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Unconventional Aromatics Processes

Process Economics Program Report 300

December 2017

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PEP Report 300

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Abstract

Aromatics are the main building blocks for petrochemical products and intermediates. Of the aromatics feedstocks, benzene and *para*-xylene are of great importance because of their wide variety of applications. These petrochemical products have wide-reaching impact on modern consumer lifestyles because of their extensive use in domestic, transportation, construction, and other applications. Petrochemical demand is closely linked to a country's economy, and it largely increases with a country's population and GDP.

The conventional feedstocks for aromatics production are catalytic reformat from refineries, pygas from naphtha steam crackers, and light oils from coke oven gas/coal. These accounts for the majority of BTX (benzene, toluene, and xylene) production worldwide. In the past few years, many refineries in Europe and the United States have shut down as a result of environmental concerns, but aromatics demand in these regions, as well as in the Middle East and Northeast Asia, is increasing, which has increased the demand for alternate feedstock and processes for aromatics production like natural gas, shale gas, light hydrocarbons gases like C₃/C₄, methanol, biomass, etc.

This report covers the technological advancements of unconventional feedstocks and commercial-scale technologies for the production of BTX aromatics. It also includes a techno-economic evaluation GTC's GT-G2ASM technology to convert natural gas to aromatics; Tsinghua University/Huadian Corporation's fluidized bed methanol-to-aromatics (FMTA) technology; and Anellotech's Bio-TCatTM technology to convert biomass to aromatics.

Contents

1	Introduction	10
2	Summary	11
	Commercial aspects	11
	BTX aromatics	11
	Methanol, biomass, and natural gas feedstocks	12
	Natural gas	12
	Biomass	12
	Methanol	12
	Technical aspects	13
	GTC's GT-G2A SM process	13
	Anellotech's Bio-TCat TM process	14
	Tsinghua's FMTA process	15
	Process economics comparison	17
	Capital cost	18
	Production cost	19
	Environmental footprint	20
	Summary and conclusions	21
3	Industry status	23
	BTX aromatics demand, supply, capacity, and price trends	23
	Benzene	23
	Demand	24
	Supply	25
	Toluene	27
	Demand	27
	Supply	29
	Mixed xylene	31
	Demand	32
	Supply	33
	Alternate feedstocks for aromatics production	36
	Natural gas	36
	Biomass	37
	Methanol	38
4	Technology review	41
	Opportunity for nonconventional feedstocks	41
	Alternate routes for aromatics production	42
	GTL or CTL process for converting natural gas/shale gas to hydrocarbon liquids	42
	Natural gas/shale gas conversion to aromatics via direct or indirect route	44
	Natural gas to aromatics production	46
	GTC technology for production of aromatics from natural gas	48
	Historical background	49
	GTC US patent estate for the GT-G2A SM process technology	51
	Biomass to aromatics production	70
	History of pyrolysis technologies	71
	Types of pyrolysis process	71

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CFP reactor selection	73
Pyrolysis products	73
Reactions	74
Catalyst	74
Anellotech process for production of aromatics from biomass	76
Feedstock and feed pretreatment	77
Effect of AAEMs and other impurities on CFP process	78
CFP reactor-regenerator and major operating conditions	79
Pyrolysis catalyst and product distributions	81
Reactor effluent cooling and liquid recovery	83
CO selective absorption	85
CO ₂ absorption system [300015, 300016, 300017, 300018]	86
Methanol-to-aromatics production	88
Methanol-to-aromatics routes	89
Methanol to DME formation	89
DME-to-aromatics formation	92
Catalyst and effect of operating conditions	93
Tsinghua University/Huadian Corporation process for production methanol-to-aromatics conversion in fluidized bed reactor	98
Sinopec methanol-to-aromatics technology (SMTA) [300023]	103
5 BTX aromatics from natural gas by GTC's GT-G2ASM process	105
Overall IHS process input-output diagram	105
Plant design basis	105
Process simulation and calculation	107
Process description	107
Section 100—Bromination	107
Section 200—Oligomerization (synthesis)	108
Section 300—Reactor product separation	109
Section 400—HBr oxidation to Br ₂	110
Section 500—Hydrocarbon product distillation	110
Process discussion	121
General considerations	121
Section 100—Bromination	121
Section 200—Oligomerization (synthesis)	122
Section 300—Reactor product separation	123
Section 400—HBr oxidation to Br ₂	125
Section 500—Hydrocarbon product distillation	126
Materials of construction	126
Environmental footprint	127
Cost estimates	127
Capital costs	127
Production costs	128
6 BTX aromatics from biomass by Anellotech's Bio-TCatTM process	137
Design bases	137
Plant design basis	137
Process simulation and calculation	140
Process description	140
Section 100—Feed pretreatment	140
Section 200—Pyrolysis	141
CFP reactor and regenerator	141
Reactor downstream section	142
Section 300—Gas recovery	143
Section 400—Hydrotreatment	144
Section 500—Aromatics separation	145
Process discussion	154

