

NexantThinking™

Petroleum and Petrochemical Economics

Quarterly Business Analysis

United States - Quarter 4, 2016

December 2016



This Report was prepared by Nexant, Inc. ("Nexant") and is part of the NexantThinking™ suite. Except where specifically stated otherwise in this Report, the information contained herein is prepared on the basis of information that is publicly available, and contains no confidential third party technical information to the best knowledge of Nexant. Aforesaid information has not been independently verified or otherwise examined to determine its accuracy, completeness or financial feasibility. Neither Nexant, Subscriber nor any person acting on behalf of either assumes any liabilities with respect to the use of or for damages resulting from the use of any information contained in this Report. Nexant does not represent or warrant that any assumed conditions will come to pass.

The Report is submitted on the understanding that the Subscriber will maintain the contents confidential except for the Subscriber's internal use. The Report should not be reproduced, distributed or used without first obtaining prior written consent by Nexant. Each Subscriber agrees to use reasonable effort to protect the confidential nature of the Report.

Copyright © by Nexant Inc. 2016. All rights reserved.

Contents

Section	Page
1 Executive Summary	1
2 Crude Oil, Refining and Petrochemical Feedstocks	7
2.1 CRUDE OIL AND REFINING	7
2.2 PETROCHEMICAL FEEDSTOCKS.....	12
3 Olefins	17
3.1 ETHYLENE	17
3.2 PROPYLENE	31
3.3 BUTADIENE.....	38
4 Polyolefins	42
4.1 LOW DENSITY POLYETHYLENE (LDPE)	42
4.2 LINEAR LOW DENSITY POLYETHYLENE (LLDPE).....	47
4.3 HIGH DENSITY POLYETHYLENE (HDPE).....	52
4.4 POLYPROPYLENE (PP).....	57
5 Vinyls.....	62
5.1 CHLORALKALI/ETHYLENE DICHLORIDE/VINYL CHLORIDE MONOMER.....	62
5.2 POLYVINYL CHLORIDE (PVC).....	74
6 Aromatics.....	79
6.1 BENZENE, TOLUENE AND XYLENES	79
6.2 CYCLOHEXANE	98
7 Styrenics.....	103
7.1 STYRENE	103
7.2 POLYSTYRENE.....	108
8 Butadiene Derivatives	113
8.1 STYRENE BUTADIENE RUBBER (SBR).....	113
8.2 ACRYLONITRILE BUTADIENE STYRENE (ABS)	116
8.3 BUTADIENE RUBBER (BR)	120
9 Polyester and Intermediates.....	123
9.1 MONO ETHYLENE GLYCOL (MEG).....	123
9.2 <i>PARA</i> -XYLENE (PX) AND <i>ORTHO</i> -XYLENE (OX)	128
9.3 PURIFIED TEREPHTHALIC ACID (PTA).....	134
9.4 POLYETHYLENE TEREPHTHALATE (PET)	139
10 Propylene Derivatives	144
10.1 ACRYLONITRILE (ACN).....	144
10.2 CUMENE AND PHENOL	149
10.3 BISPHENOL-A (BPA).....	157
10.4 POLYCARBONATE	161
11 Competitive Regional Economics	166
Appendix	Page
A Prices.....	A-1