

## Source of radiation

Radiation  
intensity\*<sup>1</sup>

Becquerel (Bq)

Radioactive  
materials\*1: Number of nuclei that  
decay per second

## Receiving side

Absorbed dose\*<sup>2</sup>

Gray (Gy)

Amount of energy absorbed by a substance of  
unit mass that received radiation

$$\text{Gy} = \frac{\text{Absorbed energy (J)}}{\text{Mass of the part receiving radiation (kg)}}$$

\*2: Energy absorbed per 1 kg of substances (Joule: J;  
1J ≈ 0.24 calories); SI unit is J/kg.

Differences in effects depending on types of radiation

Equivalent dose (Sv)

Differences in sensitivity among organs

Effective dose

Sievert (Sv)

Unit for expressing radiation doses in terms  
of effects on the human body

Units of radiation can be broadly divided into units for sources of radiation and units for the receiving side. Becquerel, a unit of radioactivity, is used for sources of radiation. Units for the receiving side are gray and sievert.

When radiation passes through something, its energy is absorbed there. Gray is a unit for indicating the absorbed dose.

The extent of effects on the human body varies depending on the types and energy quantities of radiation even if the absorbed doses are the same. Doses weighting health effects of respective types of radiation are equivalent doses (expressed in sieverts). The effective dose (expressed in sieverts) was developed for exposure management in radiological protection. In contrast to the equivalent dose, the effective dose weights differences in sensitivity among organs and tissues and sums them up to express the radiation effects on the whole body.

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