

# Acetaldehyde

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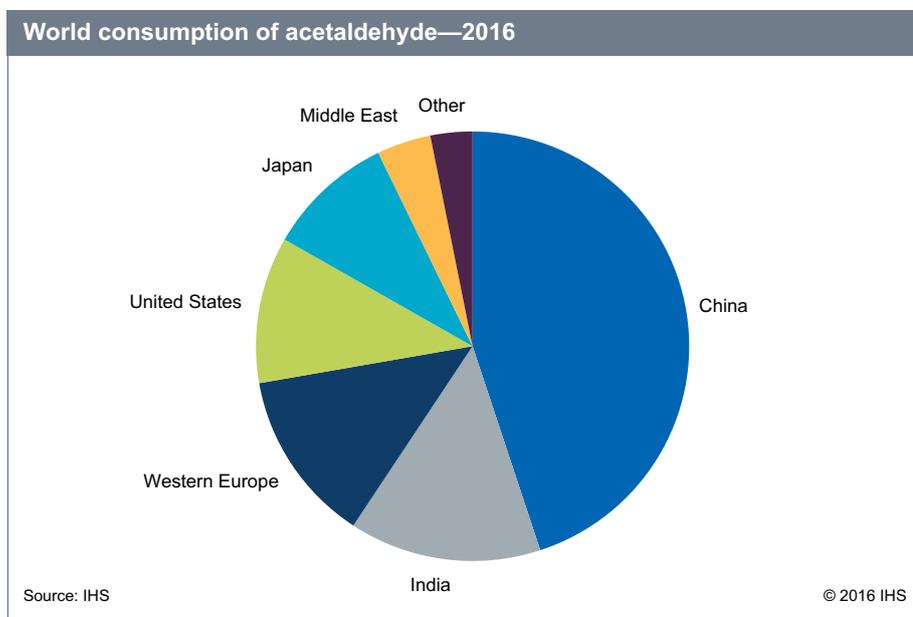
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## Abstract

Acetaldehyde is an important chemical intermediate. Pyridines, pentaerythritol, acetic acid, and acetate esters accounted for 34%, 23%, 18%, and 10%, respectively, of 2016 global acetaldehyde consumption. Pyridine and pyridine bases are important raw materials in the production of agricultural chemicals. Pentaerythritol and acetate esters (mainly ethyl acetate, but also some isobutyl acetate) are both used heavily in surface coatings. Acetic acid is now made predominantly via the lower-cost methanol carbonylation process. Other applications for acetaldehyde accounted for the remaining 15% of global acetaldehyde consumption in 2016. This category includes 1,3-butylene glycol, crotonaldehyde, and glyoxal, along with some smaller-volume derivatives.

Acetic acid facilities based on acetaldehyde continue to operate in Western Europe, the Middle East, and South America, although these will eventually be phased out in favor of methanol carbonylation. In addition to these structural changes, acetaldehyde demand has also declined in the last few years because of mature end-use markets and the effects of the economic downturn on these acetaldehyde-derived products.

The following pie chart shows world consumption of acetaldehyde:



China is the world's largest consumer of acetaldehyde. In 2016, the country accounted for almost half (45%) of global consumption for acetaldehyde. Chinese consumption for acetic acid (ethanol-based), pyridines, and pentaerythritol is balanced, all accounting for 27–28% of total Chinese consumption. Pyridines and pentaerythritol have developed very rapidly in recent years as a result of significant downstream demand for pesticides, pharmaceuticals, and alkyd resin paints

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and coatings. Consequently, overall Chinese acetaldehyde consumption is forecast to grow at almost 4% per year through 2021.

India is the second-largest consumer of acetaldehyde worldwide. The region accounted for about 14% of world consumption in 2016. India has been developing rapidly in recent years. The main driving force for acetaldehyde is growth in the use of pyridines. Acetaldehyde consumption for pyridines accounted for 90% of total acetaldehyde consumption.

Western Europe is the third-largest consumer of acetaldehyde worldwide, accounting for about 13% of world consumption in 2016. The Western European acetaldehyde market is expected to increase only very slightly at about 1.5% per year during 2016–21. The largest end use is pentaerythritol, and this use will account for the most growth, as pentaerythritol use to produce neopolyol esters (NPEs) for lubricants has increased.

Acetaldehyde consumption in Japan should exhibit about 2.5% per year growth through 2021, depending primarily upon growth in the consumption of ethyl acetate.

South America, the CIS and Baltic States, the Middle East, and the rest of Asia are all expected to grow at rates of less than 1% per year through 2021 because of reductions in downstream uses or no production. There has been no consumption of acetaldehyde in Africa since Sasol closed its acetaldehyde and crotonaldehyde plants in 2004–05.

Overall, global consumption of acetaldehyde is forecast to grow at an average annual rate of 3.0%.

# Contents

<b>Executive summary</b>	<b>4</b>
<b>Summary</b>	<b>5</b>
<b>Introduction</b>	<b>9</b>
<b>Manufacturing processes</b>	<b>10</b>
Liquid-phase oxidation of ethylene	10
From ethanol	10
Acetylene hydration	11
<b>Environmental issues</b>	<b>12</b>
<b>Supply and demand by region</b>	<b>13</b>
United States	13
Producing companies	13
Salient statistics	13
Consumption	14
Pyridines	15
Acetate esters	15
1,3-Butylene glycol (1,3-butanediol)	15
Pentaerythritol	15
Other	16
Price	16
South America	17
Producing companies	17
Salient statistics	17
Western Europe	18
Producing companies	18
Salient statistics	19
Consumption	20
Ethyl acetate	21
Acetic acid	21
Pentaerythritol	21
Synthetic pyridines	21
Other	22
Crotonaldehyde	22
Glyoxal/glyoxylic acid	22
Miscellaneous	22
Price	22
CIS and Baltic States	23
Middle East	24
Africa	24
Japan	25
Producing companies	25
Salient statistics	25
Consumption	26
Ethyl acetate	27
Pyridines	27

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Pentaerythritol	28
Other	28
Price	28
Trade	29
China	29
Producing companies	29
Salient statistics	30
Consumption	30
Acetic acid	31
Pentaerythritol	31
Pyridines	31
Ethyl acetate	32
Other	32
Price	33
Trade	33
India	33
Salient statistics	34
Consumption	34
Trade	35
Other Asia	35
Producing companies	35
Production	36
Consumption	36
Trade	37
<b>Bibliography</b>	<b>39</b>

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