

Transport

The transport of radioactive materials is a functional activity both in the use of ionizing radiation sources in various sectors of activity (industrial, medical, scientific research) and in the exploitation of the properties of radioactive and fissile materials for the production of electricity from nuclear source.

In relation to the use of ionizing radiation sources, the transport of radioactive materials can be divided into two fields:

- transports that take place in the field of the so-called nuclear fuel cycle and, more generally, for the purpose of operating nuclear plants. These transports involve, in particular, materials such as uranium minerals, uranium oxide powders, uranium hexafluoride, non-irradiated fuel elements, irradiated fuel elements, waste deriving from the reprocessing of irradiated fuel;
- transports that take place in the field of medical, industrial and research activities and that involve materials such as sources in special form by irradiation of products and gammagraphy in open field, sources for geological prospecting, sources for control of industrial processes, sources for diagnostic and therapeutic use in special and non-special form, waste coming from the installations in which they are produced.

In the case of Italy, transports related to the nuclear fuel cycle are strictly connected to the implementation of decommissioning operations, with particular regard to the transfer abroad of nuclear materials and spent fuel, the latter for reprocessing purposes and movement of radioactive waste to plants for storage in Italy and to facilities abroad for treatment and conditioning operations.

It is estimated that about 20 million packages containing radioactive materials are annually transported in the world, of which about 2 million in the European Union alone. However, the transport of radioactive materials, which constitute class 7 of dangerous goods according to the international classification, represents only a small fraction (about 2%) of shipments of all dangerous goods. Most transports take place in our country by road and by air. This last mode of transport is used for radioactive materials consisting of isotopes with short half-lives used for medical purposes, in particular for diagnostic radiology.

The maritime transport is used, in particular, for large quantities of materials used in the nuclear fuel cycle (uranium minerals, irradiated nuclear fuel) practically absent in Italy. Road transport is usually used to cover short distances between the places of production of radioactive sources and those of interchange (ports, airports) and between the latter and the final destination.

In the field of transport of radioactive material, ISIN is the national competent authority for issuing the certifications required by national and international Regulations.

ISIN also supports Administrations (Ministry of Infrastructure and Transport, General Command of the Corps of Port Authorities) involved in the transport of radioactive materials. This activity concerns, in particular, the expression of the technical opinion to the Ministry of Economic Development in the process for the authorization of the carrier for the transport of radioactive materials, in the participation in working groups coordinated by the Ministry of Infrastructure and Transport for the preparation of the decrees implementing the European Union Directives and Recommendations and international agreements on the transport of dangerous goods.

In addition to certification and technical support, the Inspectorate exercises, within the scope of the tasks assigned by national legislation, also:

- surveillance and inspection activities on the transport of radioactive material;
- collection of data on transport of radioactive materials carried out by authorized carriers.



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Published on Ispettorato nazionale per la sicurezza nucleare e la radioprotezione
(<https://www.isinucleare.it>)

Last update: Monday 21 October 2019

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