General considerations	154
Feed pretreatment	155
CFP reactor and catalyst regenerator	155
Olefins recovery and CO/CO ₂ removal system	156
Hydrotreater system	157
Aromatics recovery	157
Waste treatment	158
Materials of construction	158
Environmental footprint	158
Cost estimates	159
Capital costs	159
Production costs	160
7 BTX aromatics from methanol by Tsinghua's FMTA process	170
Design basis	170
Plant design basis	170
Process simulation and calculation	171
Process description	172
Section 100—DME	172
Section 200—MTA reaction	173
Section 300—Gas recovery	175
Section 400—Olefin saturation	176
Section 500—Aromatics separation	176
Process discussion	183
General considerations	183
DME section	184
MTA reactor and catalyst regenerator	184
Light gases recovery and CO/CO ₂ removal system	185
Olefin removal system	185
Aromatics recovery	186
Waste treatment	186
Materials of construction	187
Environmental footprint	187
Cost estimates	187
Capital costs	188
Production costs	188
Appendix A—Patent references	202
Appendix B—Cited references	208
Appendix C—Patent summaries	213
Appendix D—Design and cost bases	236
Design conditions	237
Cost bases	237
Capital investment	237
Production costs	238
Effect of operating level on production costs	238
Appendix E—Process flow diagrams	240

Tables

Table 2.1 Technical comparison for the three processes	17
Table 2.2 Production economics comparison for the three processes	18
Table 2.3 Comparison of environmental footprints	20
Table 3.1 New announced benzene capacity by region and country (in KTA)	26

Table 3.2 New announced toluene capacity by region and country (in KTA)	30
Table 3.3 New announced mixed-xylene capacity by region and country (in KTA)	34
Table 3.4 Proved reserves of natural gas by region—2015	36
Table 4.1 Thermodynamic comparison of oxidative methane reaction for S and O oxidants	47
Table 4.2 GTC's GT-G2A SM product yields	60
Table 4.3 GTC's claims on GT-G2A SM process economics performance	69
Table 4.4 Biomass feedstock characteristics	70
Table 4.5 Different pyrolysis process critical parameters	72
Table 4.6 Performance of different reactors in pyrolysis process	73
Table 4.7 Carbon yields (%) for catalytic fast pyrolysis of glucose with different zeolites	76
Table 4.8 Aromatic product selectivity for catalytic fast pyrolysis of glucose with different zeolites	76
Table 4.9 Minerals removal efficiency after water wash	78
Table 4.10 Catalyst tested and performance at lab scale from US 2015/0166899	82
Table 4.11 CO absorption results of CO selective absorption (US 2016/0122190)	86
Table 4.12 Catalyst tested at lab scale and performance from patent CN 101792362A	96
Table 4.13 Catalyst tested at lab scale and performance from patent CN 105195213A	98
Table 4.14 Mass balance of Tsinghua/Huadian 30 KTA plant	101
Table 4.15 Mass balance of Huadian 1.8 MTA plant	101
Table 4.16 Utility consumption for Huadian 1.8 MTA plant	102
Table 4.17 Waste stream estimates for Huadian 1.8 MTA plant	102
Table 5.1 GTC's GT-G2A SM process design basis	106
Table 5.2 BTX aromatics production from natural gas via GTC process—Major streams flows	112
Table 5.2 Environmental performance factors—GT-G2A process	127
Table 5.3 BTX aromatics production from natural gas via GTC process—Major equipment	129
Table 5.4 BTX aromatics production from natural gas via GTC process—Utilities summary	132
Table 5.5 BTX aromatics production from natural gas via GTC process—Total capital investment	133
Table 5.6 BTX aromatics production from natural gas via GTC process—Capital Investment by section	134
Table 5.7 BTX aromatics production from natural gas via GTC process—Variable costs	135
Table 5.8 BTX aromatics production from natural gas via GTC process—Production costs	136
Table 6.1 Ultimate analysis of biomass feedstock	137
Table 6.2 Anellotech's Bio-TCat TM process design basis	138
Table 6.3 BTX aromatics production from biomass via Anellotech process—Major streams flows	146
Table 6.4 Differences in pyrolysis processes based on operating conditions	155
Table 6.5 Environmental performance factors—Bio-TCat TM process	159
Table 6.6 BTX aromatics production from biomass via Anellotech process—Major equipment	161
Table 6.7 BTX aromatics production from biomass via Anellotech process—Utilities summary	165
Table 6.8 BTX aromatics production from biomass via Anellotech process—Total capital investment	166
Table 6.9 BTX aromatics production from biomass via Anellotech process—Capital Investment by section	167
Table 6.10 BTX aromatics production from biomass via Anellotech process—Variable costs	168
Table 6.11 BTX aromatics production from biomass via Anellotech process—Production costs	169
Table 7.1 Tsinghua MTA process design basis	170
Table 7.2 BTX aromatics production from methanol via Tsinghua process—Major streams flows	177
Table 7.3 Environmental performance factors—FMTA process	187
Table 7.4 BTX aromatics production from methanol via Tsinghua process—Major equipment	191
Table 7.5 BTX aromatics production from methanol via Tsinghua process—Utilities summary	196
Table 7.6 BTX aromatics production from methanol via Tsinghua process—Total capital investment	197
Table 7.7 BTX aromatics production from methanol via Tsinghua process—Capital Investment by section	198
Table 7.8 BTX aromatics production from methanol via Tsinghua process—Variable costs	199
Table 7.9 BTX aromatics production from methanol via Tsinghua process—Production costs	200
Table 7.10 Integrated coal-to-aromatics production economics—Production costs	201

