EHEDG Glossary

Version 2013/12.G03

This document replaces the "Definitions of expressions relevant to hygienic processing and plant design" dated May 1991, amended Dec 1993 and Dec 2003 and the Glossary Version 2004/04.G01 and its update version 2012/06.G02.

The definitions are presented to provide uniform general interpretation of the terms, phrases and expressions used in EHEDG guideline documents and publications. Where relevant, definitions established by official standards bodies have been adopted. Some of these definitions may be qualified for use in specific guideline documents.

This document was developed in co-operation with 3-A Standards Inc.

Content

A

Aseptic equipment

Hygienically designed equipment that is sterilizable and is impermeable to microorganisms to maintain its aseptic status.

Aseptic process

A process using equipment sterilized before use, and which, in running conditions, is protected against recontamination by microorganisms.

See also

Ultra-clean process

Accessible

see

Easily or Readily Accessible

B

Bioaerosol

Dispersed biological agents in a gaseous environment. (EN ISO 14698-1)

Biocontamination

Contamination of materials, devices, individuals, surfaces, liquids, gases or air with viable particles. (ISO 14698-1)

Biofilms

A microbial consortium adhering to a surface.

NOTE: *biofilms are frequently but not in every case embedded in extra-cellular polymeric substances.*

C

CCP (critical control point)

A step at which control can be applied and is essential to prevent or eliminate a food safety hazard or reduce it to an acceptable level. (Codex)

NOTE*: All CCP must be monitored and corrections and corrective action taken in case of deviation.*

CIP (cleaning-in-place)

System that cleans solely by circulating and/or flowing chemical detergent solutions and water rinses by mechanical means onto and over surfaces to be cleaned, without dismantling (adapted form ISO 22000)

***NOTE**: CIP efficiency depends on 5T's – time, temperature, titration, turbulence and technology. When CIP is done in a dry area, it should be designed to preclude any water from passing into the environment.*

Cleanability

The suitability of materials or equipment to be freed from soil easily.
See also Comparative cleanability

Cleaning

The removal of soil, food residues, dirt, grease or other objectionable matter. (Codex)

Cleanroom

Room in which the concentration of airborne particles is controlled, and which is constructed and used in a manner to minimize the introduction, generation, and retention of particles inside the room, and in which other relevant parameters e.g. temperature, humidity, and pressure, are controlled as necessary. (EN ISO 14698-1)

Coatings

The result of a process where a different material is deposited to create a new surface. (3-A)

***NOTE:** coating creates a build-up of new material.*

Commercial sterilization

(see Sterilization)

Comparative cleanability

The cleanability of equipment relative to a reference.

Conditions for intended use

All normal and reasonably anticipated operating conditions, including those of cleaning. These conditions should include limits for variables such as time, temperature and concentration.

***NOTE**: In the EHEDG context, this expression applies in relation to equipment and parts or other elements e.g. of building, and not in the context of product and consumer*

Contaminant

Any biological or chemical agent, foreign matter or other substance not intentionally added to food, which may compromise food safety or suitability. (Codex)

Contamination

The introduction or occurrence of a contaminant in food or food environment. (Codex)

Controlled environment

(see

Zoning)

Control measure

Any action and activity that can be used to prevent or eliminate a food safety hazard or reduce it to an acceptable level. (Codex)

***NOTE**: Control measures are established after the implementation of good hygienic practices (GHP) to control hazards that were not sufficiently prevented, eliminated or reduced by the GHP.*

COP (cleaning-out-of-place)

see also

Wet cleaning

System where equipment is disassembled and cleaned in a tank or in an automatic washer by circulating a cleaning solution and maintaining a minimum temperature throughout the cleaning cycle. (ISO 22000)

***NOTE**: COP can be done manually or mechanically when the equipment is partially or totally disassembled.*

Corrective action

Actions implemented to eliminate the cause of a detected nonconformity or other undesirable situation. (ISO 22000)

***NOTE**: Corrective actions concerns processes. The purpose of corrective action is to re-establish compliance with the critical limit and thus ensure that the control measure recovers the expected effect. In particular, for drift on a CCP, analysis needs to be run to determine the root cause(s) that led to overrun on the critical limits. (NF V01-006)*

Correction

Action to eliminate a detected nonconformity. (ISO 22000)

***NOTE:** Corrections concern products (NF V01-006). A correction may be, for example, reprocessing, further processing, and/or elimination of the adverse consequences of the nonconformity (such as disposal for other use or specific labeling) (ISO 22000).*

Crevice

Any cavity that can harbor or shelter contaminants such as microbiological cells, resulting from improper hygienic design or from damage of material, such as cracking, corrosion or wear.

