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ข้อความแห่งการริเริ่ม

- 1) วิทยานิพนธ์นี้ได้นำเสนอวิธีการเพิ่มคุณภาพแก๊สชีวภาพ โดยการดักจับแก๊สคาร์บอนไดออกไซด์ ด้วยสารละลายโมโนเอทานอลามีนในกระบอกดูดซับที่มีการไหลแบบฟองก๊าซ เพื่อเพิ่มประสิทธิภาพการดักจับ และได้ความเข้มข้นของไบโอมิเทนสูงขึ้น
- 2) วิทยานิพนธ์นี้ได้นำเสนอวิธีการใหม่ในการเพิ่มประสิทธิภาพการกินสภาพสารละลายโมโนเอทานอลามีน ซึ่งใช้ในกระบวนการดักจับก๊าซคาร์บอนไดออกไซด์ในแก๊สชีวภาพ โดยการติดตั้งชุดกำเนิดคลื่นอัลตราโซนิคเข้ากับชุดกินสภาพสารละลายด้วยความร้อน ทำให้สามารถลดเวลาและอุณหภูมิในการกินสภาพสารละลาย เป็นผลทำให้สามารถลดการใช้พลังงานในกระบวนการกินสภาพได้
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STATEMENT OF ORIGINALITY

- 1) This study proposed a technique of biomethane enrichment in biogas by CO₂ capture with monoethanolamine solution. The technique of uniform bubbly flow of biogas in a column of monoethanolamine solution could increase absorption performance with high concentration of biomethane.
- 2) A new technique to increase regeneration performance of monoethanolamine solution with saturated CO₂ absorption from biogas could be carried out by electrical heating combined with ultrasonic wave. With the ultrasonic wave, the regeneration time and the regeneration temperature could be reduced then lower energy consumption could be achieved compared with pure electrical heating.
- 3) Biomethane adsorption and desorption abilities on activated carbon at low pressure and low temperature were investigated in this research.
- 4) The D-A model for predicting biomethane adsorption on activated carbon at a pressure less than 8 bar (low pressure) with a low temperature range of 10-25 °C was developed.

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