and experimentally tested in this work. Based on the reaction kinetics, a reactive distillation process model was developed. The effects of theoretical stages number in the ...

Butyl acetate energy storage

As an ECP contractor in China, SL Tech focus on providing Chinese advanced coal chemical, petro chemical and natural gas chemical technology including hydrogen peroxide technology, Ethyl Acetate Plant, Butyl Acetate Plant, Fixed Bed Process, Hydrogen Peroxide Plant, and MMA technology to global customers.

After the background deduction step, the gas in the in-situ cell could be switched to 1000 ppm butyl acetate/ N₂ or 1000 ppm butyl acetate/air (50 mL min⁻¹), and the temperature in the in-situ cell could be changed as required to collect spectral data of the sample surface at different temperatures.

The conventional process for BuAc production is both capital and energy intensive. The purification process involves the. Butyl acetate (BuAc) is widely used as a solvent in many applications, mainly in the food and pharmaceutical industries. ... and it is cooled down in heat exchanger E-101 to be sent to a storage tank (stream 6). The stream ...

n-BUTYL ACETATE AR Safety Data Sheet according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878 Reference number: 00061 ... SECTION 7: Handling and storage 7.1. Precautions for safe flameshandling Additional hazards when processed : Handle empty containers with care because residual vapours are flammable. ...

The butyl acetate purity of 82 % and acetic acid conversion of 80.5 % were obtained at the optimum operating conditions. ... Materials Science for Energy Technologies 6 (2023) [48] ...

Other names: n-Butyl acetate; Butyl acetate; Butyl ethanoate; 1-Butyl acetate; CH3COO(CH2)3CH3; Acetic acid n-butyl ester; n-Butyl ethanoate; Acetate de butyle; Butile(acetati di); Butylacetat; Butylacetaten; Butyle (acetate de); Butylester kyseliny octove; Butyl ester of acetic acid; 1-Acetoxybutane; 1-Butanol, ...

Ionic liquids (ILs), often known as green designer solvents, have demonstrated immense application potential in numerous scientific and technological domains. ILs possess high boiling point and low volatility that make them suitable environmentally benign candidates for many potential applications. The more important aspect associated with ILs is that their ...

To face the energy and environmental crisis, highly efficient, clean, safe, and renewable energy resources have been permanently explored, while the related research on the exploitation, storage, and utilization of these new energy resources have ...

Butyl acetate (BA, n-butyl acetate) is an ester commonly used as an organic solvent in cosmetic and pharmaceutical industries and as a flavoring agent in food industry. One of the methods reported for its synthesis is the esterification reaction between acetic acid and butanol catalyzed by expandable graphite (EG). The decomposition of butyl acetate by photocatalysis in gas ...

7.2 Storage Temperature: Ambient 7.3 Inert Atmosphere: No requirement 7.4 Venting: Open (flame arrester) 7.5 IMO Pollution Category: C ... N-BUTYL ACETATE BCN 9.20 SATURATED LIQUID DENSITY

Temperature (degrees F) Pounds per cubic foot 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120
55.760 55.590 55.420 55.240 55.070 54.900 54.720

Therefore, it could also store and release a large amount of latent heat, which could be seen as an outstanding energy storage material. In addition, the energy storage efficiency was calculated by the following formula: (1)

$$E = \frac{|D H m, \text{micro}| + |D H c, \text{micro}|}{|D H m, \text{Butyl stearate}| + |D H c, \text{Butyl stearate}|} \times 100 \%$$
where H m ...

N-BUTYL ACETATE is the important chemical basic material, is widely used in the solvent of paint class, leatheroid and plastics industry, also can be used as extraction agent, prepares lacquer thinner and is used for perfume industry etc. What the industrial production of N-BUTYL ACETATE generally adopted is traditional sulfuric acid catalysis esterification process, is ...

the n-butyl acetate production process and improving its energy efficiency. For example, Jimenez and Costa-Lopez (2002) proposed a scheme in which methyl acetate is converted into n-butyl acetate by a system comprising reactive and extractive distillation units. The complexity of this

Production of Butyl Acetate (BA) 4 Can enough BA be produced to meet needs of diesel transportation sector? Based on US-EIA: in 2019, 47B gallons diesel was consumed; assume 10% blending of BA ~5B gallons of BA is needed each year! Traditional BA production through Fischer esterification is highly energy

Biosynthesis of butyl acetate by using microbial monoculture of *C. acetobutylicum* NJ4 with the supplementation of exogenous acetic acid. As stated in our previous studies, *C. acetobutylicum* NJ4 is a hyper butanol producer, which shows great potential for butyl acetate synthesis through the supplementation of acetic acid [23, 25, 26] is also known that ...

