# EVALUATION OF THE EFFECTIVENESS OF HYDROGEN BROMIDE INFLUENCE ON THE LAMINAR BURNING VELOCITY OF METHANE AND HYDROGEN IN OXIDIZING MEDIA BASED ON OXYGEN AND NITROUS OXIDE

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**Abstract:** The influence of hydrogen bromide on the laminar burning velocity of hydrogen and methane mixtures with air, nitrous oxide and nitrogen–oxygen composition with 33 %(vol.) $O_2$ was studied using numerical modeling of a flat premixed flame. Chemical kinetics and transport processes (diffusion and thermal conductivity) were taken into account. It was found that hydrogen bromide has less inhibitive efficiency in the case of nitrous oxide in comparison with air or nitrogen–oxygen composition with 33 %(vol.) $O_2$. Qualitative interpretation of the obtained results is given which is based on the analysis of chemical processes at combustion of gaseous mixtures considered in this study.

**Keywords:** hydrogen bromide; nitrous oxide; hydrogen; methane; laminar burning velocity

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