



Politechnika Śląska

**Wydział Inżynierii
Środowiska i Energetyki**



PRACA DOKTORSKA

Mgr inż. Grzegorz Gałko

**WYTWARZANIE GAZU GENERATOROWEGO
W PROCESIE ZGAZOWANIA WĘGLA I ODPADÓW**

Promotor pracy doktorskiej:

Dr hab. inż. Danuta Król

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Abstract

In thesis were shown measurement results gasification of coal, biomass waste and mixtures of them. The formation of combustible gas with higher concentration of combustible gases was purpose of research instalation. Experimental tests were done in the laboratory scale countercurrent gas generator which was constructed in accordance with thesis supervisor conception with his cooperator. For experimental tests were used following materials: coals from Upper Silesian and Lesser Poland basins, pellets formed from deciduous wood, oiled sawdusts, pellets formed from softwood, stabilized municipal sewage sludge and olive seeds. Evaluation of parameters like: fuel properties, granulation, mass of coal and biomass waste mixtures ratios and influence of them on syngas composition. Gasification process evaluation was done in accordance with defined technological parameter Φ that was fuel to air ratio delivered to chamber of the reactions. Based on experimental results, the stoichiometric equilibrium model of solid fuels gasification was constructed. Calculations were done in accordance with stoichiometry of the process and constant equilibrium rates. Assesment of consistency between model and experiment results was done. Evaluation of selected technological paramteres like carbon conversion and cold gas efficiency. In addition evaluation and attempt of methanisation coefficients for selected measurements series was made in depends of volume of delivered to the chamber gasification agent.