

Resource and Environmental Efficiency of Aluminum Production Based on the BAT Principles

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Citation: Kuroshev I.S., Bakhtina I.S., Skobelev D.O. Resource and Environmental Efficiency of Aluminum Production Based on the BAT Principles, *Kompetentnost' / Competency (Russia)*, 2022, no. 4, pp. 10–15. DOI: 10.24412/1993-8780-2022-4-10-15

key words

sustainable development,
resource efficiency, environmental
performance, global energy
transition, low-carbon development,
aluminum production

The Best Available Techniques concept is the main tool for modernizing the industry under the modern economic conditions. We have considered the goals of introducing the BAT in the production of aluminum, one of the most important sectors of the Russian economy. The aluminum industry implements BAT by means of improving the basic production technology (electrolysis). Thus, the transition to Best Available Techniques is achieved by enhancing production resource efficiency, which complies with the fundamental BAT concept principles.

The BAT concept criteria make it possible to separate modern technologies from non-modern ones, and to form plans for the modernization of enterprises that meet the requirements established in various areas of regulation. As a part of the global energy transition, aluminum production has a strong impact on various sectors of the economy. It is one of the most important metals, the role of which will increase as we move towards a sustainable low-carbon economy.

References

1. Skobelev D.O., Uchenov A.A. Potentsial primeneniya kontseptsii nailuchshikh dostupnykh tekhnologiy dlya prinyatiya resheniy o gosudarstvennoy podderzhke real'nogo sektora rossiyskoy ekonomiki v usloviyakh global'nogo energoperekhoda [The potential of applying the concept of the Best Available Techniques to make decisions on state support for the real sector of the Russian economy in the context of global energy transition], *Ekonomika ustoychivogo razvitiya*, 2021, no. 4(48), pp.168–179.
2. Rakhmanov M.L., Kuroshev I.S., Kurchakova A.S. Pokazateli resursnoy i energeticheskoy effektivnosti v informatsionno-tekhnicheskikh spravochnikakh po nailuchshim dostupnym tekhnologiyam v oblasti chernoy metallurgii [Resource and energy efficiency indicators in information and technical reference books on the Best Available Techniques in the field of ferrous metallurgy], *Standarty i kachestvo*, 2021, no. 10, pp. 54–57.
3. Borodkina V.V., Ryzhkova O.V., Ulas Yu.V. Perspektivy razvitiya alyuminievogo proizvodstva v Rossii [Prospects for the development of aluminum production in Russia], *Fundamental'nye issledovaniya*, 2018, no. 12-1, pp. 72–77.
4. Shvartskopf N.V. Problemy i perspektivy razvitiya alyuminievoy promyshlennosti Rossii [Problems and prospects of development of the aluminum industry in Russia], *Epokha nauki*, 2020, no. 23, pp. 146–148.
5. Volosatova A.A., Pyatnitsa A.A., Guseva T.V., Almgren R. Nailuchshie dostupnye tekhnologii kak universal'nyy instrument sovershenstvovaniya gosudarstvennykh politik [The Best Available Techniques as a universal tool for improving public policies], *Ekonomika ustoychivogo razvitiya*, 2021, no. 4(48), pp. 17–23.
6. Manturov D.V. Ustoychivyy ekonomicheskiy rost: aspekty garmonizatsii promyshlennoy i ekologicheskoy politiki Rossii [Sustainable economic growth: aspects of harmonization of industrial and environmental policy in Russia], *Nauchno-tekhnicheskie vedomosti SPbGPU. Ekonomicheskije nauki*, 2018, no. 4, pp. 132–140.
7. Skobelev D.O., Dobrokhotova M.V., Kuroshev I.S. Otsenki resursnoy effektivnosti promyshlennogo proizvodstva. Entsiklopediya tekhnologiy [Estimates of resource efficiency of industrial production. Encyclopedia of technologies], *Kachestvo i zhizn'*, 2019, no. 4, pp. 66–69.
8. RF President Decree of 19/04/2017 N 176 On the Strategy of environmental safety of the Russian Federation for the period up to 2025.
9. Volosatova M.A., Grevtsov O.V., Begak M.V. Tekhnicheskiy komitet Nailuchshie dostupnye tekhnologii: novye napravleniya strany [Technical Committee Best Available Techniques: new directions of the country], *Kompetentnost'*, 2018, no. 9–10, pp. 28–31.
10. Bashmakov I.A., Skobelev D.O., Borisov K.B., Guseva T.V. Sistemy benchmarkinga po udel'nym vybrosam parnikovyykh gazov v chernoy metallurgii [Benchmarking systems for specific greenhouse gas emissions in ferrous metallurgy], *Chernaya metallurgiya. Byulleten' nauchno-tekhnicheskoy i ekonomicheskoy informatsii*, 2021, no. 9, pp.1071–1086.
11. RF Government Order of 29/10/2021 N 3052-r On approval of the strategy of the Russian Federation socio-economic development with low greenhouse gas emissions until 2050.
12. RF Government Decree of 21/09/2021 N 1587 On approval criteria for sustainable and (or) green development projects in the Russian Federation and requirements for verification of sustainable and (or) green development projects in the Russian Federation.
13. RF Federal Law of 10/01/2002 N 7-FZ On environmental protection.
14. Information and technical guide to the Best Available Technologies ITS 11–2019 Proizvodstvo alyuminiya [Aluminum production].