

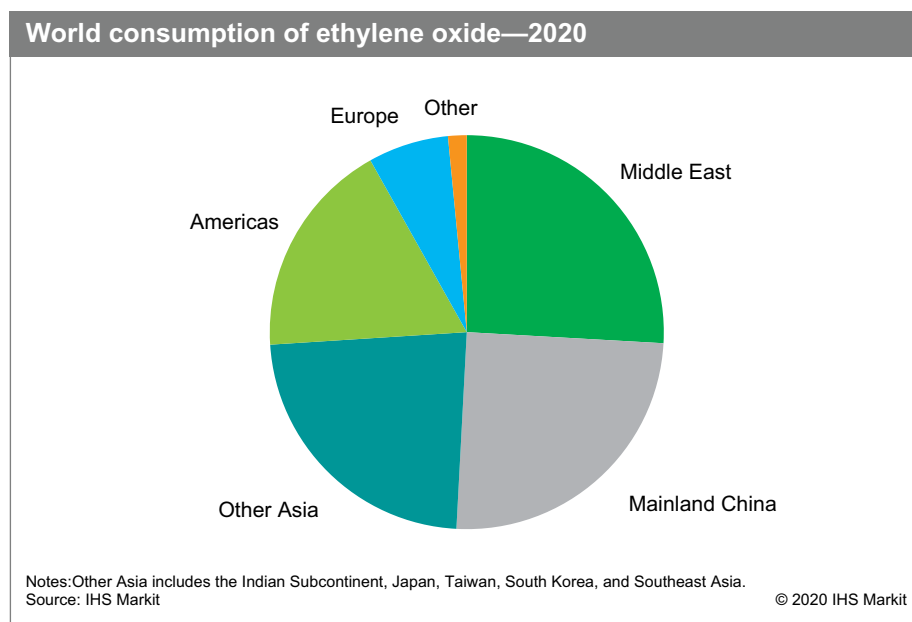
# Ethylene Oxide

22 December 2020

## Abstract

Ethylene oxide (EO) is a basic chemical primarily produced by the catalytic oxidation of ethylene. EO is a chemical intermediate that cannot be directly used and is further reacted to produce a wide spectrum of products. Ethylene glycols (mono-, di-, triethylene glycol) constitute by far the single-largest outlet for ethylene oxide, accounting for over 80% of the EO market in 2020. Other dominant end uses include higher-value derivatives such as ethoxylates, ethanolamines, glycol ethers, polyethylene glycol, and polyether polyols.

The following pie chart shows world consumption of ethylene oxide:



Between the late 1990s and the late 2000s, North America lost significant momentum on the back of new large-scale EO capacity commissioned in the Middle East and Northeast Asia. In the United States, EO/EG producers lost their competitive edge because of higher raw material costs and aging production units.

The advent of shale gas production in the region has changed the fate of the US and North American petrochemical industry. Natural gas liquids coproduced along with natural gas (ethane and propane, essentially) are now competitively priced feedstock readily available for the petrochemical industry. As a result, the new petrochemical project pipeline has significantly picked up in North America and new EO capacity will be started through 2025.

## Contacts

Maria deGuzman • [Maria.deguzman@ihsmarkit.com](mailto:Maria.deguzman@ihsmarkit.com)

World consumption of EO is dominated by Northeast Asia (primarily mainland China). During the forecast period to 2025, Northeast Asia will continue to dominate worldwide consumption, but significant large-scale EO/EG projects in North America will help boost North American EO demand strongly through 2025.

**For more detailed information, see the table of contents, shown below.**

**IHS Markit's Chemical Economics Handbook – *Ethylene Oxide*** is the comprehensive and trusted guide for anyone seeking information on this industry. This latest report details global and regional information, including



Global summary;  
regional coverage



Producers with  
annual capacities  
and plant sites



Production figures  
and trends



Consumption and  
forecasts by end use  
application



Manufacturing  
processes and  
environmental issues



Trade – imports  
and exports

## Key Benefits

**IHS Markit's Chemical Economics Handbook – *Ethylene Oxide*** has been compiled using primary interviews with key suppliers and organizations, and leading representatives from the industry in combination with IHS Markit's unparalleled access to upstream and downstream market intelligence and expert insights into industry dynamics, trade, and economics.

