CHEMISTRY | Published: 27 January 2020

More Effective Clarification of Circulating Water at Coke Plants

S. S. Dushkin & O. P. Galkina

Coke and Chemistry **62**, 474–480(2019) | Cite this article

Abstract

Means of improving the operational efficiency of circulatory water systems at coke plants are considered. Attention focuses on systems in which the industrial-grade water is prepared by means of an activated solution of coagulant (aluminum sulfate). The activation of coagulant solutions and their use to treat industrial-grade water is studied. The influence of the settling velocity and content of suspended particulates on the effectiveness of water clarification is investigated. Effective means of activating the coagulant solutions are identified. Formulas are proposed for use in improving the water processing in circulatory water systems at coke plants.

REFERENCES

1 Grigoruk, N.O. and Pushkarev, G.P., *Vodosnabzhenie, kanalizatsiya i ochistka stochnykh vod koksokhimicheksikh predpriyatii* (Water Supply, Sewerage, and Wastewater Treatment at Coke Chemical Plants), Moscow: Metallurgiya, 1987.

2 Leibovich, R.E., Yakovleva, E.I., and Filatov, A.B., *Tekhnologiya koksokhimicheskogo proizvodstva* (Technology of Coke Chemical Industry), Moscow: Metallurgiya, 1982.

3 Nevedrov, A.V., Kolmakov, N.G., Subbotin, S.P., et al., Preparation of water for coke-plant water cycles, *Coke Chem.*, 2015, vol. 58, no. 2, pp. 64–67.

Article **Google Scholar**

4 Nesterenko, S.V., Tkachev, V.A., and Smilka, E.P., Reducing the corrosion losses of metals when using phenolic wastewater in coke-plant cooling systems, *Coke Chem.*, 2013, vol. 56, no. 8, pp. 286–291.

Article **Google Scholar**

5 Shabalin, A.F., *Oborotnoe vodosnabzhenie promyshlennykh predpriyatii* (Recycled Water Supply to Industrial Enterprises), Moscow: Stroiizdat, 1972.

6 Kucherenko, D.I. and Gladkov, V.A., *Oborotnoe vodosnabzhenie (sistemy vodyanogo okhlazhdeniya)* (Recycled Water Supply: The Water Cooling Systems), Moscow: Stroiizdat, 1980.

25 Galkina, O. and Blahodarna, H., The use of effective coagulants and flocculants to intensity the process of water purification at coke plants, *Slovak J. Civil Eng.*, 2019, vol. 27, no. 2, pp. 21–28.

Article Google Scholar

Download references

Author information

Affiliations

National University of Civil Defence of Ukraine, Kharkiv, Ukraine
S. S. Dushkin

O. M. Beketov National University of the Urban Economy, Kharkiv, Ukraine
O. P. Galkina

Corresponding authors

Correspondence to S. S. Dushkin or O. P. Galkina.