

Criticality Analysis, implementation and upholding, for technical items

Information within brackets ([...]) in this document refers to local regulations.

Scope

This guide provides advice and instructions on how organisations can introduce and maintain technical criticality analyses of their plants.

The purpose of the criticality analysis for an item at a plant is to clarify how a malfunction will affect personal safety, the external environment, production, quality and maintenance cost and is a prerequisite for the optimisation and prioritisation of maintenance initiatives, formulation of a risk-based maintenance strategy and the devising of a sustainable spare parts strategy.

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Appendix 1: Criticality Analysis, Classification template

1 Terminology

Criticality analysis - To use a specific item to analyse how a failure affects criteria set by the plant in respect of the criticality categories.

Criticality class - Indicates the level an item is at in accordance with specified criteria.

Criticality category - The specified category; personal safety, external environment, production, quality and maintenance cost.

Criterion (category criterion) - The wording for a criticality category which defines the level of the criticality class.

Item - Part, component, device, subsystem, functional unit, equipment or system that can be individually described and considered (definition according to SSG 2001).

2 Introduction

To be able to optimise the reliability of technical items, the maintenance and operating organisations have to focus on the right things. This is why a preventive maintenance strategy has to be formulated on the basis of the impact of a failure in an item. When this impact is assessed, the assessment must be carried out on the basis of the perspectives of personal safety, external environment, production, quality and maintenance cost. Items resulting in high impact are the ones on which resources must be focused.

This guide must be applied in all cases when changes are to be made to the plant; during renovations or when installing a new item, for example. A criticality analysis must be carried out in plenty of time prior to commissioning as the criticality class controls the formulation of preventive maintenance and stores optimisation.

The purpose of the criticality analysis is to maintain control over your own plant and indicate where the critical items can be found.

The purpose of the analysis should be for all process-critical items to have a specified criticality class.

Carrying out a criticality analysis is not synonymous with reducing the cost of storage, but a guide for the optimisation of stores and maintenance initiatives and for the planning and prioritisation of work orders.

Working with criticality analyses is an ongoing task, and it should be ensured that the organisation maintains procedures and resources for continued improvements.

3 Implementation

3.1 Client and recipient

The aim of this section is to clarify what should be considered at the outset by any company that has not carried out a criticality analysis of items at its plant before, along with suggestions on how this analysis can best be implemented.