

Perspectives of low-temperature plasma application in chemical and oil refining industry

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Abstract

The paper describes the prospects of low-temperature plasma application in the chemical and oil refining industry. The methods of increasing the efficiency of catalysts are considered. For this purpose, it is proposed to change the properties of the surface layer of the catalyst without changing its internal structure. This can be achieved by the usage of ion-beam and plasma technologies. Existing technologies of surface plasma modification can be implemented at different pressures: ion-beam technologies of materials processing at high vacuum, technologies of materials processing at low and atmospheric pressure. The choice of one or another method of plasma modification of the catalyst surface depends on the necessary characteristics that should possess the resultant material.

Plasma treatment of structural materials used in the production of chemical equipment allows to achieve the required parameters of the thin surface layer. Depending on the task, it can be hardening, deposition of anti-corrosion, antibacterial layers, etc.

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