Electrical discharges in loose «flour» rocks

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According to experimental data, spark electric discharges cause mainly the destruction and decomposition of polymers, as well as glow discharges cause mainly the folding of hydrocarbons, their polymerization. Known laboratory and practical data lead to the conclusion that when moving loose bodies, coal dust, flour, sugar, cement and others, quiet discharges and rarely spark discharges are observed. It can be assumed that in sedimentary fine-dispersed rocks, for example, sand-clay strata at low and high temperatures, when the particles do not stick together, but can break away from each other, they are charged and a quiet discharge occurs between them. In the plasma of a quiet discharge, a chemical reaction of the formation of hydrocarbons occurs, their cracking or dehydrogenation, and then the merging of the remaining molecules into the formation of heavy hydrocarbon molecules.
In this case, the electrification of the particles will occur as a result of their movement by gravitational forces or during tectonic phenomena. These reasons for the plasma-chemical reaction in sedimentary rocks complement the hypotheses of the organic origin of oil. The hypothesis provides the mechanism of the processes of chemical reactions and the energy source of such a reaction from the plasma of a quiet electric discharge. According to this hypothesis, discharges can occur in fine sedimentary rocks containing organic matter or carbon and hydrogen in compounds that occur under conditions where small movements of particles relative to each other and low humidity are possible. In the discharge plasma, a reaction of synthesis of molecules of hydrocarbon compounds can occur. German volcanologist F. Bulf previously suggested that oil companies pay attention to the possibility of synthetic occurrence of petroleum hydrocarbons from gases common to volcanoes, for example, carbon monoxide and hydrogen according to the schemes:

$$2CO+2H_2=CH_4+CO_2+q$$
$$CO+3H_2=CH_4+H_2O+q,$$

where q - is the thermal effect.

I will note that Berthelot, as early as 1869, wrote: In the spark discharge, he carried out reactions with oxygen compounds of carbon and hydrogen in mixtures of $CO + H_2$. As a result of the plasma chemical reactions, various gaseous and liquid hydrocarbons were obtained.
According to the plasma-chemical hypothesis, the formation of methane from hydrogen and carbon can proceed by the same reactions as under thermochemical influences. Hydrogen can be formed by decomposition in the discharge of hydrocarbons, water, or other water-containing compounds.
In the field of geographical study of oil gases and hot dry gases, it is a difficult task to explain in their composition the impurities of metamorphic and juvenile components of CH_4, CO_2 and impurities of heavy hydrocarbons, organometallic compounds, compounds containing sulfur, oxygen, etc.
Plasma chemistry explains the appearance of these carbon compounds both by inorganic synthesis, and by the destruction of organic matter to a gas state, the decomposition of these gases, and the polymerization of the decomposition products of organic substances in an electric discharge plasma.