D

Dead area/space

Internal section, area or space in equipment wherein a product, ingredient or other extraneous matter may be trapped or retained and wherein the flow rate of agents used for cleaning, disinfection or rinsing is reduced or nil, resulting in accumulation of dirt and inefficacy of cleaning, disinfection and rinsing.

Diaphragm

A thin sheet of material forming a non-porous partition between the product and a measuring sensor or an actuator.

Disinfectant

A chemical used after cleaning in order to reduce the population of viable microorganisms remaining on a surface.

NOTE 1: *A disinfectant is not expected to kill all microorganisms of any type, including spores (see* Sterilization*).*

NOTE 2: *Specifically in USA, the terms sanitizer is more commonly used in the food industry (see* Sanitizer (USA)*)*

Disinfection

The reduction, by means of chemical agents and/or physical methods, of the number of microorganisms in the environment, to a level that does not compromise food safety or suitability. (Codex)

NOTE 1: *the destruction of microorganisms, but not usually bacterial spores (BSI 5283). Disinfection reduces microorganism population to a level acceptable for a defined purpose e.g. a level which is harmful neither to health nor to the quality of food.*

NOTE 2: *Specifically in USA, the term sanitization is more commonly used in the food industry (see*

Sanitation*)*

Dry-cleaning

Cleaning which does not involve any use of water.

NOTE 1: *Dry cleaning is used in equipment and in the environment to prevent or reduce the build-up of objectionable matters such as residues of aged or modified product.*

NOTE 2: *Dry cleaning is mostly done manually using brushes and/or vacuum cleaners.*

E

Easily or Readily Accessible

A location that can be safely reached by a personnel from the floor, platform, or other permanent work area. (3-A)

Easily or Readily removable

Quickly separated from the equipment with the use of simple hand tools if necessary. The latter are implements normally used by fitters, operating and cleaning personnel such as a screwdriver, a wrench or hammer. (3-A)

F

Food hygiene

All conditions and measures necessary to ensure the safety and suitability of food at all stages of the food chain. (Codex)

Food safety

Assurance that food will not cause harm to the consumer when it is prepared and/or eaten according to its intended use. (Codex)

Food suitability

Assurance that food is acceptable for human consumption according to its intended use. (Codex)

NOTE*: Suitability is now preferred to 'wholesomeness'.*

G

GHP (Good hygiene practices)

Measures applicable throughout the food chain (including primary production through to the final consumer), to achieve the goal of ensuring that food is safe and suitable for human consumption.

NOTE 1: *GHP are prerequisite programs as defined in ISO 22000 (see* PRP (prerequisite program)*).*

NOTE 2: Application of GHP is a prerequisite before any HACCP study. (see

HACCP (Hazard Analysis Critical Control Point)*)*

GLP (Good laboratory practices)

The means by which laboratory work is planned, performed, monitored and recorded to ensure accuracy and reliability of results, safety and efficiency in the laboratory.

GMP (Good manufacturing practices)

All procedures, processes, practices and activities aimed at ensuring that the suitability and safety objectives are met consistently.

NOTE *1: GMP are prerequisite programs as defined in ISO 22000 (see* PRP (prerequisite program)*).*

NOTE *2: GMP do apply throughout the food chain.*

H

HACCP (Hazard Analysis Critical Control Point)

A system which identifies evaluates and controls hazards that are significant for food safety. (Codex)

NOTE: *A HACCP study must be performed during the development of new products and processes,*

covering thus new equipment, and when changes are made on existing lines or to products

Hazard

A biological, chemical or physical agent in, or condition of, food with the potential to cause an adverse health effect. (Codex)

Hazard analysis

The process of collecting and evaluating information on hazards and conditions leading to their presence to decide which are significant for food safety and therefore should be addressed in the HACCP plan. (Codex)

***NOTE** 1: Hazard analysis is a crucial step in the implementation of an HACCP plan.*

***NOTE** 2: Hazard analysis must not be confused with risk analysis.*

High care areas

see

Zoning

Hollow body

Void spaces, inaccessible to cleaning, which may become sources of contamination

Hygiene

see

Food hygiene

Hygiene areas – low, medium and high

see

Zoning

Hygienic design and engineering

Design and engineering of equipment and premises assuring the food is safe and suitable for human consumption.

Hygienic equipment class I

Equipment that can be cleaned in-place and can be freed from relevant microorganisms without dismantling.

Hygienic equipment class II

Equipment that is cleanable after dismantling and can be freed from relevant microorganisms after reassembly.

