

## **MARKETS AND PROFITABILITY**

# **Market Analytics: Acrylic Acid and Super Absorbent Polymers - 2022**

Global

June 2022



This Report was prepared by NexantECA, the Energy and Chemicals Advisory company ("NexantECA"). Except where specifically stated 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 and belief of NexantECA. The information has not been independently verified or otherwise examined to determine its accuracy, completeness or financial feasibility. Neither NexantECA, Subscriber nor any person acting on behalf of either shall have any liabilities for any loss or damage arising from or connected to the use of any information contained in this Report. NexantECA does not represent or warrant that any assumed conditions will come to pass.

The Report is for Subscriber's internal use only and shall be kept strictly confidential. The Report should not be otherwise reproduced, distributed or used without first obtaining prior written consent by NexantECA. Each Subscriber agrees to use reasonable effort to protect the confidential nature of the Report.

Copyright © by NexantECA (BV) Ltd. 2022. All rights reserved.



## Contents

<b>1</b>	<b>Executive Summary .....</b>	<b>1</b>
1.1	Acrylic Acid.....	1
1.2	Super Absorbent Polymers .....	5
<b>2</b>	<b>The Propylene and Derivatives Industry.....</b>	<b>9</b>
2.1	Current Performance of the Propylene Market .....	9
2.1.1	Demand.....	9
2.1.2	Supply .....	12
2.1.3	Supply, Demand and Trade .....	16
2.2	Acrylic Acid Chain .....	17
2.2.1	Acrylic Acid.....	17
2.2.2	Super Absorbent Polymers .....	17
2.2.3	Acrylates Esters .....	18
<b>3</b>	<b>Market Coverage .....</b>	<b>19</b>
<b>4</b>	<b>Acrylic Acid.....</b>	<b>20</b>
4.1	Global .....	20
4.1.1	Key Developments .....	20
4.1.2	Demand.....	20
4.1.2.1	Acrylate Esters .....	21
4.1.2.2	Super Absorbent Polymers .....	22
4.1.2.3	Detergents, Flocculants, Others .....	23
4.1.3	Supply .....	25
4.1.4	Supply, Demand and Trade .....	27
4.2	North America .....	29
4.2.1	Key Developments .....	29
4.2.2	Demand.....	29
4.2.3	Supply .....	32
4.2.4	Supply, Demand and Trade .....	34
4.3	South America.....	37
4.3.1	Key Developments .....	37
4.3.2	Demand.....	37
4.3.3	Supply .....	40
4.3.4	Supply, Demand and Trade .....	41
4.4	Western Europe .....	43
4.4.1	Key Developments .....	43
4.4.2	Demand.....	43
4.4.3	Supply .....	45
4.4.4	Supply, Demand and Trade .....	47
4.5	Central Europe .....	49
4.5.1	Key Developments .....	49
4.5.2	Demand.....	49



4.5.3	Supply .....	51
4.5.4	Supply, Demand and Trade .....	52
4.6	<b>Eastern Europe .....</b>	<b>53</b>
4.6.1	Key Developments .....	53
4.6.2	Demand.....	53
4.6.2.1	Russia .....	53
4.6.2.2	Other Eastern Europe .....	54
4.6.3	Supply .....	55
4.6.3.1	Russia .....	55
4.6.3.2	Other Eastern Europe .....	55
4.6.4	Supply, Demand and Trade .....	56
4.6.4.1	Russia .....	56
4.6.4.2	Other Eastern Europe .....	57
4.7	<b>Middle East.....</b>	<b>58</b>
4.7.1	Key Developments .....	58
4.7.2	Demand.....	58
4.7.3	Supply .....	60
4.7.4	Supply, Demand and Trade .....	62
4.8	<b>Africa .....</b>	<b>63</b>
4.8.1	Key Developments .....	63
4.8.2	Demand.....	63
4.8.3	Supply .....	65
4.8.4	Supply, Demand and Trade .....	66
<b>5</b>	<b>Super Absorbent Polymers .....</b>	<b>88</b>
5.1	<b>Global .....</b>	<b>88</b>
5.1.1	Key Developments .....	88
5.1.2	Demand.....	88
5.1.2.1	Hygiene Products.....	90
5.1.2.2	Other Uses .....	91
5.1.3	Supply .....	94
5.1.4	Supply, Demand and Trade .....	97
5.2	<b>North America .....</b>	<b>99</b>
5.2.1	Key Developments .....	99
5.2.2	Demand.....	99
5.2.3	Supply .....	102
5.2.4	Supply, Demand and Trade .....	103
5.3	<b>South America.....</b>	<b>106</b>
5.3.1	Key Developments .....	106
5.3.2	Demand.....	106
5.3.3	Supply .....	108
5.3.4	Supply, Demand and Trade .....	109
5.4	<b>Western Europe .....</b>	<b>110</b>
5.4.1	Key Developments .....	110
5.4.2	Demand.....	110



