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The present status of production target development for Isotope Separation On-Line facility in Korea

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Rare Isotope Science Project (RISP) was launched by Institute for Basic Science (IBS) in December 2011 in Korea. We are developing Isotope Separation On-Line (ISOL) target system, which consists of 1.3 mm-thick uranium-carbide multi-disks and cylindrical tantalum heater, to provide various rare isotope beams for the researches in basic science and application. The intense neutron-rich nuclei are produced via the fission process using the uranium carbide targets with a 70 MeV proton beam. The in-target fission rate was estimated to be ˜1013/sec for 10 kW proton beam. The target system has been designed to be operated at a temperature of about 2000 oC so as to reduce the release time. For the uranium-carbide target, we are performing a development of the lanthanum-carbide disk having similar chemical characteristics with those of the uranium carbide owing to the difficulties of handling the radioactive material. The present design of the 10 kW ISOL target and the current status of the development of the lanthanum-carbide disk are briefly introduced.

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