

# Plasticizer Alcohols (C<sub>4</sub>-C<sub>13</sub>)

31 July 2018

## Abstract

2-Ethylhexanol (2-EH) and n-butanol continue to account for the majority of plasticizer alcohol consumption, combining for about three-quarters of the global total. They are followed by isononyl alcohol and isobutanol. Consumption growth for 2-EH and n-butanol will continue during 2017–22; however, n-butanol is forecast to grow slightly faster than 2-EH during this period, supported by higher n-butanol growth in China and Asia. In the United States and Western Europe, 2-EH will grow at a faster rate than n-butanol.

Demand for plasticizer alcohols in most downstream markets is greatly influenced by general economic conditions. As a result, demand for plasticizer alcohols largely follows the patterns of the leading world economies. The major end-use markets include construction/remodeling, automotive production, and original equipment manufacture (OEM).

The following pie chart shows world consumption of plasticizer alcohols:



Plasticizers are the largest end-use market for plasticizer alcohols, accounting for approximately 46% of world consumption in 2017. Plasticizers will remain the largest application; however, demand in plasticizers will grow less than demand for plasticizer alcohols in acrylate/methacrylate and acetate esters. Plasticizer-producing regions, such as the United States and Western Europe, are experiencing modest but limited growth rates, while Japan is expected to see a slight decrease for plasticizer consumption. The plasticizers market in China is forecast to grow relatively well during 2017–22, although less than other plasticizer alcohol market segments. World consumption of plasticizer alcohols for

## Contacts

**Koon-Ling Ring** · [Koon-Ling.ring@ihsmarkit.com](mailto:Koon-Ling.ring@ihsmarkit.com)  
**Maria deGuzman** · [Maria.deguzman@ihsmarkit.com](mailto:Maria.deguzman@ihsmarkit.com)

plasticizers is forecast to grow at an average annual rate of about 2.5% during 2017–22, mainly because of stronger growth in China and modest growth in the United States.

Asia (including Japan), Europe, and North America are the largest markets for plasticizer alcohols, accounting for nearly 95% of world demand in 2017.

Demand for plasticizer alcohols in the United States is expected to grow at a modest rate during 2017–22 and track the domestic economy. European demand growth is forecast at an average annual rate of about 1–2% during 2017–22; Western European demand will grow slowly while markets in Central and Eastern Europe are expected to grow at higher rates. Chinese consumption is forecast to experience good growth during 2017–22. Consumption in Other Asia, excluding Japan, is expected to grow at a moderate rate during the same period.

Consumption of plasticizer alcohols, especially C<sub>6</sub>–C<sub>13</sub> alcohols, depends greatly on demand for plasticizers and flexible PVC. Although some nonplasticizer applications are growing at faster rates, they represent a smaller portion of the consumption of most C<sub>6</sub>–C<sub>13</sub> alcohols. Plasticizers account for 50% of the US consumption of 2-EH and 12% in Western Europe; 2-EH consumption for plasticizers accounts for the majority in most other countries. Large volumes of C<sub>9</sub>, C<sub>10</sub>, and certain linear alcohols are also converted to plasticizers. Solvent/coating applications are the largest end use for C<sub>4</sub>–C<sub>5</sub> alcohols.

World demand for 2-EH is still dependent on DEHP production and will continue to grow because of demand for nonphthalate DOTP plasticizer production. Global growth in DOTP as a substitute plasticizer for DEHP will continue to support 2-EH growth worldwide since it is the main raw material plasticizer alcohol used for DOTP production. In some regions, including the United States, Asia, and Western Europe, 2-EH consumption is also dependent on production of 2-ethylhexyl acrylate.

# Contents

<b>Executive summary</b>	<b>7</b>
<b>Summary</b>	<b>8</b>
<b>Introduction</b>	<b>15</b>
<b>Manufacturing processes</b>	<b>17</b>
Butanols and 2-ethylhexanol	17
Linear alcohols	18
– C4–C10 linear alcohols	18
– C7–C11 linear oxo alcohols	19
Branched-chain oxo alcohols	19
<b>Environmental issues</b>	<b>21</b>
<b>Supply and demand by region</b>	<b>22</b>
United States	22
– Producing companies	22
– BASF	23
– DowDuPont	23
– Eastman	23
– ExxonMobil	23
– OXEA	23
– Sasol	23
– Shell Chemicals	23
– Production	24
– Consumption	25
– n-Butanol	27
– Acrylate and methacrylate esters	28
– Glycol ethers	29
– n-Butyl acetate	31
– Direct solvent	31
– Plasticizers	32
– Amino resins	33
– n-Butylamines	33
– Other	34
– 2-Ethylhexanol	35
– Acrylate and methacrylate esters	36
– Plasticizers	38
– Lube oil additives	40
– Surfactants	40
– Direct solvent	41
– Mining applications	41
– Other	41
– 2-Propylheptanol	41
– Plasticizers	42
– Surfactants	43
– Isononyl alcohol	43
– Diisononyl phthalate (DINP)	44
– Triisononyl trimellitate (TINTM)	44