---

5.4.3	Supply .....	113
5.4.4	Supply, Demand and Trade .....	114
5.5	Central Europe .....	115
5.5.1	Key Developments .....	115
5.5.2	Demand.....	115
5.5.3	Supply .....	116
5.5.4	Supply, Demand and Trade .....	117
5.6	Eastern Europe .....	118
5.6.1	Key Developments .....	118
5.6.2	Demand.....	118
5.6.2.1	Russia .....	118
5.6.2.2	Other Eastern Europe .....	119
5.6.3	Supply .....	121
5.6.3.1	Russia .....	121
5.6.3.2	Other Eastern Europe .....	121
5.6.4	Supply, Demand and Trade .....	121
5.6.4.1	Russia .....	121
5.6.4.2	Other Eastern Europe .....	123
5.7	Middle East.....	125
5.7.1	Key Developments .....	125
5.7.2	Demand.....	125
5.7.3	Supply .....	127
5.7.4	Supply, Demand and Trade .....	128
5.8	Africa .....	130
5.8.1	Key Developments .....	130
5.8.2	Demand.....	130
5.8.3	Supply .....	132
5.8.4	Supply, Demand and Trade .....	133
5.9.2	Demand.....	134

## Appendices

<b>A</b>	<b>Methodology .....</b>	<b>154</b>
A.1	Market Analytics Forecasting Methodology .....	154
A.1.1	Capacity Availability and Forecasting .....	154
A.1.2	End-Use Consumption Forecasting .....	154
A.1.2.1	End-Use Sector Growth .....	155
A.1.2.2	Penetration (New Application Growth) .....	155
A.1.2.3	Downgauging and Recycling .....	156
A.1.2.4	Chain Inventory .....	156
A.1.2.5	Short-term Influences .....	156
A.1.2.6	Monomer Consumption Forecasting .....	156
<b>B</b>	<b>Acrylic Acid Value Chain – Technology.....</b>	<b>159</b>
B.1	Propylene .....	159
B.1.1	Technology .....	159



B.2.2	Petrochemical-Based Acrylic Acid .....	163
B.2.3	Alternative and Bio-based Routes to Acrylic Acid.....	165
B.3.1.1	Solution Polymerization .....	166
B.3.1.2	Suspension Polymerization.....	166

## Figures

Figure 1	Global Propylene Demand, 2021-e .....	11
Figure 2	Global GDP Growth vs Propylene Consumption Growth.....	11
Figure 3	Global Combined Propylene Consumption .....	11
Figure 4	Global Propylene Capacity Share by Marketer in 2021-e .....	14
Figure 5	Global Propylene Production by Process .....	15
Figure 6	Regional Propylene Capacity Addition .....	15
Figure 7	Regional Propylene Capacity .....	15
Figure 8	Global Combined Propylene Supply and Demand.....	16
Figure 9	Global Acrylic Acid Consumption by End-Use, 2021-e .....	23
Figure 10	Global GDP Growth vs Acrylic Acid by Region .....	24
Figure 11	Global Acrylic Acid Consumption by Region .....	24
Figure 12	Global Acrylic Acid Capacity Share by Marketer in 2021-e .....	26
Figure 13	Global Acrylic Acid Capacity Addition .....	26
Figure 14	Global Acrylic Acid Capacity.....	26
Figure 15	Global Acrylic Acid Supply and Demand.....	28
Figure 16	Global Acrylic Acid Net Exports (Imports) .....	28
Figure 17	North America Acrylic Acid Demand, 2021-e .....	31
Figure 18	North America Acrylic Acid Supply, Demand and Trade.....	35
Figure 19	United States Acrylic Acid Supply, Demand and Trade .....	36
Figure 20	South America Acrylic Acid Demand, 2021-e .....	39
Figure 21	South America Acrylic Acid Supply, Demand and Trade .....	42
Figure 22	Western Europe Acrylic Acid Demand, 2021-e .....	44
Figure 23	Western Europe Acrylic Acid Supply, Demand and Trade.....	48
Figure 24	Central Europe Acrylic Acid Consumption, 2021-e .....	50
Figure 25	Central Europe Acrylic Acid Supply, Demand and Trade .....	52
Figure 26	Russia Acrylic Acid Consumption, 2021-e .....	54
Figure 27	Russia Acrylic Acid Supply, Demand and Trade.....	57
Figure 28	Middle East Acrylic Acid Demand, 2021-e .....	59
Figure 29	Middle East Acrylic Acid Supply, Demand and Trade .....	62
Figure 30	Africa Acrylic Acid Demand, 2021-e .....	64
Figure 31	Africa Acrylic Acid Supply, Demand and Trade.....	66
Figure 32	Asia Pacific Acrylic Acid Demand, 2021-e .....	76
Figure 33	Asia Pacific Acrylic Acid Supply, Demand and Trade .....	86
Figure 34	China Acrylic Acid Supply, Demand and Trade .....	87
Figure 35	Global Super Absorbent Polymer Demand by End-Use, 2021-e .....	92
Figure 36	Global GDP Growth vs Super Absorbent Polymer.....	92
Figure 37	Global Super Absorbent Polymer Consumption by Region .....	93
Figure 38	Global Super Absorbent Polymers Capacity Share by Marketer in 2021-e .....	95



