Scientists of the Norwegian University of Science and Technologies have developed a super-fingered coating that can extend the service life of lithium-gray batteries. This type of batteries is considered a promising replacement of lithium-ionic, as they are easier, cheaper in production, are faster and safer in operation faster. However, their wide implementation is restrained by the so-called “shuttle effect”, which causes rapid degradation of elements.

The problem is related to the formation of lithium-polyisulfides during the operation of the battery. These connections are moved between the electrodes, which reduces the battery capacity and reduces its service life. The new HISEP-II coating, designed and patented by researchers, works as a smart filter that blocks harmful substances and at the same time passes a lithium-ion flow.

Tests have shown that the use of technology increases the number of charging and discharge cycles from 200 to 1000, which makes the battery life five times longer. According to scientists, in the case of a filter in electric cars, the weight of the battery block can be reduced by more than 200 kilograms, which improves efficiency and increases the stroke.

The developers note that the technology can be in demand not only in electric cars, but also in aviation, space, shipping and drones. The production of the filter is considered environmentally friendly and is suitable for scaling.