



Document: ISO/TC 85/SC 5/WG 8/ISO-21391:2019 Summary

## ***Nuclear criticality safety — Geometrical dimensions for subcriticality control — Equipment and layout***

This document provides a summary of the following:

**ISO-21391:2019 (First Edition)** *Nuclear criticality safety — Geometrical dimensions for subcriticality control — Equipment and layout*

*Sûreté-criticité — Dimensions géométriques pour garantir la sous-criticité — Dimensions d'équipements et cotes d'implantation*

### **What is this standard?**

Nuclear Criticality Safety (NCS) is achieved by methods of control which can lead to requirements on geometrical dimensions. This international standard provides requirements and recommendations related to the determination of limits on subcriticality dimensions and to their compliance with design dimensions or actual dimensions (measured dimensions). Geometrical dimensions considered in this standard include dimensions of items containing fissile materials, of materials surrounding such items, layout dimensions and dimensions and layout of mobile items.

### **What does it cover?**

The standard covers:

- The identification of subcriticality dimensions based on handbooks and/or specific calculations
- The determination of subcriticality dimensions limits
- Phenomena which can impact subcriticality dimensions in normal and abnormal conditions
- Compliance of actual dimensions with subcriticality limits
- Management of non-compliance

In addition, a detailed annex provides an example of the application of this standard from the identification of subcriticality dimensions based on calculation modelling to the compliance of actual dimensions with subcriticality dimensions limits.

### **Why is it useful?**

This standard makes the link between all the steps to be managed by NCS specialists related to the use of subcriticality dimensions. It also highlights points of vigilance, such as the limitation of number of dimensions to be controlled, the potential for subcriticality dimensions to change during the facility lifetime (e.g. through corrosion) or the number of measurements to perform for the compliance verification. In addition, this standard proposes a method to document the implementation of subcriticality dimensions control.

### **Who should use it?**

An individual or body who has a responsibility in the design, fabrication or maintenance of a process or facility where geometrical controls are implemented to ensure NCS. These individuals would typically be NCS specialists with the responsibilities of assessment, calculation or peer review of NCS documentation. Also, individuals or bodies with responsibilities of oversight and regulation of facilities and processes.

### **Where can I find out more?**

The ISO-21391 standard webpage can be found at the ISO website:

<https://www.iso.org/standard/70851.html>