

THE JUSTIFICATION OF PRACTICES INVOLVING EXPOSURE TO IONIZING RADIATION

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In the decision-making process to draft an amendment to the German Radiation Protection Regulations on unjustified practices involving exposure to ionizing radiation a research project was carried out to investigate detriment and benefit of controversial practices.

For various uses in the medical field involving I-131, I-125, Ra-226 justification was declined by common consent of the nuclear medicine society.

Thus the study concentrated on industrial uses, X/gamma radiation scanning and consumer goods as listed below. Following ICRP and IAEA recommendations the radiation detriment was balanced against the benefits to the exposed individuals or to society considering economic, social, cultural criteria and to some extent the existence of non-radioactive alternatives.

The results may be roughly summarized as

– not justified

+ justified under controlled conditions:

- Lightning preventors and surge voltage protectors
- Glassware, tableware and ceramic tiles incorporating uranium
- Radioluminous products
- Ionisation chamber smoke detectors
- + Weapons, explosives, drugs, illegal immigration, (theft) control scanning
- + Leak test and industrial process control techniques using unsealed radionuclides.