THE GATEKEEPER
MAN - MACHINE SAFEGUARDING NEWS FROM SCHMERSAL THE DNA OF SAFETY

OCTOBER 2020

SANITARY AND HYGIENIC DESIGN STANDARDS FOR SAFETY COMPONENTS

The food-processing industry includes many mechanically performed process steps, such as harvesting, drying, filleting, heating, shredding, crushing, mixing, filling, and packing. During these process steps, industry sanitary and hygienic standards and directives must be upheld, to prevent food borne illnesses. But machinery safety regulations must also be observed. It is highly important when selecting safety devices or command devices for food processing machines that they meet hygienic or sanitary standards.

Sanitary and hygienic are both terms used to describe a clean environment free of areas that cultivate microbial growth. Canada and USA are split between the use of the terms in their regulations.

Canada has recently released and enforced the Safe Food for Canadians Regulation (SOR/2018-108). Section 50.1 outlines that all conveyance and equipment must be maintained in a sanitary condition. The regulation does not instruct how to ensure a design is sanitary apart from making sure it "does not present a risk of contamination of a food" (50.2). It goes on to specify that equipment used in the "manufacturing, preparing, storing, packaging or labelling" (53) of food must be constructed of materials suitable for their intended use and capable of withstanding repeated cleaning and sanitizing. Furthermore, the Ontario Ministry for Agriculture, Food, and Rural Affairs (OMAFRA) goes on to explain sanitary as the treatment of a clean surface with chemical or physical agent to reduce pathogenic microorganisms. OMAFRA also spotlights control buttons and HMI, ensuring a proper procedure to clean and sanitize those devices should an inherently unsanitary product design is used.

In the United States there is the Food Safety Modernization Act (FSMA), which has been rolling out since 2011. It defines hygienic design standards in terms of following current Good Manufacturing Practices. One such practice is found the in the American Meat Institute standard AMI2003 7.1 "Human/Machine interfaces such as push buttons, valve handles, switches and touch screens, must be designed to ensure product and other residues (including liquid) do not penetrate or accumulate in or on the enclosure or interface." Other industry standards define the need for smooth surfaces (EN1672-2) and cleanability (EN1672-2, NSF 5.1, AMIF 2013). The National Sanitary Foundation (NSF) has a voluntary standard, uniformly enforced by health departments, which goes into detail about ventilation, cleanability, grease removal, and safety shut off.

In both countries, the bottom line for sanitary/hygiene is cleanability. Machine components must be able to withstand various cleaning conditions, such as high temperature/high pressure wash downs, steam cleaning, and/or harsh cleaning agents. Some certifications to look for are:

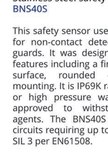
- **IP69(K) Rating** – certified for high temperature (to 176°F/80°C) and high pressure (to 1450 PSI) wash downs, a method typically used to sterilize equipment.
- **ECOLAB certification** - ECOLAB tests the efficacy of cleaning agents and certifies products for resistance to approved cleaning agents.
- **3A Sanitary** - design criteria for equipment and processing systems developed using ANSI requirements to promote acceptance by USDA, FDA and state regulatory authorities.
- **DGUV certified hygienic** - Deutsche Gesetzliche Unfallversicherung (German Social Accident Insurance) tests products based on European standards.
- **EHEDG** - European Hygienic Engineering & Design Group, another group which tests products based on European standards.
- **IPA cleanroom approved** - cleanrooms are an indispensable infrastructure and a mandatory requirement for high quality and product safety in the pharmaceutical and biotechnology industries, in addition to semiconductor, optics, aerospace, and electronics production.

For more on the **Safe Food for Canadians** regulations, check:
https://laws-lois.justice.gc.ca/eng/regulations/SOR-2018-108/page-7.html#h-844197

For more on the **Food Safety Modernization Act**, check:
https://www.fda.gov/food/guidance-regulation-food-and-dietary-supplements/food-safety-modernization-act-fsma

SCHMERSAL PRODUCT SPOTLIGHT

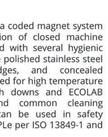
Safety devices and machine controls for hygienic applications



Stainless steel safety sensor
BNS40S

This safety sensor uses a coded magnet system for non-contact detection of closed machine guards. It was designed with several hygienic features including a fine polished stainless steel surface, rounded edges, and concealed mounting. It is IP69K rated for high temperature or high pressure wash downs and ECOLAB approved to withstand common cleaning agents. The BNS40S can be used in safety circuits requiring up to PLe per ISO 13849-1 and SIL 3 per EN61508.

