

MARKETS AND PROFITABILITY

Market Analytics: Acrylonitrile - 2019

July 2019



This Report was prepared by Nexant, Inc. ("Nexant"). 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. 2019. All rights reserved.



Contents

1	Executive Summary	1
1.1	Introduction.....	1
1.2	Propylene Market Outlook.....	3
1.3	Acrylonitrile.....	6
2	The Propylene and Derivatives Industry.....	9
2.1	Olefins Overview	9
2.1.1	Industry Review and Performance	11
2.2	Current Performance of the Propylene Market	13
2.2.1	Consumption	13
2.2.2	Supply	16
2.2.3	Supply, Demand and Trade	21
2.3	Acrylonitrile End-Use Overview.....	23
2.4	Market Coverage.....	25
3	Acrylonitrile	26
3.1	Global	26
3.1.1	Key Developments	26
3.1.2	Consumption	26
3.1.3	Supply	31
3.1.4	Supply, Demand and Trade	34
3.2	North America	37
3.2.1	Key Developments	37
3.2.2	Consumption	37
3.2.3	Supply	41
3.2.4	Supply, Demand and Trade	43
3.3	South America.....	46
3.3.1	Key Developments	46
3.3.2	Consumption	46
3.3.3	Supply	48
3.3.4	Supply, Demand and Trade	49
3.4	Western Europe	51
3.4.1	Key Developments	51
3.4.2	Consumption	51
3.4.3	Supply	54
3.4.4	Supply, Demand and Trade	56
3.5	Central Europe	57
3.5.1	Key Developments	57
3.5.2	Consumption	57
3.5.3	Supply	58
3.5.4	Supply, Demand and Trade	58
3.6	Eastern Europe	59
3.6.1	Key Developments	59



3.6.2	Consumption	59
3.6.2.1	Russia	59
3.6.2.2	Other Eastern Europe	60
3.6.3	Supply	61
3.6.3.1	Russia	61
3.6.3.2	Other Eastern Europe	62
3.6.4	Supply, Demand and Trade	63
3.6.4.1	Russia	63
3.6.4.2	Other Eastern Europe	64
3.7	Middle East.....	66
3.7.1	Key Developments	66
3.7.2	Consumption	66
3.7.3	Supply	68
3.7.4	Supply, Demand and Trade	70
3.8	Africa	71
3.8.1	Key Developments	71
3.8.2	Consumption	71
3.8.3	Supply	72
3.8.4	Supply, Demand and Trade	72
3.9	Asia Pacific.....	73
3.9.1	Key Developments	73
3.9.2	Consumption	73
3.9.2.1	China.....	75
3.9.2.2	North-East Asia	76
3.9.2.3	South-East Asia	79
3.9.2.4	South Asia.....	80
3.9.2.5	Australasia	81
3.9.3	Supply	82
3.9.3.1	China.....	82
3.9.3.2	North-East Asia.....	83
3.9.3.3	South-East Asia	84
3.9.3.4	South Asia.....	84
3.9.3.5	Australasia	84
3.9.4	Supply, Demand and Trade	88

Appendices

A	Methodology	93
A.1	Market Dynamics Forecasting Methodology	93
A.1.1	Capacity Availability and Forecasting	93
A.2	End-Use Consumption Forecasting	93
A.2.1.1	End-Use Sector Growth	94
A.2.1.2	Penetration (New Application Growth).....	94
A.2.1.3	Downgauging and Recycling	95
A.2.1.4	Chain Inventory	95



	A.2.1.5	Short-term Influences.....	95
	A.2.1.6	Monomer Consumption Forecasting.....	95
	A.2.2	Production and Trade Forecasting.....	97
B		Acrylonitrile – Technology	98
	B.1	Propylene	98
	B.1.1	Technology.....	98