The invention relates to a production method of n-butyl acetate, belonging to synthesis of acetates of unitary hydroxyl compounds. The production method comprises an esterification distillation operating system, a dehydration refinement operating system and a recycling distillation operating system. The invention is characterized in that heat carried by tower top distillate gas of a ...

It is a very interesting work that compares the production process of butyl acetate using a membrane reactor, a reactive distillation column and a conventional process. Although ...

Bioproduction of renewable chemicals is considered as an urgent solution for fossil energy crisis. ... for the production of butyl acetate and butyl butyrate from corn stover at low cost ...

n-Butyl Acetate Acetic acid n-butyl ester CAS no. 123-86-4 EC no. 204-658-1 Product description n-Butyl Acetate is a neutral, colorless liquid with a characteristic odor. It is miscible with organic solvents in all proportions. Dissolving power: n-Butyl Acetate is an excellent solvent for nitrocellulose, cellulose ethers, celluloid, chlorinated

Butyl acetate energy storage

n-butyl acetate 123-86-4 Storage Parameters Properties Value Shelf Life @22 °C [72 °F] 5 y
Storage Temperature a)-20 to 40 °C [32 to 104 °F] a) Storage below zero is not necessary. Cool, dry, and well ventilated area is recommended. ATTENTION! INDUSTRIAL OR LABORATORY USE ONLY NOT FOR RETAIL SALE

Here we report eco-friendly biomass-derived green solvents with g-valerolactone (GVL) and n-butyl acetate that allow for solution-based fabrication of high-quality FAPbI₃ (FA, ...

n-Butyl Acetate 123-86-4 90 - 100% Yes 3. Hazards Identification Emergency Overview-----WARNING! FLAMMABLE LIQUID AND VAPOR. HARMFUL IF SWALLOWED OR INHALED. CAUSES SEVERE IRRITATION TO EYES. CAUSES IRRITATION TO SKIN AND RESPIRATORY ... Storage Color Code: Red (Flammable) ...

Anhui Ruibai New Materials Co., Ltd. is situated in Huaibei City, a burgeoning hub for coal chemical synthetic materials, spanning across 110 acres. The company specializes in the production of various chemical products including methyl acetate, ethyl acetate, n-propyl acetate, n-butyl acetate, formaldehyde, paraformaldehyde, and more.

Studies examining the effects of n-butyl acetate were also considered in this paper because n-butyl acetate has been demonstrated to rapidly convert to n-butanol in a 1:1 ratio following exposure via multiple routes (Teeguarden et al., 2005). Thus, test animals exposed to either n-butyl acetate or n-butanol are expected to receive nearly ...

Determining Storage Stability Storage stability studies of the amine curatives were performed in different solvents (xylene, n-butyl acetate, me-thyl acetate, and t-butyl acetate). These were conducted by heating the prepared solutions in sealed glass bottles for 90 days at 50 °C or 30 days at 60 °C. Amine values were obtained before and after

The aerobic oxidation of copper(I) to copper(II) was studied in the ionic liquid (IL) 1- n-butyl-3-methylimidazolium acetate [BMIm][OAc]. Temperatures above 100 °C promote the deprotonation of ...

The thermal energy storage density and photothermal conversion efficiency of PU/GO increase as the amount of PEG and GO increases. The PU/GO composite with 89 wt% PEG and 1.72 wt% GO has a phase change enthalpy of 150.7 J/g and a high photothermal conversion efficiency (95.3%). The composite PU/GO solid-solid PCMs have great potentials ...

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Butyl acetate energy storage