

DMTE Technology

(Syngas to methyl acetate and/ or ethanol)

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DMTE Technology: Syngas to methyl acetate and/ or ethanol

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Abstract

Yanchang Zhongke (Dalian) Energy Technology Co., Ltd. was established in January 2017 in the city Dalian, Liaoning, China. The key stakeholders of the company are Shaanxi Yanchang Petroleum (Group) Corp. Ltd. and Dalian Institute of Chemical Physics, Chinese Academy of Sciences (DICP). To answer the need of China's ethanol fuel program, the company is licensing newly developed route to produce ethanol from syngas. This technology is their DMTE technology. DMTE stands for

D - DME/DICP/Double,
M - Methanol,
T - to,
E - Ethanol/Ethylene.

The company successfully commissioned 100,000 metric tons per year capacity anhydrous ethanol plant from coal in China in January 2017. The company has aggressive plan to sell this technology in market with different portfolio of chemicals under their technology basket. This PEP review evaluates two aspects of DMTE technology taking syngas as a feedstock:

1. Production economics for methyl acetate
2. Production economics for ethanol

The economics of producing methyl acetate directly from syngas shows highly favorable results due to higher methyl acetate price in market as compared to ethanol. We see some challenges for ethanol production economics mainly because of high-fixed and operating cost involved in distilling azeotropic components. This makes the conventional routes of producing anhydrous ethanol dominant in the prevailing ethanol market price. But there is a window where the production economics can be reduced by adjusting the proportions of methyl acetate, ethanol, and methanol according to the market demand to improve the flexibility of products. This has important realistic sense for developing new coal chemical industry.

Contents

1	Introduction	8
	Conventional route syngas to ethanol	8
	DMTE syngas to ethanol route	9
	Industrial demonstration	9
	Technology prospects	10
	Scope of this review	11
2	Summary	12
	Economic aspects	12
	Capital cost economics comparison	13
	Product cost economics comparison	14
	Carbon and water footprints	15
3	Industry status	16
	Ethanol trade in China	17
	Coal to ethanol project status in China	18
	Methyl acetate market	19
4	Technical review	21
	Process technical review/ chemistry	23
	Cryogenic separation: Partial condensation process (Technical Review/Chemistry)	24
	DME synthesis from methanol	25
	DME carbonylation to produce methyl acetate	26
	Methyl acetate hydrogenation	27
	Product ethanol separation	28
	Process catalyst review	29
	IHS Markit communication with DMTE Licensor	33
5	DMTE: Syngas to methyl acetate	35
	Introduction	35
	Case assumptions and process design basis	35
	Process description	38
	Section 100—Syngas separation	38
	Section 200—DME synthesis	39
	Section 300—DME carbonylation	39
	Process discussion	40
	Section 100—Syngas separation	40
	Section 200—DME synthesis	40
	Section 300—DME carbonylation	43
	Cost estimates	51
	Fixed capital costs	51
	Production costs	53
	Sensitivity analysis (Variation of feedstock price, plant operating level etc.)	55
6	DMTE: Syngas to ethanol	58
	Introduction	58
	Case assumptions and process design basis	58
	Process description	61
	Section 400—Methyl acetate hydrogenation	61
	Process discussion	63
	Section 400—Methyl acetate hydrogenation	63
	Discussion on Product separation (inverted-sequence distillation)	64
	Cost estimates	72
	Fixed capital costs	72
	Production costs	74
	Sensitivity analysis (Variation of feedstock price, plant operating level etc.)	76
	Appendix A—Patent summaries by assignee	80
	Appendix B—Cited references	86
	Appendix C—Process flow diagrams	93

