

hargrove

What's the Standard?

A Comprehensive Approach to Safety



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Machine Functional Safety vs. Process Safety

In Machine Functional Safety, usually, the 'safe state' of a machine is 'off' or 'stopped'. In Process Safety, the 'safe state' is the continued operation at normal conditions, since stopping a process in certain conditions could have catastrophic consequences. Machine Safety deals with machinery safeguarding whereas process safety deals with safety instrumented systems. Process Safety also deals with hazardous chemicals. Sometimes, chemicals are injected into a product and the two worlds can collide.

Standards that Apply to Machine Safety and Process Safety

Occupational Safety and Health Administration (OSHA) Act of 1970 (Section 5)

Known as the General Duty Clause, this establishes the expectations and legal requirements for employers to provide personnel with a place of employment that is free from recognized hazards. Employers should do what is necessary to protect their people both on and off site. This is considered practical situational awareness.

International Electrotechnical Commission (IEC) 62443 Cybersecurity Framework

This standard, referred to in IEC 61511, addresses cybersecurity for automation and control systems.

Safe Machine

International Organization for Standardization (ISO) 13849- 1, 2

This standard gives the methodology on how to assess the required performance level of the safety system and details all the information that should be contained in a safety requirements specification. This also includes standards for the verification process.

ISO 12100

This is the international standard that guides risk reduction which provides the general principles for design and how to perform risk reduction.

American National Standards Institute (ANSI) B11 Series

This standard is the North American standard that adds clarity to the two international standards including the hazard control hierarchy.

IEC 62061 - Safety of Machinery

International Standard for Electrical equipment of machines

Safe System

OSHA standard 29 CFR (Code of Federal Regulations)-1910.119 Process Safety Management of Highly Hazardous Chemicals.

Commonly referred to as OSHA 1910, this federal law under the Department of Labor gives general requirements for employers to ensure compliance with Recognized and Generally Accepted Good Engineering Practices (RAGAGEP). It also mandates a risk analysis be performed.

IEC 61511 & ANSI/ISA-61511

This standard is the most common standard used in safety instrumented systems for the process industry sector. It takes a deep dive into the entire Process Safety Lifecycle. This standard can help provide guidance on independent layers of protection, common cause failure determination, and requirements of the risk analysis.

There are other standards that apply for Machine Safety and Process Safety in areas such as fire protection, electrical safety, and risk assessments. These standards are from ISO and National Fire Protection Association (NFPA). Our Team has knowledge of industry standards and best practices. Contact us today.

Contact Us

