Acetic (Ethanoic) Acid

BIOREFINING PROCESS SOURCE

Fermentation of 6-carbon sugars and starches, fermentation of lignocellulosic biomass

DESCRIPTION

Approximately 3.5 million tons of acetic acid were produced in the US in 1999.[1] Acetic acid is used as a foodstuff, solvent and fungicide, and in the production of pharmaceuticals like aspirin. Acetate esters have a wide range of practical applications, including vinyl acetate, which is used in paints, glues and wallboard, and cellulose acetate, which is used in rayon and photographic films.

Acetic acid is currently manufactured mostly by the Monsanto process, in which methanol from syngas reacts with carbon monoxide in the presence of a catalyst. Acetic acid sells for $720/ton.[2]

REPRESENTATIVE BIOBASED PRODUCT OPPORTUNITIES

BIOBASED PRODUCT	CLASSIFICATIONS	MARKET OPPORTUNITY	MARKET SIZE
Vinegar	Foodstuff	Vinegar is 4–8 percent acetic acid.	Large
Polyethylene terephthalate (PET)	Plastic	PET is a thermoforming polymer commonly used for food and beverage containers.	Large
Vinyl acetate	Additive	Vinyl acetate is commonly used in paints and wood glues.	Large
Cellulose acetate	Textiles, photographic films	The market for these products is well established.	Large

REFERENCES

[1] Chemical of the Week. “Acetic Acid and Acetic Anhydrife.” Chemistry department, University of Wisconsin-Madison. **http://scifun.chem.wisc.edu/chemweek/AceticAcid/AceticAcid.html** (28 May 2004)

[2] EnviroSense. “New Process User Bacteria to Transform Waste Gases into Useful Chemicals.” Environmental Protection Agency. **http://es.epa.gov/techinfo/facts/nu-prcss.html** (28 May 2004)

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