

DOI: 10.3787/j.issn.1000-0976.2017.05.016

“ ” 51576069

“ ” 2016YFC0304006

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[1-6] CO_2

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$$\Delta\mu_{\text{w,H}} = \mu_{\text{w,MT}} - \mu_{\text{w,H}} = -RT \sum_j \lambda_j \ln \left(1 - \sum_i \theta_i \right) \quad 4$$

$$\theta_{ij} = \frac{C_{ij} f_i}{1 + \sum_i C_{ij} f_i} \quad 5$$

$$\Delta\mu_{\text{w,H}} = \Delta\mu_{\text{w,H}}(z_i, T_1, p_0) \quad 6$$

$$\sum z_i = 1 \quad 7$$

$$\Delta\mu_{\text{w,L}} \quad \Delta\mu_{\text{w,L}}^0 \quad \Delta\mu_{\text{w,H}} \quad T_0$$

$$273.15 \text{ K} \quad p_0 \quad 101.325 \text{ kPa}$$

$$\text{J/mol} \quad \Delta h_{\text{w,L}} \\ \text{J/mol}$$

$$\Delta V_{\text{w,L}}$$

$$\text{cm}^3/\text{mol} \quad a_{\text{w,L}} \quad R$$

$$8.314 \text{ J}/(\text{mol} \cdot \text{K}) \quad \mu_{\text{w,MT}} \quad \mu_{\text{w,H}}$$

$$\text{J/mol} \quad \lambda_j \quad j$$

$$\theta_{ij}$$

$$i \quad j \quad C_{ij} \quad i \quad j$$

$$\text{Langmuir} \quad f_i \quad i$$

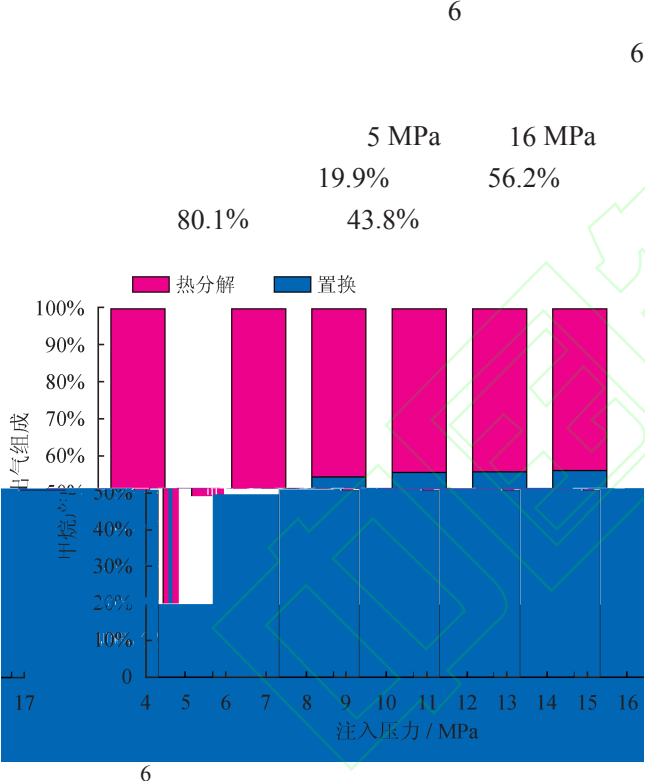
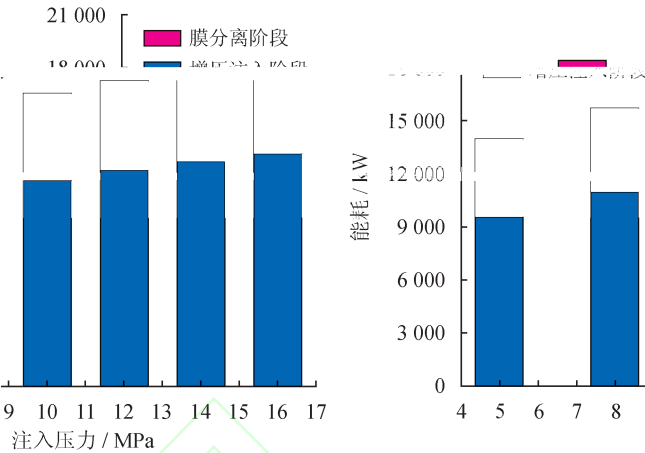
$$\text{atm}$$

