

Mitigasi risiko keselamatan dan kesehatan pengembangan biogas skala kecil = Risk mitigation of safety and health of small scale biogas development

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Abstrak

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Tesis ini membahas tentang bahaya, risiko serta mitigasi keselamatan dan kesehatan dalam pengembangan biogas skala kecil dari bahan baku kotoran sapi. Penilaian risiko dilakukan dengan cara mengukur komposisi biogas, identifikasi dan perhitungan jumlah bakteri, identifikasi dan perhitungan telur cacing dan observasi kegiatan pembuatan biogas. Data penelitian diolah secara semi kuantitatif sehingga diperoleh nilai risiko keselamatan dan kesehatan pada penggunaan reaktor biogas skala kecil. Risiko keselamatan tertinggi adalah terjadinya ledakan, sedangkan risiko kesehatan tertinggi adalah keracunan H₂S. Mitigasi yang disarankan adalah: a) eliminasi dengan penghilangan blower, b) enjinering kontrol dengan modifikasi di bak pengaduk dan membuat pelindung digester serta c) tindakan administratif dengan melakukan edukasi terhadap peternak.

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ABSTRACT

This thesis discusses the hazards, risks and mitigation of safety and health in the small-scale biogas digester from cow manure feedstock. Risk assessment is done by measuring the biogas composition, identification and calculation of the amount of bacteria, identification and calculation of worm eggs and observation activities of the biogas production. Data were analyzed semi quantitatively in order to obtain the value of safety and health risks of the application of a small-scale biogas digester. The highest safety risk is the explosion, while the highest health risk is H₂S poisoning. Suggested mitigation are a) elimination by removing blower from system, b) control engineering by considering modifications in the mixing basin, build digester protective and c) administrative action by educating farmers.; This thesis discusses the hazards, risks and mitigation of safety and health in the small-scale biogas digester from cow manure feedstock. Risk assessment is done by measuring the biogas composition, identification and calculation of the amount of bacteria, identification and calculation of worm eggs and observation activities of the biogas production. Data were analyzed semi quantitatively in order to obtain the value of safety and health risks of the application of a small-scale biogas digester. The highest safety risk is the explosion, while the highest health risk is H₂S poisoning. Suggested mitigation are a) elimination by removing blower from system, b) control engineering by considering modifications in the mixing basin, build digester protective and c) administrative action by educating farmers., This thesis discusses the hazards,

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