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Green technologies developed by JSC "NIUIF"

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Abstract

In the recent years JSC "The Research Institute for Fertilizers and Insect-Fungicides Named after Professor Y. Samoilov" (JSC "NIUIF"), the oldest(established in September 1919)industry-oriented institute in Russia has developed a range of sustainable, environment-friendly, zero-waste technologies, that ensure minimal consumption of materials and energy resources and fully consistent with the principles of Green Chemistry that include: Environmentally friendly energy and resource saving technology of sulfuric acid from sulfur according to DC-DA scheme (double conversion - double absorption) [1];Improved zero-waste technology of wet phosphoric acid (WPA) by dihydrate-hemihydrate process applicable to various types of phosphate raw materials[2,3];Flexible, efficient, zero-waste, universal technology of NP / NPS / NPK / NPKS fertilizers with maximum utilization of heat from chemical processes [4]; An innovative, zero-waste, no-analogue technology of granular PK / PKS / NPKS fertilizers with controlled dissolution rate and nutrient supply into the soil solution, which allows to process a number of wastes and by-products. An innovative resource-saving joint processing of wastes from production of phosphogypsum and fluorosilicic acid (FSA) into ammonium sulfate with simultaneous neutralization of fluoride compounds without using lime. All listed green technologies are protected by Russian and Eurasian patents.The development of environment-friendly, safe, green technologies is ongoing in JSC "NIUIF".

Biography:

Andrey Norov has graduated from D. Mendeleev's University of Chemical Technology in Russia, for over 25 years, he had been working at Mineral Fertilizers Plants. Since April 2007, he has been working for JSC "NIUIF", at the present moment his job title is an Industrial Technology Director. He has obtained his PhD in Engineering Science. He is an Honorable Chemist of the Russian Federation, and also he got governmental and industry-related awards. He is an author of 73 research articles and publications, and 27 patents in the field of phosphorus-containing fertilizers technology. He took part as a Speaker in 21 international conferences and symposiums.

Speaker Publications:

1. "Effect of Gaseous Products on the Kinetics of Thermal Decomposition of Chloride-Containing Complex Ammonium Nitrate-Based Fertilizers"; Russian Journal of Applied Chemistry. Vol - 93,2020.
2. "Study of Structural and Mechanical Properties of Mineral Fertilizer Granules"; Theoretical Foundations of Chemical Engineering/ Vol -53, (2019).
3. "Effect of Impurities on Thermal Decomposition Kinetics of Mineral Fertilizers Based on (NH4)2HPO4 in Self-Generated Atmosphere"; Russian Journal of Applied Chemistry/ Vol-15A (2018).

4. "The influence of water-soluble impurities on thermal dehydration kinetics of phosphogypsum in self-generated atmosphere"; Journal of Thermal Analysis and Calorimetry / Vol 133, 2018.

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