

METHODOLOGICAL APPROACHES TO DEVELOPMENT AND IDENTIFICATION OF THE BEST AVAILABLE TECHNOLOGIES ON THROUGH THE EXAMPLE USE OF FERROUS SLAGS

Metallurgy is an industry which causes great environmental stress. Ferrous waste used as the raw material in the building industry can lead to environmental pollution with heavy metals. The author offers a methodology of comparing different technologies of using the potential of waste in order to minimize the adverse influence of technology on the environment. The methodology is based on choosing the best available technologies accepted in the European Union.

The methodological approaches to the development of new technologies of ferrous slag usage and identification of the existing ones were based on the concept of a complex ecosystem-based approach. The approach allows to estimate the required degree of acceptable environmental risks in the course of the implementation of a technology throughout the whole life cycle of waste: at the stage of its formation, generation of the desired product in the process of technological conversion by capturing the resource potential of waste, the use of the desired product by the consumer, and the expiry of the life cycle of a product (material) generated by the consumer from the desired product.

The use of a complex ecosystem-based approach in the process of developing new technologies of slag usage and identifying the existing ones helps to judge if a technology allows achieving the following targets:

technical feasibility of a technology in production quantities, on condition of achieving the degree of capturing the slag potential that complies with low-waste and waste-free categories of technological processes;

the acceptable level of environmental security throughout the whole life cycle of the slag;

generation of marketable end products of the pre-set quality, which exceeds the quality of other competing products;

maximal prevention of the environmental damage by reducing the environmental stress on the environment and the population;

availability of the technology in terms of finance and economy;

social issues (new jobs, higher payments to budgets of all levels, improvement of the environmental and social image of a company, prevention of public protests as a result of favorable decisions for the protection of the environment).

The proposed algorithm allows choosing the technology producing minimal environmental damage in order to maximize the economic attractiveness and technical feasibility.

Key words: the best available technology, ferrous metallurgy, slag, heavy metals.

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About the authors: **Pugin Konstantin Georgievich** — Candidate of Technical Sciences, Associate Professor, Chair, Department of Automobile and Process Machinery, **State National Research Polytechnical University of Perm (PNIPU)**, 29 Komsomolsky Prospect, Perm, 614990, Russian Federation; + 7 (342) 239-14-92; 123zzz@rambler.ru;

Vaysman Yakov Iosifovich — Doctor of Medical Sciences, Professor, Chair, Department of environmental protection, **State National Research**, 29 Komsomolskiy Prospect, Perm, 614990, Russian Federation; +7 (342) 239-14-92; 123zzz@rambler.ru.

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