– Diisononyl adipates (DINA)	44
– Other plasticizers	44
– Isodecyl alcohol	44
– Plasticizers	45
– Lube oil additives	46
– Surfactants	46
– Mining chemicals	47
– Other	47
– Isooctyl alcohol	47
– Isooctyl acrylate	48
– Lube oil additives	48
– Other	48
– Isobutanol	48
– Lube oil additives	49
– Isobutyl acetate	49
– Direct solvent	50
– Amino resins	50
– Acrylate and methacrylate esters	50
– Isobutylamines	50
– Other	50
– C6–C11 linear alcohols	50
– Plasticizers	52
– Surfactants	53
– Tobacco sucker control	54
– Mining chemicals	54
– Fatty amines	54
– Other	54
– Tridecyl alcohol	55
– Plasticizers	55
– Surfactants	56
– Other	56
– Amyl alcohol	56
– Lube oil additives	57
– Amyl acetate	57
– Direct solvent	58
– Flavor and fragrance chemicals	58
– Xanthates	58
– Other	58
– Dodecyl alcohol	58
– Isoheptyl alcohol	58
– Price	58
– Trade	59
– Imports	59
– Exports	61
Canada	63
– Salient statistics	63
– Consumption	64
– Plasticizers	65

– Diesel fuel additive	65
– Other	65
– Trade	65
Mexico	66
– Salient statistics	66
– Consumption	67
– Trade	69
Brazil	70
– Producing companies	70
– Production	71
– Consumption	71
– Trade	73
Other Central and South America	75
– Producing companies	75
– Salient statistics	75
– Consumption	76
Western Europe	77
– Producing companies	77
– Production	79
– Consumption	81
– n-Butanol	83
– Solvent applications	84
– Acrylate and methacrylate esters	84
– Plasticizers	85
– Isononyl alcohol	85
– 2-Ethylhexanol	86
– Acrylate and methacrylate esters	87
– 2-Ethylhexyl nitrate	87
– Plasticizers	87
– Lube oil additives	88
– Isodecyl alcohol	88
– 2-Propylheptanol	89
– Isobutanol	90
– Solvent applications	91
– Acrylate and methacrylate esters	92
– C6–C11 linear alcohols	92
– Tridecyl alcohol	93
– Isooctyl alcohol	93
– Amyl alcohol	94
– Other	95
– Price	95
– Trade	96
– Imports	96
– Exports	97
Central and Eastern Europe	98
– Producing companies	98
– Salient statistics	99
– Consumption	100

– Plasticizers	102
– Acrylate and methacrylate esters	102
– Acetate esters and direct solvent	102
– Trade	103
– Imports	103
– Exports	103
<b>Middle East</b>	<b>103</b>
– Producing companies	103
– Salient statistics	104
– Consumption	105
<b>Africa</b>	<b>106</b>
– Producing companies	106
– Salient statistics	107
– Consumption	108
<b>Japan</b>	<b>109</b>
– Producing companies	109
– Salient statistics	109
– Production	110
– Consumption	110
– n-Butanol	112
– 2-Ethylhexanol	113
– Isononyl alcohol	115
– Isobutanol	115
– Other	115
– Price	115
– Trade	117
<b>China</b>	<b>119</b>
– Producing companies	119
– Salient statistics	123
– Consumption	125
– 2-Ethylhexanol	127
– Di (2-ethylhexyl) phthalate (DEHP)	128
– Dioctyl terephthalate (DOTP)	128
– 2-Ethylhexyl acrylate	129
– n-Butanol	129
– Butyl acrylate	129
– Butyl acetate	129
– Direct solvent	130
– Plasticizer	130
– Isobutanol	130
– Diisobutyl phthalate (DIBP)	130
– Isobutyl acetate	130
– Other plasticizer alcohols	131
– Isononyl alcohol (INA)	131
– Isodecyl alcohol (IDA)	131
– 2-Propylheptanol (2-PH)	131
– Glycol ether	131
– Price	132

– Trade	132
Other Asia	134
– Producing companies	134
– Salient statistics	135
– Production	137
– Consumption	138
– Trade	141
Oceania	141
– Salient statistics	141
– Consumption	142
<b>Additional resources</b>	<b>143</b>
<b>Revisions</b>	<b>144</b>

## IHS Markit Customer Care

CustomerCare@ihsmarkit.com

Americas: +1 800 IHS CARE (+1 800 447 2273)

Europe, Middle East, and Africa: +44 (0) 1344 328 300

Asia and the Pacific Rim: +604 291 3600

---

### Disclaimer

The information contained in this report is confidential. Any unauthorized use, disclosure, reproduction, or dissemination, in full or in part, in any media or by any means, without the prior written permission of IHS Markit Ltd. or any of its affiliates ("IHS Markit") is strictly prohibited. IHS Markit owns all IHS Markit logos and trade names contained in this report that are subject to license. Opinions, statements, estimates, and projections in this report (including other media) are solely those of the individual author(s) at the time of writing and do not necessarily reflect the opinions of IHS Markit. Neither IHS Markit nor the author(s) has any obligation to update this report in the event that any content, opinion, statement, estimate, or projection (collectively, "information") changes or subsequently becomes inaccurate. IHS Markit makes no warranty, expressed or implied, as to the accuracy, completeness, or timeliness of any information in this report, and shall not in any way be liable to any recipient for any inaccuracies or omissions. Without limiting the foregoing, IHS Markit shall have no liability whatsoever to any recipient, whether in contract, in tort (including negligence), under warranty, under statute or otherwise, in respect of any loss or damage suffered by any recipient as a result of or in connection with any information provided, or any course of action determined, by it or any third party, whether or not based on any information provided. The inclusion of a link to an external website by IHS Markit should not be understood to be an endorsement of that website or the site's owners (or their products/services). IHS Markit is not responsible for either the content or output of external websites. Copyright © 2018, IHS Markit™. All rights reserved and all intellectual property rights are retained by IHS Markit.

