

LISTEN.
THINK.
SOLVE.®

Safety in numbers

The 6 Essentials of Hazard and Operability studies



To achieve compliant levels of functional safety, you need to ensure that all hazards in a facility have been identified, the risks assessed and the protective functions or safeguards in place evaluated for their effectiveness.

Hazard and Operability (HAZOP) studies are central to the understanding and mitigation of risk and compliance with IEC61511.

1 What is a 'hazard'?

In the context of functional safety, hazards are events that have the potential to cause harm such as personal injury, damage to the environment or the business.

Hazards in the process industry might include:

- The level of liquid in a vessel: a high level may result in an overflow or overspill; a low level may result in dry running of pumps, or gas blowby.
- The pressure of liquid in a vessel: high pressure may result in loss of containment, leaks or vessel rupture.

Take the next step
towards a safer working
environment.

2 Identifying hazards

The first step in assessing the risk to which a facility is exposed to is to identify the hazards. There are a number of techniques used for identifying hazards, but the technique in most common use is the Hazard and Operability (HAZOP) Study.

3 What are HAZOPs?

Although facility design relies on the application of codes and standards, the HAZOP process helps to explore deviations from design intent. Easy to understand and adaptable to any process or business, HAZOPs have become the most widely used hazard identification methodology.

5 How to carry out a HAZOP

A HAZOP is conducted by people with sufficient knowledge and experience of the facility operation and maintenance. Using a structured format incorporating guidewords, they generate ideas about what the hazards could be. The minutes of the meeting record the discussion and capture information about potential hazards, their causes and consequences.

4 Why use them, and when?

HAZOPs are used to identify potential hazards and operability problems caused by deviations from the design intent of process plant throughout its life. An initial HAZOP should be carried out early in the design phase, with reviews as the development progresses, and prior to the build stage.

6 What a HAZOP reveals

The HAZOP procedure involves taking a full description of the process and systematically questioning every part of it to establish how deviations from the design intent can have a negative effect upon the safe and efficient operation of the plant.

Download '**Process Safebook 1**' to learn more about HAZOP studies and their part in ensuring safer working environments, get your copy of the NUMBER ONE GUIDE TO PROCESS SAFETY.

Publication SAFETY-QR009A-EN-P - November 2015

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