

CARBO CONSULT & ENGINEERING (PTY) LTD

Reg. No. 78/04830/07

OAK PARK 325
352 OAK AVENUE, FERNDALE,
RANDBURG, 2194
TEL : +27-11-886-6727
FAX : +27-11-886-4545

POSTAL ADDRESS: P.O.BOX 1397
CRAMERVIEW 2060
REP. OF SOUTH AFRICA
E-mail: info@carboconsult.com
Web: www.carboconsult.com

VAT No. 4830131324

CCE-SJG TEST DATA COMPILED FOR "BIOENERGY LISTS: GASIFICATION"

As per Tom Miles' five questions on 10 November 2006

1. CONVERSION EFFICIENCY: 80%

2. RECOVERABLE ENGINE HEAT:

The exhaust- and radiator heat can be recovered by conventional means for heat (and fuel drying) applications, but is currently not utilized due to lack of demand.

3. TAR CONTENT OF THE GAS: NONE

All tar is cracked in the gasifier hearth.

With 90% hearth loading, the raw gas contains 5g dust / Nm³. 4g is removed by the cyclone, ±0.8g by the scrubber / cooler and the balance by filters.

Tar-like compounds concentration is max 0,012g / Nm³ (as independently certified by the CSIR for ESKOM in April 2000).

4. (CO) EMISSIONS FROM THE ENGINE:

During the independent tests in 3. above and using a converted Volvo Penta TWD710 engine, the following average exhaust gas composition (% volume) results were recorded: %CH₄ = <0,05; %H₂ = 0.1; %CO = 0,2; %O₂ = 5,7; %CO₂ = 13,3; %N₂ + Ar = 79.9.

5. WASTEWATER TREATMENT AND DISPOSAL:

Quote from independent tests by ERGOSAF in June 1999:

"Water toxicity of the Gas Scrubbing/Cooling Water was evaluated by means of a major element scan that identified three elements in each sample, namely iron (0,76mg/l), manganese (0,26mg/l) and zinc (0,03mg/l). The concentrations of these metals were insignificant and do not constitute an environmental risk. Total suspended solids were equally low (18ng/l) and a pollution risk is not anticipated. Tar was not detected in these two water samples.

The water that had been recycled for 18 months, as well as the water used only once, does not contain any toxic elements and could be applied for irrigation purposes".

NOTE: The solids from our "wastewater" (cooling pond), as well as condensates from the fuel compartment, are being air-dried and recycled in the Gasifier.

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