Ekkremon Pty Ltd
Outstanding Results through People & Process

HAZOP Fast Facts: HAZard and OPerability Study

WHAT

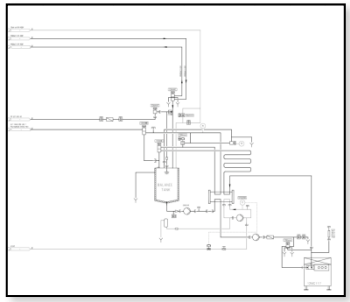
A HAZOP study is a team-based, systematic and detailed *deviation* audit of a completed engineering design. It explores possibility and consequence of deviations from design intent to make sure effective safeguards are in place.

It can be applied to continuous wet process, batch operations, materials handling equipment, packaging lines and other types of plant (new or modified).

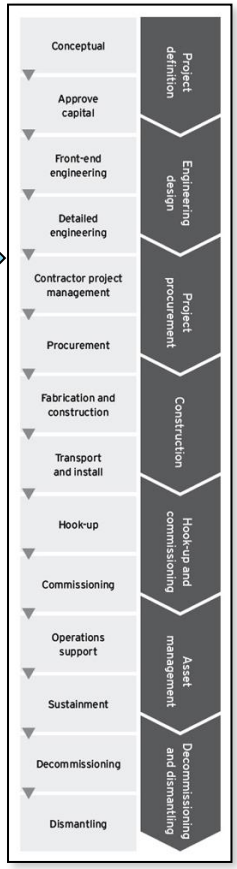
HAZOP studies are thorough and holistic, exploring problems that might arise and affect any aspect of the operation of plant – e.g. personnel safety, product quality, environment, process integrity, and ability to cost effectively maintain and operate plant.

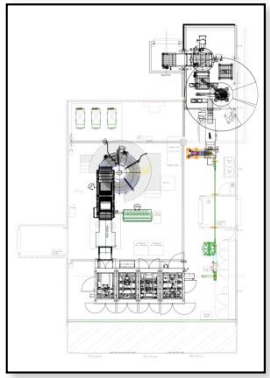
WHEN

HAZOP studies must be done on a completed engineering design, ideally prior to the procurement stage.



HAZOP





Typically a Process and Instrumentation Diagram (P&ID) above, or a layout / General Arrangement (GA) left is used.

WHY

1. Avoid cost by preventing major errors and oversights, and reduce chance of expensive, last minute modifications.
2. Allow smooth, safe and prompt commissioning of new plant.
3. Facilitate cost effective, trouble free, continuing operations.
4. Maximise teamwork, communications and learning between various project and client stakeholders. Opportunity for cross functional understanding of entire project.
5. Find and fix problems, and improve safeguards at the design stage.
6. Under *Work Health and Safety Act 2011* both PCBUs and workers are responsible for ensuring health and safety in the workplace.
7. Victorian *OHS Act 2004* requires employers to identify workplace hazards. *WorkCover* legislation requires new plant to be risk assessed.
8. Due diligence and comply with Australian Standard AS 61882- HAZOP Studies Application Guide, 2003.

HOW

HAZOP studies are done with a multi-discipline team, with expert facilitation. The facilitator provides up front training in the conduct and expectations of the study, and manages the team process and group dynamics during the study.

The engineering design is divided into logical, individual process lines/steps. A set of guidewords are used to systematically examine deviations from the design intent in each process line/step. The causes, consequences and existing safeguards are explored and qualitatively risk assessed, and actions generated and minuted. Minutes (recorded by exception) are developed with team input during the study, and are issued for team action at the end of the study.

Study duration is dependent on the complexity of the process (typically one hour per individual line/step).

WHO

Expert, independent facilitator, plus
Team (ideally 6-8 members, max. 15-20) representing relevant functions from:

- Project engineering / manager
- Operations, Maintenance, Process engineering
- Instrumentation / control / electrical
- Mechanical / civil / construction
- Vendors
- Specialists e.g. quality, laboratory, safety, technologist, metallurgy

Kathleen Davies
HAZOP Facilitator
Director
Ekkremon Pty Ltd
ABN 61 149 223 094

Post: PO Box 5056 Pinewood 3149, Victoria, Australia

E-mail: kathleendavies@ekkremon.com.au
Profile: http://au.linkedin.com/pub/kathleen-davies/11/613/449
Web: www.ekkremon.com.au