often due to geopolitical factors, and the environmental risks posed by nuclear energy, generating energy from waste materials is considered an attractive field of endeavour. This is because it addresses both the problems of waste management and the provision of alternative fuel sources. However, many of the known methods are resource, cost and energy inefficient. Accordingly, alternative means of waste management and the conversion of waste materials into sources of energy have been sought which are resource, cost and energy efficient. The present invention aims to achieve some of these means.

Summary of Invention

[005a] In one aspect, there is provided an integrated waste management system, comprising:

a source of a combustible waste material;

a separator for separating the combustible waste material from a recyclable material; and

an airless drier for drying the combustible waste material to generate a pyrolysis feedstock;

a pyrolyser for pyrolysing the pyrolysis feedstock to form char and pyrogas;

a gasifier for converting the char and/or pyrogas into syngas; and

a means for supplying heated steam output from the airless drier generated during pyrolysis feedstock generation to the gasifier.

[005b] In another aspect, there is provided a power generation system comprising the waste management system as defined above, further comprising an oxidiser for the high-temperature oxidation of syngas and/or pyrogas generated from the pyrolysis feedstock to generate heat for electrical power production.

[005c] In yet another aspect, there is provided an integrated method of waste management comprising:

(a) providing a source of a combustible waste material;

(b) optionally separating the combustible waste material from a recyclable material present in the source;

(c) drying the combustible waste material in an airless drier to generate a dried pyrolysis feedstock;

(d) pyrolysing the dried pyrolysis feedstock to form char and pyrogas;

(e) converting the char and/or pyrogas into syngas in a gasifier; and

(f) supplying heated steam output from the airless drier generated during pyrolysis feedstock generation to the gasifier.

[005d] In yet another aspect, there is provided a method of power generation comprising the integrated method of waste management as defined above.

Detailed Description of the Invention

[006] According to the present invention there is provided an integrated waste management system, comprising:

a source of a combustible waste material;

a separator for separating the combustible waste material from a recyclable material;

an airless drier for drying the combustible waste material to generate a pyrolysis feedstock; and

a pyrolyser for pyrolysing the pyrolysis feedstock to form char and pyrogas.

[007] Further according to the invention, there is provided an integrated method of waste management comprising:

(a) providing a source of a combustible waste material;

(b) optionally separating the combustible waste material from a recyclable material present in the source;

(c) drying the combustible waste material in an airless drier to generate a dried pyrolysis feedstock; and

(d) pyrolysing the dried pyrolysis feedstock to form char and pyrogas.