

Acknowledgements

The work was supported by the Ministry of Education and Science of the Republic of Kazakhstan (Grants No AP05132348).

References

- Brattoli M., Cisternino E., Gennaro G., Giungato P., Mazzzone A., Palmisani J., Tutino M., 2014, Gas chromatography analysis with olfactometric detection (GC-O): an innovative approach for chemical characterization of odor active volatile organic compounds (VOCs) emitted from a consumer product, *Chemical Engineering Transactions*, 40, 121-126.
- Duplančić M., Tomašić V., Kurajica S., Minga I., Valkaj K.M., 2017, A Comparative study of toluene oxidation on different metal oxides, *Chemical Engineering Transactions*, 57, 889-894.
- Jecha D., Martinec J., Brummer V., Stehlík P., Leštinský P., 2013, Modernization of unit for elimination of VOCs by catalytic oxidation, *Chemical Engineering Transactions*, 35, 745-750.
- Kim M.Y., Kamata T., Masui T., Imanaka N., 2013, Complete toluene oxidation on Pt/CeO₂-ZrO₂-ZnO catalysts, *Catalysts*, 3, 646-655.
- Popova N.M., Dosumov K., Zheksenbaeva Z.T., Komashko L.V., Grigor'eva V.P., Sass A.S., Salakhova R.Kh., 2006, Thermally stable multicomponent manganese catalyst for the deep oxidation of methane to CO₂, *Kinetics and Catalysis*, 47, 907-916.
- Reckien D., Salvia M., Heidrich O., Church J.M., Pietrapertosa F., Gregorio-Hurtado S.D., D'Alonzo V., Foley A., Simoes S.G., Lorencova E.K., Orru H., Orru K., Wejs A., Flacke J., Olazabal M., Geneletti D., Feliu E., Vasilie S., Nador C., Krook-Riekkola A., Matosovic M., Fokaides P.A., Ioannou B.I., Flamos A., Spyridaki N.A., Balzan M.V., Fülöp O., Paspaldzhiev I., Grafakos S., Dawson R., 2018, How are cities planning to respond to climate change? Assessment of local climate plans from 885 cities in the EU-28, *Journal of Cleaner Production*, 191, 207-219.
- Tidahy H.L., Siffert S., Wyrwalski F., Lamonier J.F., Aboukais A., 2007, Catalytic activity of copper and palladium based catalysts for toluene total oxidation, *Catalysis Today*, 119, 317-320.
- Tong R., Zhang L., Yang X., Liu J., Zhou P., Li J., 2019, Emission characteristics and probabilistic health risk of volatile organic compounds from solvents in wooden furniture manufacturing, *Journal of Cleaner Production*, 208, 1096-1108.
- Tungatarova S.A., Zheksenbaeva Z.T., Abdukhalykov D.B., Baizhumanova T.S., 2014, Thermostable polyoxide catalysts of complete combustion of methane or biogas in the catalytic heat generators, *Chemical Engineering Transactions*, 39, 1279-1284.
- Zhang B., Zhao R., Sun D., Li Y., Wu T., 2019, Sustainable fabrication of graphene oxide/manganese oxide composites for removing phenolic compounds by adsorption-oxidation process, *Journal of Cleaner Production*, 215, 165-174.
- Zheksenbaeva Z.T., Omarova N.O., 2012, Development of technology for the oxidative purification of exhaust gases of petrochemical plants. Proceedings of the All-Russian scientific and practical conference actual problems of engineering, chemical and petrochemical industries and solutions, Nizhnekamsk, Russian Federation, 21-22.