

10th World Congress on
Green Chemistry and Technology

July 10-11, 2019 | Paris, France

Development and implementation of flexible technology of granular NPKS/PKS-fertilizers of slow release with a controlled dissolution rate

JSC “NIUIF”, the oldest (founded in 1919) and the only one in Russia scientific-research institute for phosphorus-containing fertilizers, developed a novel flexible technology of production of NPKS/PKS-fertilizers of slow release with a controlled dissolution rate and nutrient assimilability into the soil solution. These fertilizers are environmentally safe, non-radioactive; practically do not contain compounds of harmful heavy metals (arsenic, cadmium, lead, mercury, chromium, etc.). Besides the main nutrients (nitrogen, phosphorus and potassium) they also contain sulfur and calcium in a plant assimilable form. The dissolution rate is regulated by changing the ratio between the water-soluble and assimilable forms of phosphorus, as well as by addition of ammonium salts. The technology is waste-free, moreover, it allows to process wastes and by-products of other production units: phosphogypsum, conversion chalk, cake from sodium tripolyphosphate production, sludge sand, etc. These fertilizers were successfully tested by the International Institute of Plant Nutrition and in the Russian Agricultural Academy named after K.A. Timiryazev and everywhere its high agronomic efficiency was proved. The technology is protected by three patents of the Russian Federation. Based on the design documentation developed by JSC “NIUIF”, NPKS/PKS-fertilizer plant was built and successfully set into operation at Metakhim plant (Volkhov city, Leningrad Region).

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.

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