
RUSAL converts Krasnoyarsk Aluminium Smelter to colloidal anode paste

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UC RUSAL, the world's largest aluminium and alumina producer, announces that it has completed the conversion of one pot room at its Krasnoyarsk Aluminium Smelter to the colloidal anode paste technology. The economic effect from this innovation at one pot room alone can be up to USD 1 million annually.

The aluminium production technology using colloidal anode paste is one of the key parameters for the development of the 'clean' Soederberg cell. The project launched by the Engineering and Construction Division of RUSAL in 2006 led to several modifications of the Soederberg cell in an effort to bring its performance parameters comparable to those of the pre-bake anode technology in terms of the production efficiency, and helped reduce the environmental impact and optimized the consumption rates for major raw materials.

In 2007, KrAZ set up a pilot carbon area for the production of colloidal anode paste. The smelting process, which uses this type of paste, initially proved its success on twenty smelter's cells, but already by the end of 2010 this new technology will be proliferated to another four pot rooms at KrAZ.

The conversion into the colloidal anode technology is part of the second stage of the environmental modernization at KrAZ. In parallel with the engineering works on the new cell, which can use colloidal anode paste, the researchers suggested several technical adjustments to reduce the adverse environmental impact. A major achievement among these improvements is that the new cells will help in capturing over 95% of hazardous emissions. And once the conversion is completed at KrAZ, the emissions into the atmosphere will drop considerably.

KrAZ will lower its consumption of pitch by 17%, which will result in a considerable reduction of tar emissions into the atmosphere. After the adoption of the unique technology, hydrofluoric emissions will go down from 0.7 to 0.24 kilogram, fluorine emissions from 1.62 to 0.6 kilogram, CO₂ emissions from 78.9 to 53.5 kilogram, benzo pyrene emissions from 0.002 to 0.001 kilogram per tonne of aluminium.

The Soederberg cell with colloidal anode paste will also be introduced at other RUSAL's aluminium operations in Bratsk, Irkutsk, Novokuznetsk and Volgograd.

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