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Characterisation of Residual Char From Biomass Gasification: Effect of the Gasifier Operating Conditions

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1 **CHARACTERISATION OF RESIDUAL CHAR FROM BIOMASS**
2 **GASIFICATION: EFFECT OF THE GASIFIER OPERATING CONDITIONS**

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15 **ABSTRACT**

16 Char, together with tars, are the main wastes derived from biomass gasification. The
17 removal of tars and the valorisation of char are necessary to avoid technical problems
18 and to increase the overall efficiency of the gasification plant, respectively (both aspects
19 encouraging the commercial implementation of biomass gasification systems).

20 However, char properties may not be suitable for an easy valorisation. This work
21 analyses the effect of the main gasifier operating conditions (relative biomass/air ratio,
22 temperature and steam content of the gasifying agent) on the properties of char
23 produced from gasification of dealcoholised marc of grape. Those properties allow both,
24 to analyse the phenomena taking place during the conversion process and to assess
25 potential applications (valorisation) of this waste. Gasification was carried out in a
26 small-scale drop-tube pilot plant. Char characterisation includes structural, thermo-
27 chemical and compositional analysis. Results show that an increase of the relative
28 biomass/air ratio leads to a higher char production as well as to an increase in the extent

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