
JUBILEE

Sergei Sergeevich Novikov



DOI: 10.1134/S1070427209100012

In 2009 was the 100th anniversary since the birth of Sergei Sergeevich Novikov, an eminent Russian scientist in the field of energy-rich compounds, Correspondent Member of the Academy of Sciences of the USSR, author of 600 of scientific publications, among which were 120 inventions, winner of Lenin and State Prizes. Sergei Sergeevich Novikov was born on October 7, 1909 in Pushkino, Moscow gubernia. On graduating the school in 1927 he went to study at the Chemical Faculty of the Moscow State University. In 1935 he sustained a Diploma work “Catalytic decomposition of compounds in the presence of aluminum chloride”. On graduating the Moscow State University S.S. Novikov worked as a specialist in the Biotechnological Institute, and in 1937 he entered a post-graduate course at the Moscow State Uni-

versity under the guidance of Academician Zelinskii. In 1940 he sustained the Candidate of Sciences Dissertation and started to work in the Institute of Organic Chemistry of the Academy of Sciences of the USSR as a Senior Researcher in the special laboratory of N.I. Shuikin. This laboratory investigated the problems of aviation fuels. In 1947 S.S. Novikov, Professor N.I. Shuikin, and Academician N.D. Zelinskii were awarded a State Prize for the development of an original method of aromatic hydrocarbons production from oil.

In 1953 S.S. Novikov was commissioned with the task of organizing research on a very important problem poorly understood at that time everywhere in the world: chemistry of energy-rich compounds, in particular, of nitro compounds. S.S. Novikov brilliantly solved this

problem. In 1962 in the Institute of Organic Chemistry of the Academy of Sciences of the USSR on the base of his laboratory was founded a Department of Organic Synthesis that for several decades was the leading research center in the world and in our country in the field of the synthesis of energy-rich compounds. The scientific targets of the investigations at the Department were the choice of the ways of preparation and study of the laws of the formation of the energy-rich compounds, the development of syntheses of new classes of substances fit for the practical purposes. The practical task consisted in the synthesis of energy-rich products capable to ensure the leading position of our country in the production of energy-rich materials as key components of high-power solid rocket propellants, powerful explosives, and artillery gunpowder.

The search for new heterocycles was performed among different compound classes, but mainly among polynitro derivatives of aliphatic, aromatic, and heterocyclic compounds, and also among polycyclic and framework structures. At this time a new reaction was discovered characteristic of nitro compounds in the aci-form, 1,3-dipolar cycloaddition. This gave an opportunity to sharply increase the application of nitro compounds to the organic synthesis and to create new preparation methods for heterocyclic systems, some of which were of previously unknown types, and for polyfunctional nitrogen-containing compounds. For this research cycle Presidium of the Academy of Sciences of the USSR awarded in 1967 S.S. Novikov and V.A. Tartakovskii with Butlerov Prize.

An outstanding importance had a discovery, development of synthesis methods, and exhaustive investigation of the chemistry of dinitramide and its salts. Over ten procedures for their synthesis were developed, among them several methods suitable for industrial implementation.

Dinitramide salts served as a basis for the advances and leadership of the USSR in development of highly efficient solid rocket propellants. This research was performed 20 years earlier than analogous studies in the USA. The production of dinitramide salts was qualified as a scientific discovery. For the discovery, investigation, and development of industrial methods of this compounds production the researchers of the Department S.S. Novikov and V.A. Tartakovskii were awarded with the Lenin Prize, and O.A. Luk'yanov, with the State Prize.

S.S. Novikov was a man of great learning, energy, and outstanding managing ability. To a certain extent it was S.S. Novikov who initiated the study on the synthesis and properties of the energy-rich compounds in a number of the Institutes of the Academy of Sciences, Educational institutions, and specialized Industrial Research Centers. Alongside the intense research work S.S. Novikov led a large amount of work related to the teaching of new researchers. Under his direct guidance or consulting were fulfilled over 90 Candidate of Sciences and 20 Doctor of Sciences Dissertations. For many years S.S. Novikov taught in the Moscow Engineering and Physical Institute first as a Professor and then as a Head of the Chair of the physics and chemistry of combustion and explosion.

Sergei Sergeevich Novikov forever connected his life with the Institute of Organic Chemistry of the Academy of Sciences of the USSR and worked there to the end of his life. He began his work as a Senior Researcher and grew into the Head of a large Department, started as a Candidate of Sciences and became the Correspondent Member of the Academy of Sciences of the USSR.

Sergei Sergeevich Novikov died on August 26, 1979.

V.A. Tartakovskii