

生物质能源

畜禽粪便热化学转换特性和可行性分析研究

涂德浴[1] 董红敏[2] 丁为民[1] 尚斌[2]

[1]南京农业大学工学院,南京210031 [2]中国农业科学院农业环境与可持续发展研究所,北京100086

摘要:

为了探讨不同畜禽粪便的热化学转换利用的一般特性,对猪、牛、鸡和羊的畜禽粪便进行了系统的工业分析和化学组成分析,并和玉米秸秆和稻秆相对应数据进行比较,得出畜禽粪便是一种高挥发性生物质,其发热量和挥发分含量和一般秸秆相当,非常适合于热化学转化利用;以空气气化过程作为分析对象,通过对能量输入与产出的理论分析,得出用气化技术处理畜禽粪便的能量转化效率在50%左右;通过能量输出分析得出当畜禽粪便可以采取自然或堆肥方式干燥时,热化学处理技术在能量产出方面很有效;畜禽粪便热化学转化能源利用是一条具有环境和经济双重效益的有效途径。

关键词: 畜禽粪便 化学组成 热化学转换 气化

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Tu De-yu, Dong Hong-min, Ding Wei-min, Shang Bin

1. Engineering College, Naniing Agriculture University, Nanling 210031, China ; 2. Insitlute of Environmental and |Sustainable Development in Agriculture, Chinese Academy of Agricultural Science, Beijing 100081|China

Abstract:

The proximate, chemical components and ultimate analyses on swine, cattle, chicken and goat manure were conduded to demonstrate the feasibility of energy utilization by thermo-chemical technologies. The experimental results state that animal wastes is a type of biomass with comparable content of volatile matter and heat value with some agricultural residues such as corn stalks and rice straws and is adaptable to thermo-chemical managements. The energy balance analyses of air gasification of four kinds of manure were carried out and got the energy conversion efficiency about 50%. By analyzing the net energy production, the arlicle drew the conclusion that thermo-chemical conversion technology is quite effective in energy production in the condition that flesh manure could be dried by weather or composting processes. Animal manure utilization by thermo-chemical conversion technology has environmenta l and economical benefits.

Keywords: animal manure ;chemical constitution thermo-chemical conversion ;gasification

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通讯作者: 董红敏, 博士, 研究员, 博士生导师; 主要从事农业环境与可持续发展研究。E-mail: donghm@cjac. org. Cn

作者简介: 涂德浴|博士生; 主要从事农村能源与环境研究。E-mail: tudeyu2005@126. com

作者Email:

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