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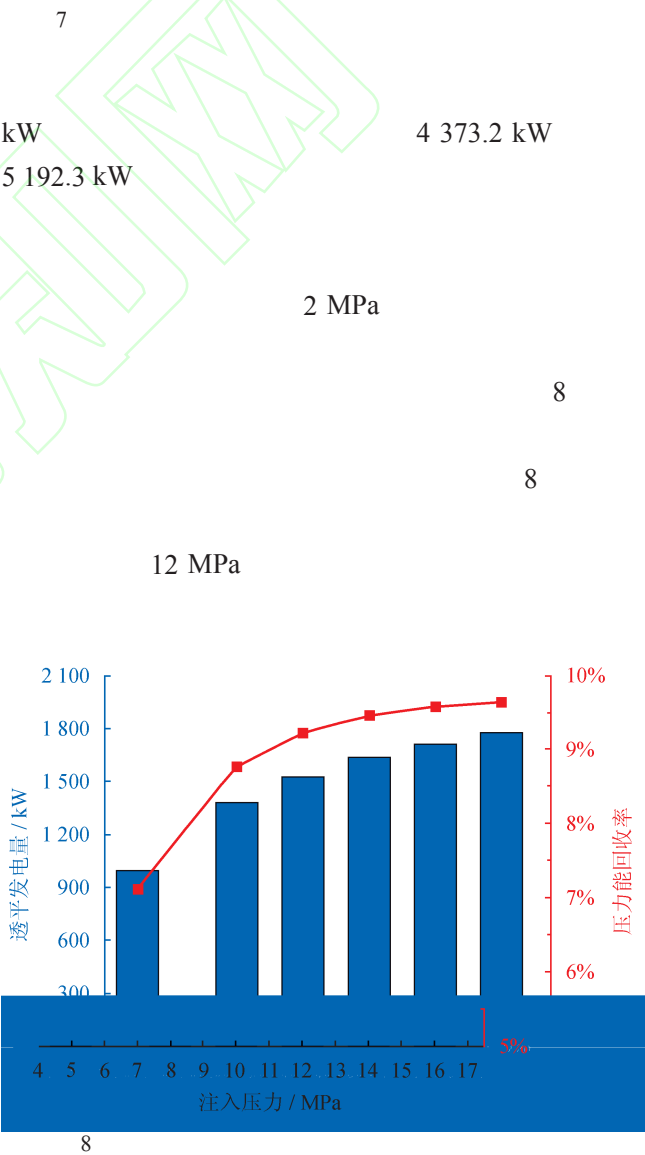
1

/MPa	(kmol h ⁻¹)			(kmol h ⁻¹)		
	CH ₄	CO ₂	N ₂	CH ₄	CO ₂	N ₂
5	394.3	387.5	1 766.1	375.4	387.5	31.0
8	739.9	163.2	1 691.3	717.8	163.2	28.9
10	848.0	100.9	1 670.5	824.2	100.9	28.1
12	919.1	63.4	1 658.0	893.9	63.4	27.6
14	972.0	38.6	1 649.8	945.5	38.6	27.1
16	1016.0	18.5	1 643.1	988.3	18.5	26.8

CH₄



2.3



2.4

5 MPa 16 MPa

9 553.0 kW 13 167.5

Energy Return on Investment

EROI [15-17]

$$EROI = \frac{\text{能源产出}}{\text{过程能源投入}}$$

9

 CH_4

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