1.4.9. SCATTER RADIATION IN RADIOGRAPHY

Jaenisch G.-R., Ewert U., Jechow M.,
Federal Institute for Materials Research and Testing (BAM), Berlin, Germany

In radiography, penetrating the object with X-Rays and recording the transmitted radiation gives information about the inner structure of an object. The transmitted radiation consists of a primary and a scattered component. Textbooks on radiography consider the scattered radiation as unwanted due to radiation safety issues and the effect of contract reduction while carrying no information about the object. Additional it is stated, that, in practice, image unsharpness is given by inherent and geometrical unsharpness only while unsharpness due to the effect of scatter in the object is negligible. The paper presents theoretical and experimental investigations discussing the following effects in contact radiography: (i) scatter unsharpness and contrast is an issue to be considered; (ii) scattered radiation contributes to the image contrast, i.e. carries information about the object structure, depending on the size of the discontinuity, the radiation energy used, and the material of the object. The discussion becomes relevant for computed radiography (CR) as well as film radiography.