This report can help you

- Identify trends and driving forces influencing chemical markets
- Forecast and plan for future demand
- Understand the impact of competing materials
- Identify and evaluate potential customers and competitors
- Evaluate producers
- Track changing prices and trade movements
- Analyze the impact of feedstocks, regulations, and other factors on chemical profitability

# Contents

<b>Executive summary</b>	<b>7</b>
<b>Summary</b>	<b>9</b>
<b>Introduction</b>	<b>13</b>
<b>Manufacturing processes</b>	<b>14</b>
Direct oxidation	14
Biomass-to-EO/EG	16
– Bio-based ethanol-to-ethylene	16
– Other bio-based routes	17
Coal-to-MEG	17
Chlorohydrin process	19
<b>Environmental issues</b>	<b>20</b>
<b>Supply and demand by region</b>	<b>21</b>
World	21
– World capacity	21
– Producing companies	22
– Salient statistics	23
– Consumption	25
– Monoethylene glycol	28
– Diethylene and triethylene glycols	29
– Polyethylene glycols	30
– Ethoxylates	31
– Ethanolamines	32
– Glycol ethers	32
– Polyether polyols	33
– Other	33
– Price	34
– Trade	34
North America	36
– Overview	36
– Capacity	36
– Salient statistics	37
– Consumption	38
– Trade	40
– United States	40
– Producing companies	40
– Salient statistics	42
– Consumption	43
– Monoethylene glycol	45
– Diethylene, triethylene, and polyethylene glycols	45
– Ethoxylates	46

– Ethanolamines	46
– Glycol ethers	46
– Polyether polyols	46
– Other	47
– Trade	47
– Canada	48
– Producing companies	48
– Salient statistics	49
– Consumption	50
– Trade	51
– Mexico	52
– Producing companies	52
– Salient statistics	53
– Consumption	54
– Trade	56
South America	56
– Producing companies	56
– Salient statistics	57
– Consumption	58
– Trade	60
Western Europe	61
– Producing companies	61
– Salient statistics	64
– Consumption	65
– Monoethylene glycol	67
– Diethylene, triethylene, and polyethylene glycols	67
– Ethoxylates	68
– Ethanolamines	68
– Trade	68
Central Europe	69
– Producing companies	69
– Salient statistics	70
– Consumption	71
– Trade	72
CIS and Baltic States	73
– Producing companies	73
– Salient statistics	74
– Consumption	75
– Trade	77
Middle East	78
– Producing companies	78
– Salient statistics	81
– Consumption	82

– Trade	83
Africa	84
– Producing companies	84
– Salient statistics	84
– Consumption	84
– Trade	84
Indian Subcontinent	84
– Producing companies	84
– Salient statistics	86
– Consumption	86
– Trade	88
Northeast Asia	89
– Overview	89
– Capacity	89
– Salient statistics	90
– Consumption	90
– Trade	92
– Mainland China	92
– Producing companies	92
– Salient statistics	96
– Consumption	97
– Monoethylene glycol	98
– Polyethylene glycols	99
– Ethoxylates	99
– Ethanolamines	100
– Polyether polyols	100
– Trade	100
– Japan	101
– Producing companies	101
– Salient statistics	102
– Consumption	103
– Trade	104
– South Korea	105
– Producing companies	105
– Salient statistics	106
– Consumption	107
– Trade	108
– Taiwan	109
– Producing companies	109
– Salient statistics	110
– Consumption	111
– Trade	112
Southeast Asia	112

– Producing companies	112
– Salient statistics	114
– Consumption	115
– Trade	117
<b>Additional resources</b>	<b>119</b>
<b>Revisions</b>	<b>120</b>

## IHS Markit Customer Care

CustomerCare@ihsmarkit.com

### **Asia and the Pacific Rim**

Japan: +81 3 6262 1887

Asia Pacific: +604 291 3600

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

**Americas: +1 800 447 2273**

---

### **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 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 © 2020, IHS Markit®. All rights reserved and all intellectual property rights are retained by IHS Markit.

