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The obtained experimental data give reason to believe that in the case of the slow oxidation of methane the temperature of the reactor wall plays an important part, since in the absence of a heated wall the reaction begins only at a temperature above 1200° K.

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Table 1

Experimental Results

- 1) Pressure, kg/cm<sup>2</sup>
  - 2) Temperature, ° K
  - 3) Qualitative determination of CH<sub>2</sub>O
  - 4) None
- Slight color  
Color  
—  
Intense color

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Besides this, the performed experiments show that the sole oxide formed under these conditions is carbon monoxide, since the data on the analysis of the mixtures show the complete absence of carbon dioxide.

From the data on the equilibrium constant of the reaction /8/  
 $\text{CO} + 1/2 \text{O}_2 = \text{CO}_2$  it can be seen that ~~XXXXXXXXXX~~ the reaction for the decomposition of carbon dioxide cannot go even at atmospheric pressure and the experimental temperatures. This means that the carbon monoxide detected by us could not have been formed by the decomposition of carbon dioxide.

In none of the experiments was the formation of elemental carbon detected.