

Dose Equivalent Unit

The ISO measuring unit of the ionizing radiation dose equivalent is the **sievert (Sv)**.

1 Sv = the equivalent dose of radiation absorbed by body tissue corresponding to **1 joule of energy deposited in 1 kilogramme** of this tissue by gamma radiation.

This not only sounds a bit complicated, it is quite complicated. However, even small fractions of a sievert can be measured rather easily with a so-called dosimeter.

Most frequently used units are a thousandth of a Sv, the **millisievert (mSv)**, and a millionth of a Sv, the **microsievert (μ Sv)**.

For comparison:

- *The life-time dose an average European gets from natural background radiation is 100–400 mSv. This corresponds to an average equivalent dose rate of 0.13–0.53 μ Sv per hour.*
- *A petit-à-petit accumulated lifetime dose of 10,000 mSv would increase cancer risk by 0.22 percent.*
- *However, the same dose administered within a short time (fraction of a second to hours and days) would result in serious radiation disease and probably end lethally.*
- *The International Commission on Radiation Protection (ICRP) recommends limits for the accumulated dose from technical sources. For persons working under surveillance, the recommended annual dose equivalent is 20 mSv per year in planned circumstances, but 100 mSv or more may be acceptable in special situations such as emergencies. For the general public, the ICRP recommends an annual limit of 1 mSv.*