

Human Factors – An Overview

EIGA Approach to Human Factors

Within EIGA we have many documents that deal with avoiding incidents through the application of proper design standards, operating procedures and safety management systems.

This document is the first of a series of Human Factor Safety Information sheets which are intended to:

- explore the Human Factors specific to the industrial gases industry,
- raise awareness on these issues and
- provide guidance.

In some cases, these information sheets will demonstrate how and where Human Factors are already addressed and included in existing documented best practice and guidance.

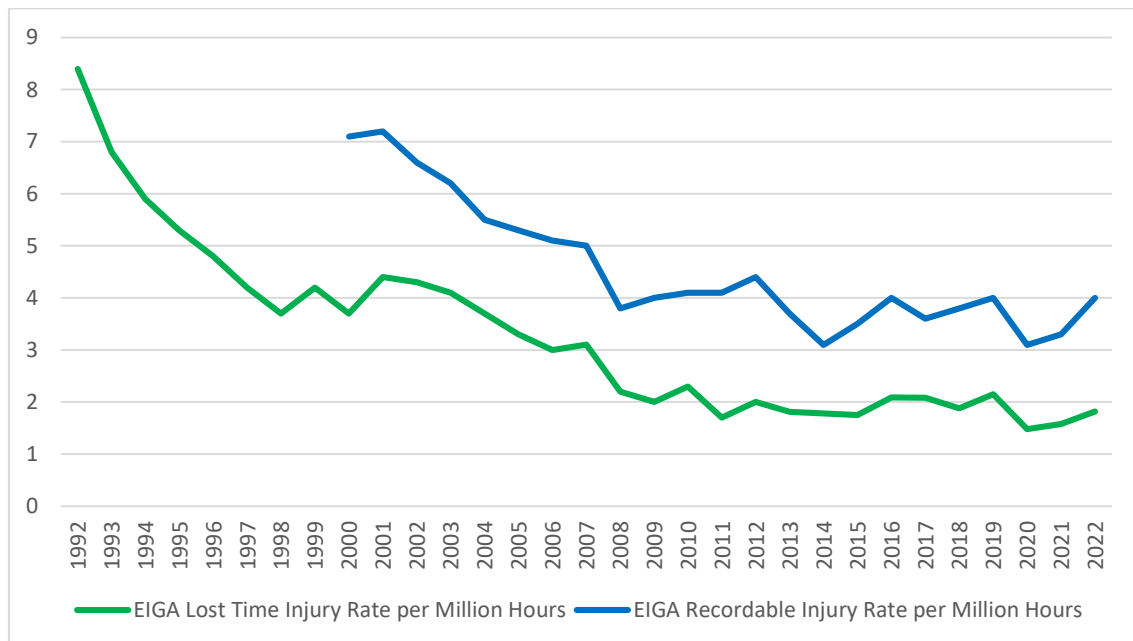
Although the Human Factors Safety Information sheets are aimed primarily at supervisors and managers, they may be of benefit to others who work within our industry.

What do we mean by Human Factors?

Human Factors are organisational, job and people related factors that influence behaviour at work. We focus here on factors that could affect health and safety at work.

Why Human Factors? – The background

EIGA member companies have made good progress in worker safety as can be seen below. Over the years from 1992 to 2023 our industry has reduced the lost time injury rate from 8.5 to 1.8 per million hours worked, representing an 80% reduction in the rate. The industrial gas industry made significant reductions in accident rates between 1992 and 1998 but the rate of reduction has slowed down.



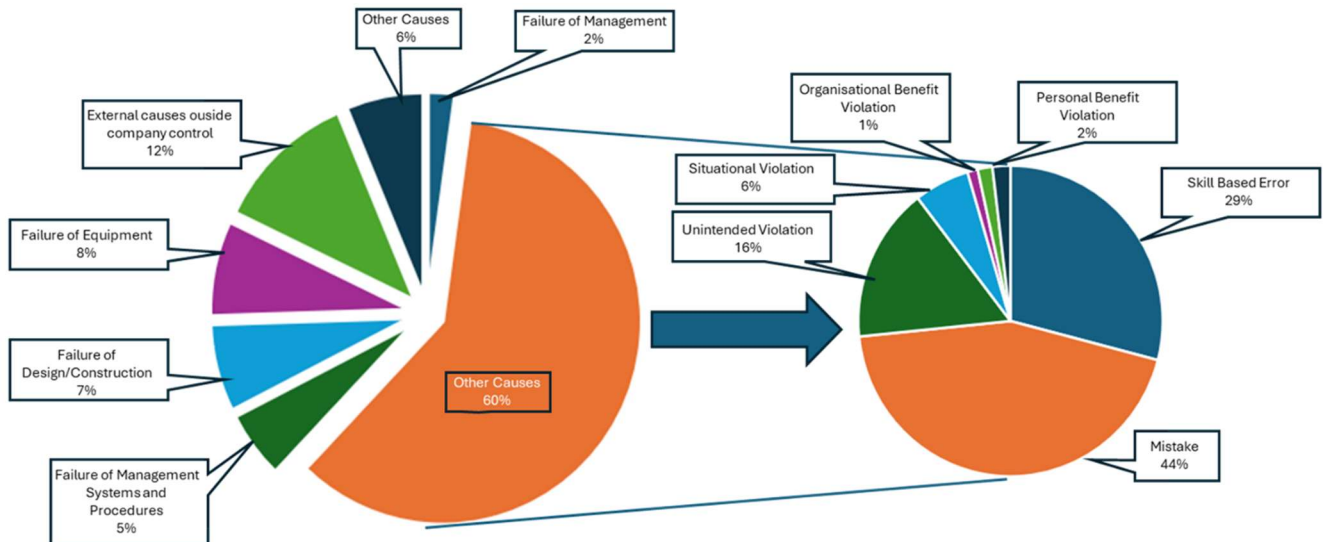
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Over the 22 years from 2000 to 2022 the number of recordable injuries steadily decreased from 7.1 to 4.0 per million hours representing a 43% reduction in injury rate.

Since 2020 the collected data set has been expanded to contractors also in order to have a more precise overview of injuries.

If we analyse the causes of the Lost Time Injuries and Recordable Injuries reported to EIGA, 70% were attributed to human factors which were classified as 60% human failures, 2% management failures and 5% failures of management systems and procedures.

Since 2011, EIGA has been analysing these human errors in more detail by asking members to subdivide human errors as different types of human failure, to better identify and manage these contributing factors.



Why do incidents happen?

After an incident has occurred it is, with hindsight, easy to identify many factors that contributed to the situation. Investigation becomes more difficult when we want to understand why people acted in a certain way or made certain decisions. Too often the individual who was most directly involved is blamed. By applying a human factors approach we reveal many more underlying factors which influenced people's behaviours. These can include poor design, poor maintenance, attitudes to health and safety in the organisation, lack of clear visible leadership, inadequate training or supervision, poor work planning and organisation or individual attitude and skill.

Consideration of Human Factors

Human Factors can be grouped in the following three aspects which interlink with and overlap each other:

- Organisation
 - the company, its management, its safety culture and its management systems
- Task
 - job,
 - workplace and equipment design,
 - environment
- Individual
 - a person's individual characteristics and attitudes



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