Figure 39	Global Super Absorbent Polymers Capacity Addition .....	95
Figure 40	Global Super Absorbent Polymers Capacity .....	96
Figure 41	Global Super Absorbent Polymers Supply and Demand .....	98
Figure 42	Global Super Absorbent Polymers Net Exports (Imports).....	98
Figure 43	North America Super Absorbent Polymers Demand, 2021-e .....	101
Figure 44	North America Super Absorbent Polymers Supply, Demand and Trade .....	104
Figure 45	United States Super Absorbent Polymers Supply, Demand and Trade .....	105
Figure 46	South America Super Absorbent Polymers Demand, 2021-e.....	107
Figure 47	South America Super Absorbent Polymers Supply, Demand and Trade .....	109
Figure 48	Western Europe Super Absorbent Polymers Demand, 2021-e .....	112
Figure 49	Western Europe Super Absorbent Polymers Supply, Demand and Trade .....	114
Figure 50	Central Europe Super Absorbent Polymers Consumption, 2021-e .....	116
Figure 51	Central Europe Super Absorbent Polymers Supply, Demand and Trade .....	117
Figure 52	Russia Super Absorbent Polymers Consumption, 2021-e.....	119
Figure 53	Other Eastern Europe Super Absorbent Polymers Consumption, 2021-e.....	120
Figure 54	Russia Super Absorbent Polymers Supply, Demand and Trade .....	122
Figure 55	Other Eastern Europe Super Absorbent Polymers Supply, Demand and Trade .....	123
Figure 56	Total Eastern Europe Super Absorbent Polymers Supply, Demand and Trade .....	124
Figure 57	Middle East Super Absorbent Polymers Demand, 2021-e.....	126
Figure 58	Middle East Super Absorbent Polymers Supply, Demand and Trade .....	129
Figure 59	Africa Super Absorbent Polymers Demand, 2021-e .....	131
Figure 60	Africa Super Absorbent Polymers Supply, Demand and Trade .....	133
Figure 61	Asia Pacific Super Absorbent Polymers Demand, 2021-e.....	140
Figure 62	Asia Pacific Super Absorbent Polymers Supply, Demand and Trade .....	151
Figure 63	China Super Absorbent Polymers Supply, Demand and Trade .....	152
Figure 64	End-Use Consumption Drivers .....	155
Figure 65	Monomer Consumption Drivers.....	157
Figure 66	Trade Considerations .....	158
Figure 67	Global Olefins Production by Process 2013.....	160
Figure 68	Global Propylene Capacity Additions .....	161
Figure 69	Petrochemical-based Routes to Acrylic Acid.....	164
Figure 70	Generic Flow Diagram for Solution Polymerization.....	166
Figure 71	Generic Flow Diagram for Suspension Polymerization.....	167

## Tables

Table 1	Global Acrylic Acid Consumption by End-Use .....	23
Table 2	Global Acrylic Acid Consumption by Region .....	24
Table 3	Global Acrylic Acid Supply and Demand.....	28
Table 4	North America Acrylic Acid Consumption by End-Use.....	31
Table 5	North America Acrylic Acid Consumption by Country .....	31
Table 6	Acrylic Acid Capacity in North America .....	33
Table 7	North America Acrylic Acid Supply, Demand and Trade.....	35
Table 8	United States Acrylic Acid Supply, Demand and Trade .....	36
Table 9	South America Acrylic Acid Consumption by End-Use .....	39



