



Document: ISO/TC 85/SC 5/WG 8/ISO-16117:2013 Summary

Nuclear criticality safety — Estimation of the number of fissions of a postulated criticality accident

This document provides a summary of the following:

ISO-16117:2013 (First Edition) *Nuclear criticality safety — Estimation of the number of fissions of a postulated criticality accident*

Sécurité de criticité nucléaire — Évaluation du nombre de fissions en cas d'un hypothétique accident de criticité

What is this standard?

This international standard provides a methodology to estimate a reasonably maximal value of the number of fissions of a postulated nuclear criticality accident in order to evaluate the radiological consequences of such an accident. The estimate of the number of fissions is essential because the emergency planning and response depends on a suitable estimate of these consequences. This document does not provide a methodology to determine bounding accident scenarios nor does it cover criticality accident detection.

What does it cover?

It sets out the broad principles in order to estimate the reasonable maximal value of the number of fissions for a postulated criticality accident. Specifically, it covers:

- General principles and prerequisites for estimating the number of fissions
- Input data needed
- Use of collective experiences from past criticality accidents and criticality experiment results and simplified formulae
- Use of calculational tools

In addition, detailed annexes provide technical information regarding the characteristics of criticality accidents that have occurred during process operations, experimental results and simplified formulae to support the estimation of the number of fissions.

Why is it useful?

The fission number estimate, associated with its postulated criticality accident, influences the accident emergency planning and response because it is used for the estimation of radiation doses and of fission products release. This standard is hence an important document for the analysis of a postulated criticality accident.

Who should use it?

An individual or body who has responsibility in the development and maintenance of an accident emergency planning and response for any facility or site with Nuclear Criticality Safety (NCS) concerns. These individuals would typically be NCS specialists with the responsibilities of assessment, peer review or authorisation of NCS documentation. Also, individuals or bodies with responsibilities of oversight and regulation of facilities and processes that involve the provision of NCS.

Where can I find out more?

The ISO-16117 standard webpage can be found at the ISO website:

<https://www.iso.org/standard/55700.html>