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Design and fabrication of a biogas fermentation system

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Previous designs of biogas fermentation systems have the challenge of cracking that take place especially at the brick structure after a short period of operation. These biogas fermentation systems are usually constructed using bricks and cements. The choice of material, design and size of the system plays an important role in the successful of the fermentation system.
In this study, a 2200 litres capacity high density polyethylene (HDPE) plastic material was designed and fabricated. The type of plastic chosen was as a result of its properties, such as; high strength, anti-aging, corrosion resistant, light weight, good tightness and life span of more than 30 years. The AutoCAD software was used for the design and also the process of rotational moulding for the fabrication of the material. This technique makes use of high temperature, low pressure plastic forming process that uses heat and biaxial rotation to produce hollow of one piece part.
The design and fabrication employs the use of plastic and bricks material. Based on the authors' knowledge through literature, no such design has been done before. This is a major breakthrough in the study. This type of design has the potential of creating employment opportunity for both the skilled and unskilled labour and is of low cost effective.

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PhD

Main supervisor (name and email)
and his / her institution

Prof. Mamphweli Sampson
smamphweli@ufh.ac.za
Fort Hare Institute of Technology (FHIT)
University of Fort Hare

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Primary author: Mr OBILEKE, KeChist (University of Fort Hare)

Co-authors: Prof. MEYER, Edson (University of Fort Hare); Prof. MAKAKA, Golden (University of Fort Hare); Prof. MAMPHWELI, Sampson (University of Fort Hare)

Presenter: Mr OBILEKE, KeChist (University of Fort Hare)

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