Figures

Figure 1	Global Propylene Demand, 2018-e	15
Figure 2	Global GDP Growth vs Propylene Consumption Growth	15
Figure 3	Global Combined Propylene Consumption	16
Figure 4	Global Propylene Capacity Share by Marketer in 2018-e	19
Figure 5	Global Propylene Production by Process.....	20
Figure 6	Regional Propylene Capacity Addition	20
Figure 7	Regional Propylene Capacity	20
Figure 8	Global Propylene Supply and Demand	22
Figure 9	Regional Propylene Net Exports/(Imports).....	22
Figure 10	Global Acrylonitrile Demand, 2018-e.....	29
Figure 11	Global GDP Growth vs. Acrylonitrile Consumption Growth	29
Figure 12	Global Acrylonitrile Consumption by Region	30
Figure 13	Global Acrylonitrile Capacity Share by Marketer in 2018-e.....	32
Figure 14	Global Acrylonitrile Capacity Additions.....	33
Figure 15	Global Acrylonitrile Capacity.....	33
Figure 16	Global Acrylonitrile Supply, Demand and Trade	35
Figure 17	Global Acrylonitrile Net Exports(Imports)	36
Figure 18	North America Acrylonitrile Demand, 2018-e	40
Figure 19	Location of Acrylonitrile Plants in North America	42
Figure 20	North America States Acrylonitrile Supply, Demand and Trade	44
Figure 21	United States Acrylonitrile Supply, Demand and Trade	45
Figure 22	South America Acrylonitrile Demand, 2018-e	47
Figure 23	Location of Acrylonitrile Plants in South America.....	48
Figure 24	South America Acrylonitrile Supply, Demand and Trade	50
Figure 25	Western Europe Acrylonitrile Demand, 2018-e.....	53
Figure 26	Location of Acrylonitrile Plants in Western Europe	55
Figure 27	Western Europe Acrylonitrile Supply, Demand and Trade.....	56
Figure 28	Central Europe Acrylonitrile Demand, 2018-e.....	57
Figure 29	Central Europe Acrylonitrile Supply, Demand and Trade	58
Figure 30	Russia Acrylonitrile Demand, 2018-e	60
Figure 31	Location of Acrylonitrile Plants in Russia	61
Figure 32	Location of Acrylonitrile Plants in Other Eastern Europe	62
Figure 33	Russia Acrylonitrile Supply, Demand and Trade.....	63
Figure 34	Other Eastern Europe Acrylonitrile Supply, Demand and Trade.....	64
Figure 35	Total Eastern Europe Acrylonitrile Supply, Demand and Trade.....	65
Figure 36	Middle East Acrylonitrile Demand, 2018-e	67



Figure 37	Location of Acrylonitrile Plants in the Middle East	69
Figure 38	Middle East Acrylonitrile Supply, Demand and Trade	70
Figure 39	Africa Acrylonitrile Demand, 2018-e	71
Figure 40	Africa Acrylonitrile Supply, Demand and Trade	72
Figure 41	Asia Pacific Acrylonitrile Demand, 2018-e	81
Figure 42	Location of Acrylonitrile Plants in China	86
Figure 43	Location of Acrylonitrile Plants in Japan and South Korea	86
Figure 44	Location of Acrylonitrile Plants in South-East Asia	87
Figure 45	Location of Acrylonitrile Plants in India	87
Figure 46	Asia Pacific Acrylonitrile Supply, Demand and Trade	90
Figure 47	China Acrylonitrile Supply, Demand and Trade	91
Figure 48	End-Use Consumption Drivers	94
Figure 49	Monomer Consumption Drivers	96
Figure 50	Trade Considerations	97
Figure 51	Global Olefins Production by Process 2013	99
Figure 52	Global Propylene Capacity Additions	100

Tables

Table 1	Global Acrylonitrile Consumption by End-Use	29
Table 2	Global Acrylonitrile Consumption by Region	30
Table 3	Global Acrylonitrile Supply, Demand and Trade	35
Table 4	North America Acrylonitrile Consumption by End-Use	40
Table 5	North America Acrylonitrile Consumption by Country	40
Table 6	Acrylonitrile Capacity in North America	42
Table 7	North America Acrylonitrile Supply, Demand and Trade	44
Table 8	United States Acrylonitrile Supply, Demand and Trade	45
Table 9	South America Acrylonitrile Consumption by End-Use	47
Table 10	South America Acrylonitrile Consumption by Country	47
Table 11	Acrylonitrile Capacity in South America	48
Table 12	South America Acrylonitrile Supply, Demand and Trade	50
Table 13	Western Europe Acrylonitrile Consumption by End-Use	53
Table 14	Acrylonitrile Capacity in Western Europe	54
Table 15	Western Europe Acrylonitrile Supply, Demand and Trade	56
Table 16	Central Europe Acrylonitrile Consumption by End-Use	57
Table 17	Central Europe Acrylonitrile Supply, Demand and Trade	58
Table 18	Russia Acrylonitrile Consumption by End-Use	60
Table 19	Other Eastern Europe Acrylonitrile Consumption by End-Use	60
Table 20	Acrylonitrile Capacity in Russia	61
Table 21	Acrylonitrile Capacity in Other Eastern Europe	62
Table 22	Russia Acrylonitrile Supply, Demand and Trade	63
Table 23	Other Eastern Europe Acrylonitrile Supply, Demand and Trade	64
Table 24	Total Eastern Europe Acrylonitrile Supply, Demand and Trade	65
Table 25	Middle East Acrylonitrile Consumption by End-Use	67
Table 26	Middle East Acrylonitrile Consumption by Country	67



Table 27	Acrylonitrile Capacity in the Middle East	68
Table 28	Middle East Acrylonitrile Supply, Demand and Trade	70
Table 29	Africa Acrylonitrile Consumption by End-Use.....	71
Table 30	Africa Acrylonitrile Consumption by Country	72
Table 31	Africa Acrylonitrile Supply, Demand and Trade.....	72
Table 32	Asia Pacific Acrylonitrile Consumption by End-Use	81
Table 33	Asia Pacific Acrylonitrile Consumption by Country	82
Table 34	Acrylonitrile Capacity in the Asia Pacific	85
Table 35	Asia Pacific Acrylonitrile Supply, Demand and Trade	90
Table 36	China Acrylonitrile Supply, Demand and Trade	91