

Exercise 2.2 - x-ray dose

v.03

Problem Statement

Evaluate the dose deposited on a high-density polyethylene (HDPE) by an x-ray radiation (MoK α : 17'375eV) of intensity $5 \cdot 10^{-5} \text{ W/m}^2$ during 15 years.

The calculation shall be done for thicknesses ranging from 0 to 100mm

The result shall be expressed in [Gy], [rad] and [J/kg]

Mass attenuation coefficient [cm^2/g], [RD1]:

https://www.rpcirkus.org/images/pdf/donneesdebase/DOC-DB-1_1_Attenuation_Massique.pdf

Note: Mass attenuation coefficient (EN) = Coefficient d'atténuation massique (FR)

Solution