Online product catalog



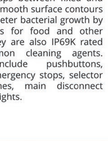
Safety Light Curtains with IP69 Housing
SLC440, SLC440COM

The SLC440 Safety Light Curtains now offer an IP69 enclosure option: The high strength Polycarbonate housing and stainless steel end caps provide high resistance to frequent cleaning with water, alkali solutions, foam, hot steam or high-pressure jets typical of hygienic applications. The SLC440 features many integrated functions, such as double reset or blanking, and status signaling from an LED end cap and 7 segment display. Now with a Bluetooth interface.
View an introduction video (YouTube)
Online product catalog
Optoelectrical Brochure

Machine controls and indicator lights
N series

These controls have been designed with flexible seals to protect the gaps between fixed and moving parts and with smooth surface contours and transitions, which deter bacterial growth by limiting possible places for food and other particles to collect. They are also IP69K rated and withstand common cleaning agents. Control devices include pushbuttons, mushroom buttons, emergency stops, selector switches, step switches, main disconnect switches, and indicator lights.

Tech Brief
Online product catalog



Hygienic housing for pushbuttons
NBGLC

The NBGLC stainless steel enclosure was designed for use in hygienic applications, ideal for machines and equipment that require constant cleaning, prevalent in the food industry. These pushbutton housings feature smooth surfaces without sharp edges, IP69 rated seals to withstand high temperature / high pressure wash downs, and a high resistance to cleaning agents. They are available in three sizes, for 1-5 devices, and compliments our N Series of IP69K rated controls.

Product flyer
Online product catalog

RESOURCES

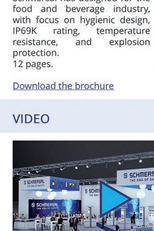
Here is a collection of reference documents on the topic of hygiene and machine safety

WEBSITE: Schmersal Industry Solutions
Food & Beverage Industry

Every industry has its specific risks and presents a different set of requirements applicable to the availability, accessibility, and the safety of the machines used.

Here we highlight the challenges in the food and beverage industry, and present industry specific products and solutions.

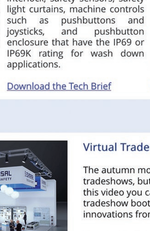
https://www.schmersalusa.com/industry/food/



BROCHURE
Food and Beverage Industry

This brochure highlights the machine safety products which Schmersal has designed for the food and beverage industry, with focus on hygienic design, IP69K rating, temperature resistance, and explosion protection.
12 pages.

Download the brochure



TECH BRIEF
IP69/IP69K Safety Devices

This one page Tech Brief covers the electronic solenoid interlock, safety sensors, safety light curtains, machine controls such as pushbuttons and joysticks, and pushbutton enclosure that have the IP69 or IP69K rating for wash down applications.

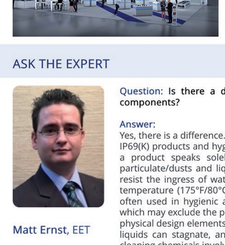
Download the Tech Brief

ARTICLE: Equipment and Control Designs for FSMA

The Food Safety Modernization Act legislation demands stricter proactive measures to prevent hazards that could affect food within that facility. This article explores the design of the equipment and controls for use hygienic applications with a focus on machine safety.

Download the article

VIDEO



Virtual Tradeshow Booth Walkthrough

The autumn months are usually a busy time for tradeshows, but unfortunately not this year. In this video you can take a tour of our virtual tradeshow booth - and check out the latest innovations from Schmersal.

View on YouTube (1:49)

ASK THE EXPERT

Question: Is there a difference between IP69 and Hygienic/Sanitary components?

Answer:
Yes, there is a difference. It is unfortunately common for industry to equate IP69(K) products and hygienic/sanitary as one in the same. The IP rating of a product speaks solely to the product's ability to resist ingress of particulate/dusts and liquid/water. In the case of IP69, it is the ability to resist the ingress of water during a high pressure (to 1450 PSI) and high temperature (175°F/80°C) wash down. While this is a method of cleaning often used in hygienic and sanitary applications, there are other factors which may exclude the product from being hygienic/sanitary. These include physical design elements, such as nooks, niches, grooves, or crevices where liquids can stagnate, and choice of materials, which may not withstand cleaning chemicals involved in food processing applications.

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Have more questions? Ask Matt: mernst@schmersal.com