Tables

Table 2.1 Overall comparison of capital investment and production cost	13
Table 2.2 Carbon dioxide emissions and water consumption by process	15
Table 3.1 Chinese consumption of ethanol	17
Table 3.2 Chinese trade in ethanol	17
Table 3.3 Coal-to-ethanol projects list in China	18
Table 4.1 The composition of methyl acetate-methanol azeotrope system under different pressures	28
Table 4.2 Heterogeneous catalyst for methanol/DME carbonylation	30
Table 4.3 DME Carbonylation over Zeolite catalysts	31
Table 4.4 DME Carbonylation over Transition-Metal-Modified HMORs	32
Table 5.1 DMTE process: Syngas to methyl acetate—Basis of design	37
Table 5.2 Comparison of different reactor systems used for DME synthesis	42
Table 5.3 DMTE technology: Syngas to methyl acetate—Material stream flows	45
Table 5.4 DMTE technology: syngas to methyl acetate—Major equipment	49
Table 5.5 DMTE technology: Syngas to methyl acetate—Utility summary	50
Table 5.6 DMTE technology: Syngas to methyl acetate—Total capital investment	52
Table 5.7 DMTE technology: syngas to methyl acetate—Production cost	54
Table 6.1 DMTE process: Syngas to methyl acetate—Basis of design	60
Table 6.2 The results of simulation and optimization in the inverted sequence-distillation process scheme	66
Table 6.3 DMTE technology: Syngas to ethanol—Material stream flows	66
Table 6.4 DMTE technology: syngas to ethanol—Major equipment	69
Table 6.5 DMTE technology: Syngas to ethanol—Utility summary	72
Table 6.6 DMTE technology: Syngas to ethanol—Total capital investment	73
Table 6.7 DMTE technology: Syngas to ethanol—Production cost	75

Figures

Figure 1.1 Conventional route syngas to ethanol	8
Figure 1.2 DMTE syngas to ethanol route	9
Figure 1.3 DMTE: Industrial demonstration	10
Figure 1.4 DMTE: Technology prospects	10
Figure 2.1 Capital cost economics comparison	14
Figure 2.2 Production cost comparison	14
Figure 3.1 China ethanol supply gap	16
Figure 4.1 Syngas to ethanol configurations	22
Figure 4.2 Reaction routes for syngas conversion to ethanol	23
Figure 4.3 Simplified flow diagram for the partial condensation process for obtaining CO & H ₂	24
Figure 4.4 Simplified flow diagram of DME synthesis from methanol	25
Figure 4.5 Simplified flow diagram of DME carbonylation	26
Figure 4.6 Simplified flow diagram of methyl acetate hydrogenation and product separation	27
Figure 4.7 Methanol to DME reaction catalysts and respective conversions	29
Figure 4.8 Proposed mechanism for DME carbonylation over zeolites	33
Figure 4.9 DMTE process route (provided by licensor)	34
Figure 5.1 DMTE technology: Syngas to methyl acetate—Effect of plant capacity on investment cost	53
Figure 5.2 DMTE technology: Syngas to methyl acetate—Effect of syngas price on net production cost and product value	56
Figure 5.3 DMTE technology: Syngas to methyl acetate—Effect of methanol price on net production cost and product value	56
Figure 5.4 DMTE technology: Syngas to methyl acetate—Product value of methyl acetate as a function of operating level and plant capacity	57

Figure 5.5 DMTE technology: Syngas to methyl acetate—Net production cost of methyl acetate as a function of operating level and plant capacity	57
Figure 6.1 The Reflux Ratio (R) vs Theoretical Stages (Nt) of the Ethanol Separation Column in the Inverted Sequence Distillation Process	64
Figure 6.2 Effects of Reflux Ratio (R) on Ethanol Mass Fraction (w) and Reboiler Duty (Q) of the Ethanol Separation Column in the Inverted Sequence Distillation Process	65
Figure 6.3 DMTE technology: Syngas to ethanol—Effect of plant capacity on investment cost	74
Figure 6.4 DMTE technology: Syngas to ethanol—Effect of syngas price on net production cost and product value	77
Figure 6.5 DMTE technology: Syngas to ethanol—Effect of methanol price on net production cost and product value	77
Figure 6.6 DMTE technology: Syngas to ethanol—Product value of ethanol as a function of operating level and plant capacity	78
Figure 6.7 DMTE technology: Syngas to ethanol—Net production cost of ethanol as a function of operating level and plant capacity	78

Appendix C Figures

Figure 7.1 DMTE Technology Section I (Syngas Separation)	94
Figure 7.2 DMTE Technology Section II (One-step DME synthesis)	95
Figure 7.3 DMTE Technology Section III (DME Carbonylation)	96
Figure 7.4 DMTE Technology (Methyl Acetate Hydrogenation)	97

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