Figures

Figure 2.1 Comparison of capital costs	19
Figure 2.2 Comparison of production costs	20
Figure 2.3 Carbon footprint of the three processes	21
Figure 3.1 Global history and forecast of BTX capacity	23
Figure 3.2 Geographic distribution of global benzene demand	24
Figure 3.3 Distribution of global benzene demand by chemical use	25
Figure 3.4 Global distribution of benzene capacity by geographical region	25
Figure 3.5 Geographic distribution of global toluene demand	28
Figure 3.6 Toluene distribution by end use—2015	29
Figure 3.7 Global distribution of toluene capacity by region	29
Figure 3.8 Interrelationship between various xylene isomers	32
Figure 3.9 Global geographical distribution of xylene isomer demand	32
Figure 3.10 Xylene isomer demand by end use	33
Figure 3.11 Global distribution of xylene capacity by geographical region	34
Figure 3.12 World production and consumption of natural gas	37
Figure 3.13 Methanol demand by region—2016	38
Figure 3.14 Methanol worldwide production by feedstock—2016	39
Figure 3.15 Methanol supply and demand history and forecast	40
Figure 4.1 Direct and indirect conversion of coal and gas-based feedstock to aromatics	43
Figure 4.2 Process schematic for methane halogenation process for aromatics production	48
Figure 4.3 Overall process schematic for Amoco methane halogenation process (US 5087786)	51
Figure 4.4 Simplified BFD for GTC's GT-G2A SM process (Chinese patent CA 2727544)	53
Figure 4.5 Simplified schematic for water electrolysis to produce H ₂ (Chinese patent CA 2727545)	57
Figure 4.6 Effect of temperature on mono-methyl bromide conversion and product selectivity (WO 2005104689)	58
Figure 4.7 CH ₃ Br concentration and product selectivity over ZSM-5 catalyst (WO 2005104689)	59
Figure 4.8 Effect of di-methyl bromides on product selectivity (WO 2005104689)	59
Figure 4.9 Typical PONA analysis of C ₆ + condensed product from GT-G2A SM process (WO 2005104689)	60
Figure 4.10 Simplified scheme for two-stage synthesis reactor process (US 9133078)	61
Figure 4.11 Simplified BFD for GT-G2A SM unit (US 8829256)	62
Figure 4.12 Simplified BFD (US 8829256)	63
Figure 4.13 HBr separation (US 7674941)	64
Figure 4.14 GTC's GT-G2A SM process BFD (US 8829256)	65
Figure 4.15 Overall BFD including shift reactor (US 8829256)	66
Figure 4.16 Simplified BFD for polybromides separation section (US 8829256)	68
Figure 4.17 Continuous reaction and catalyst regeneration system for GT-G2A SM process (US 9193641)	68
Figure 4.18 Reaction chemistry for glucose with ZSM-5 catalyst	75
Figure 4.19 Effect on heating rate in CFP reactor (US 2012/0203042)	79
Figure 4.20 Effect on catalyst to feed ratio on product yields (US 2012/0203042)	80
Figure 4.21 Effect on reactor operating temperature on product yields	81
Figure 4.22 Product yields distribution for various catalysts used	82
Figure 4.23 Product yields distribution for different biomass feed (US 9133078)	83
Figure 4.24 Simplified BFD for Anellotech CFP reactor effluent recovery system (US 2016/0122190)	84
Figure 4.25 Simplified BFD for Anellotech CO, CO ₂ removal, and xylene recovery system (US 2016/0122190)	85
Figure 4.26 Single and two-stage membrane guard-bed systems	87
Figure 4.27 Typical membrane guard-bed system	88
Figure 4.28 Fluxogram of methanol dehydration reaction to DME	90
Figure 4.29 Methanol to DME production scheme	90
Figure 4.30 Comparison between measured and estimated values	91