Table 10	South America Acrylic Acid Consumption by Country .....	39
Table 11	Acrylic Acid Capacity in South America .....	40
Table 12	South America Acrylic Acid Supply, Demand and Trade .....	42
Table 13	Western Europe Acrylic Acid Consumption by End-Use.....	44
Table 14	Acrylic Acid Capacity in Western Europe .....	46
Table 15	Western Europe Acrylic Acid Supply, Demand and Trade.....	48
Table 16	Central Europe Acrylic Acid Consumption by End-Use .....	50
Table 17	Acrylic Acid Capacity in Central Europe.....	51
Table 18	Central Europe Acrylic Acid Supply, Demand and Trade .....	52
Table 19	Russia Acrylic Acid Consumption by End-Use.....	54
Table 20	Acrylic Acid Capacity in Russia .....	55
Table 21	Russia Acrylic Acid Supply, Demand and Trade.....	57
Table 22	Middle East Acrylic Acid Consumption by End-Use .....	59
Table 23	Middle East Acrylic Acid Consumption by Country .....	60
Table 24	Acrylic Acid Capacity in the Middle East .....	61
Table 25	Middle East Acrylic Acid Supply, Demand and Trade .....	62
Table 26	Africa Acrylic Acid Consumption by End-Use.....	64
Table 27	Africa Acrylic Acid Consumption by Country .....	64
Table 28	Acrylic Acid Capacity in Africa .....	65
Table 29	Africa Acrylic Acid Supply, Demand and Trade.....	66
Table 30	Asia Pacific Acrylic Acid Consumption by End-Use .....	76
Table 31	Asia Pacific Acrylic Acid Consumption by Country .....	76
Table 32	Acrylic Acid Capacity in North-East Asia Pacific .....	82
Table 33	Acrylic Acid Capacity in South Asia Pacific .....	82
Table 34	Acrylic Acid Capacity in South-East Asia Pacific.....	83
Table 35	Asia Pacific Acrylic Acid Supply, Demand and Trade .....	86
Table 36	China Acrylic Acid Supply, Demand and Trade .....	87
Table 37	Global Super Absorbent Polymer Consumption .....	92
Table 38	Global Super Absorbent Polymer Consumption by Region .....	93
Table 39	Global Super Absorbent Polymers Supply and Demand .....	98
Table 40	North America Super Absorbent Polymers Consumption by Country .....	101
Table 41	Super Absorbent Polymers Capacity in North America .....	102
Table 42	North America Super Absorbent Polymers Supply, Demand and Trade .....	104
Table 43	United States Super Absorbent Polymers Supply, Demand and Trade .....	105
Table 44	South America Super Absorbent Polymers Consumption by Country .....	107
Table 45	Super Absorbent Polymers Capacity in South America.....	108
Table 46	South America Super Absorbent Polymers Supply, Demand and Trade .....	109
Table 47	Western Europe Super Absorbent Polymers Consumption .....	112
Table 48	Super Absorbent Polymers Capacity in Western Europe .....	113
Table 49	Western Europe Super Absorbent Polymers Supply, Demand and Trade .....	114
Table 50	Central Europe Super Absorbent Polymers Consumption .....	116
Table 51	Central Europe Super Absorbent Polymers Supply, Demand and Trade .....	117
Table 52	Russia Super Absorbent Polymers Consumption .....	119
Table 53	Other Eastern Europe Super Absorbent Polymers Consumption .....	120



---

Table 54	Russia Super Absorbent Polymers Supply, Demand and Trade .....	122
Table 55	Other Eastern Europe Super Absorbent Polymers Supply, Demand and Trade .....	123
Table 56	Total Eastern Europe Super Absorbent Polymers Supply, Demand and Trade .....	124
Table 57	Middle East Super Absorbent Polymers Consumption by Country.....	126
Table 58	Super Absorbent Polymers Capacity in the Middle East.....	128
Table 59	Middle East Super Absorbent Polymers Supply, Demand and Trade .....	129
Table 60	Africa Super Absorbent Polymers Consumption by Country .....	131
Table 61	Africa Super Absorbent Polymers Supply, Demand and Trade .....	133
Table 62	Asia Pacific Super Absorbent Polymers Consumption by Country .....	141
Table 63	Super Absorbent Polymers Capacity in China and North-East Asia Pacific .....	147
Table 64	Asia Pacific Super Absorbent Polymers Supply, Demand and Trade .....	151
Table 65	China Super Absorbent Polymers Supply, Demand and Trade.....	152