ACCIDENTAL AND RETROSPECTIVE DOSIMETRY USING TL METHOD

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The possible risk of an unexpected nuclear accident or violent terror attack necessitates different methods and processes potentially applicable in emergency. After the event fast and reliable dose assassments should be given so that arrangements and intervention could start as soon as possible. Retrospective dosimetry is one of the most important tool of accidental dosimetry for dose estimation when dose measurement was not planned and there is no dose data available as a result of a nuclear accident. Luminescenct materials are suitable for retrospective dosimetry using TL and/or OSL analysis.

Several materials have luminescence properties in the evironment, but in the situation mentioned it is suggested to use not just natural substances, but also personal belongings carried by victims, who received the dose. In our environment many objects can be applied as natural dosimeters, having suitable thermoluminescent (TL) and optically stimulated luminescent (OSL) properties.

The paper discusses the recent developments, the analysis of luminesence and the dose response curves of various electronic components and the common (table) salt (NaCl) using Daybreak TL reader for retrospective dosimetry purposes. Basic TL properties of these materials (e.g. fading and reproductibility) have also been investigated and will be shown in this study.