

**PLASMA HYDROGEN TECHNOLOGY FOR NEUTRALISATION OF
ECOLOGICALLY-HAZARDOUS CARCINOGENIC AND MUTAGENIC
COMPOUNDS FORMED BY BURNING
ORGANIC FUELS**

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Ecologically-clean technology for neutralisation of carcinogenic and mutagenic compounds with formation of hydrocarbon synthesis-gas by recycling ecologically hazardous waste is obtained due to the new technology of thermal-plasma-chemical processing of carcinogenic and mutagenic compounds in the gas flow at elevated pressure, that enables efficient recycling of hazardous substances, which are formed in power, transport and stationary installations. Power expenditures for recycling are defined depending on chemical composition of the product that is recycled.

The plasma chemical technology for neutralization of ecologically hazardous waste and the installation for its realization are based on jet MW-plasmatron in which the discharge is excited near the central conductor of open end of the coaxial waveguide.

The technical solution of plasma-chemical reactor proposed is easy in application and enables to form non-equilibrium plasma with the high specific energy content. Such level of energy put into the discharge will provide formation and support of the strong non-equilibrium state of the plasma needed for the effective activation of hydrocarbon reagents. Under these conditions the value of average oscillatory energy of molecule- reagents is 0,1-1,0 eV, which provides the effective reduction in the activation barrier and selective increase of rate constants of plasma-chemical reactions, the end product of which is hydrocarbon synthesis – gas. Due to the method, expenditures on production of hydrocarbon synthesis – gas and neutralization of carcinogenic and mutagenic compounds are considerably lower in comparison with thermal gasification methods.

Versatility of the plasma chemical technology proposed increases scopes of its application. The commercial realization of the plasma-chemical installation and technology is promising both from the ecological and energy points of view.