Figure 4.31 Temperature dependent yield of different products from the conversion of methanol in TSFB	93
Figure 4.32 Temperature dependent yield of aromatics, selectivity of PX in X and selectivity of X in TSFB	94
Figure 4.33 Pressure effect on the product profiles from the conversion of methanol in TSFB	94
Figure 4.34 Reactor effect on the product profiles from the conversion of methanol	95
Figure 4.35 Process configuration according to CN 103864565A	99
Figure 4.36 MTA reactor and catalyst regenerator from CN 101792362A	100
Figure 4.37 Process configuration according to CN 103864565A	103
Figure 4.38 Effect of SiO ₂ /Al ₂ O ₃ ratio of ZSM-5 molecular sieve on aromatics yield	104
Figure 4.39 Regeneration performance of ZSM-5 catalyst for MTA reaction	104
Figure 5.1 Overall input/output diagram for GTC's G2A SM process	105
Figure 5.2 Solubility curve for HBr in water	124
Figure 6.1 UOP scheme BFD for treating high CO ₂ content to ppm level	157
Figure 7.1 Effect of methanol feed price on net production cost and product value	189
Figure 7.2 Effect of coal feed price on aromatics production cost	190
Figure 8.1 BTX aromatics production from natural gas via GTC's GT-G2A process (1 of 5)—Section 100 (bromination)	241
Figure 8.1 BTX aromatics production from natural gas via GTC's GT-G2A process (2 of 5)—Section 200 (oligomerization)	242
Figure 8.1 BTX aromatics production from natural gas via GTC's GT-G2A process (3 of 5)—Section 300 (reactor product separation)	243
Figure 8.1 BTX aromatics production from natural gas via GTC's GT-G2A process (4 of 5)—Section 400 (reactor product separation)	244
Figure 8.1 BTX aromatics production from natural gas via GTC's GT-G2A process (5 of 5)—Section 500 (hydrocarbon product distillation)	245
Figure 8.2 BTX aromatics from biomass via Anellotech Bio-TCat TM process (1 of 5)—Section 100 (feed pretreatment)	246
Figure 8.2 BTX aromatics from biomass via Anellotech Bio-TCat TM process (2 of 5)—Section 200 (pyrolysis)	247
Figure 8.2 BTX aromatics from biomass via Anellotech Bio-TCat TM process (3 of 5)—Section 300 (gas recovery)	248
Figure 8.2 BTX aromatics from biomass via Anellotech Bio-TCat TM process (4 of 5)—Section 400 (hydrotreatment)	249
Figure 8.2 BTX aromatics from biomass via Anellotech Bio-TCat TM process (5 of 5)—Section 500 (aromatics separation)	250
Figure 8.3 BTX aromatics from methanol via Tsinghua's FMTA process (1 of 5)—Section 100 (DME section)	251
Figure 8.3 BTX aromatics from methanol via Tsinghua's FMTA process (2 of 5)—Section 200 (MTA reaction)	252
Figure 8.3 BTX aromatics from methanol via Tsinghua's FMTA process (3 of 5)—Section 300 (gas recovery)	253
Figure 8.3 BTX aromatics from methanol via Tsinghua's FMTA process (4 of 5)—Section 400 (olefin removal)	254
Figure 8.3 BTX aromatics from methanol via Tsinghua's FMTA process (5 of 5)—Section 500 (aromatics separation)	255

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