Materials of Conferences

INSTALLATION FOR OIL-WATER EMULSION FUELS PRODUCTION FROM ORGANIC WASTES, CONTROLLED BY NUCLEAR MAGNETIC RESONANCE RELAXOMETER

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Problem of organic waste utilization and search for new alternative fuels is actual now. The authors propose to convert oil components of the organic/water waste in fuel emulsions (fuemulsions) with water content up to 20-30 %. Use of fuemulsions (for example bitumen/water emulsions) give advantages: practically complete combustion and conversion of carbon due to water drops bursts in flame; opportunity for combustion at oxygen lack; low temperature of the burner flame and hence decrease in orders of atmosphere waste by polyaromatic chance gene compounds and decrease on 65-80 % of nitrogen oxides NOX; concentration of the ash after combustion of the fuemulsions in 100 time lower, then from coal and the ash can be used as an ore for metals V and Ni, concentrations of which are 260 mg/кg and 55 mg/кg.

Used method for water decrease and hydrocarbon extraction from waste water - is treatment in rotating magnetic and nonuniform electric field [1] in compact installation device, controlled by nuclear (proton) magnetic resonance (NMR) express-analyzer (relaxometer). Installation can be sited directly near oil treating enterprises, sewage treating units, drains, tankers, sea platforms, automobile wash-outs etc. Method includes effect on emulsion of rotating magnetic field B, which compels charged droplets to move down and so to decrease water concentration. Simultaneously electric field E coagulate small droplets in more large ones, which are also moved down in the area of precipitated water. NMR-relaxometer in this device support control of water concentration [2], dispersion of water droplets [3] in the range 1,5-15 mm, sulphure content [4] and so regulate B, E for maximum effectiveness. Device demonstrate high efficiency, allowing to decrease water content up to 0,2 %.

References

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