Hygienic Integration

The process of combining or arranging two or more pieces of equipment or components to work together in a hygienic manner.

I

Indicator microorganisms

Microorganisms whose presence indicates a failure of a GHP.

***NOTE**: The number present is assumed to be related to the probability of contamination of a product with a pathogenic microorganism*.

Intended conditions of Use

see Conditions for intended use

In-place cleanability (see also CIP)

see also CIP (cleaning-in-place)

The suitability to be easily cleaned without dismantling.

L

Low (Basic) care areas

see

Zoning

M

Manual cleaning

Removal of soil when the equipment is partially or totally disassembled.

***NOTE:** Soil removal is effected with chemical solutions and water rinses with the assistance of one or a combination of brushes, non-metallic scouring pads and scrapers, and high or low pressure hoses, with cleaning aids manipulated by hand.*

Mechanical cleaning

Cleaning solely by circulating and/or flowing chemical detergent solutions and water rinses onto and over the surfaces to be cleaned, by mechanical means.

Medium care areas

see

Zoning

Membrane

A sheet of porous material that is permeable to a liquid.

***EXAMPLE**: a reverse osmosis membrane for water treatment*

Microbial impermeability/tightness

The ability of material or equipment to prevent the ingress of bacteria, yeasts and moulds from the outside (environment) to the inside (product area).

Microorganism

Microorganisms are living organisms that can be seen only with the aid of a microscope.

***NOTE** 1: Microorganisms include bacteria, archaea, viruses, and certain protozoa, algae and fungi.*

***NOTE** 2: most microorganisms are unicellular.*

Monitoring

Conducting a planned sequence of observations or measurements to assess whether control measures are operating as intended. (ISO 22000)

***NOTE**: Monitoring is done **while** the control measures are operating.*

N

Non-absorbent materials

Materials which, under the intended conditions of use, do not internally retain substances with which they come into contact.

Non-product contact surfaces

see also Product contact surfaces

Exposed surfaces from which splashed product, condensate, liquids, or other materials cannot drain, drop, diffuse or be drawn into or onto the product, product contact surfaces, open packages, or the product contact surfaces of package components.

Non-toxic construction materials

Materials which do not release toxic substances under intended conditions of use.

P

Pasteurization

A microbiocidal heat treatment aimed at reducing the number of any harmful microorganisms, if present, to a level at which they do not constitute a significant health hazard. (Codex)

***NOTE 1**: in the present context, harmful is synonymous to pathogenic (see pathogenic microorganism).*

***NOTE 2:** most bacterial spores are not inactivated by pasteurization. Yet, as regards pathogenic sporeformers such as* *Clostridium botulinum,* they can grow in pasteurized milk only if there is anaerobiosis and the milk is not refrigerated.

This is because of these severe limiting conditions that there was no reference to spores in the definition.

***NOTE 3**:* in the EHEDG context, pasteurization applies to equipment as well as to food.

Pathogenic microorganisms

Microorganisms that can cause adverse health effects.

See also **Indicator microorganisms**,

Relevant microorganisms

PRP (prerequisite program)

Food safety basic conditions and activities that are necessary to maintain a hygienic environment throughout the food chain suitable for the production, handling and provision of safe end products and safe food for human consumption (ISO 22000).

NOTE*: The PRPs needed depend on the segment of the food chain in which the organization operates and the type of organization. Examples of equivalent terms are: Good Agricultural Practice (GAP), Good Veterinarian Practice (GVP), Good Manufacturing Practice (GMP), Good Hygienic Practice (GHP), Good Production Practice (GPP), Good Distribution Practice (GDP) and Good Trading Practice (GTP).*

oPRP (operational prerequisite program)

PRP identified by the hazard analysis as essential in order to control the likelihood of introducing food safety hazards to and/or the contamination or proliferation of food safety hazards in the product(s) or in the processing environment (ISO 22000).

Pathogenic microorganisms

Microorganisms that can cause adverse health effects.

See also **Indicator microorganisms,**

Relevant microorganisms

Potable water

Water intended for human consumption according to the specifications of the World Health Organization.

NOTE: *Potable water must comply with national legislation.*

Product

Food or food ingredient that is processed in the equipment.

Product contact surfaces

Surfaces which are exposed intentionally or unintentionally to the product and surfaces from which splashed product, condensate, liquids or material may drain, drop, diffuse or be drawn into the product or onto product contact surfaces or surfaces that come into contact with product contact surfaces of packaging materials.

NOTE*: Product contact surfaces may contribute to cross-contamination, and must therefore be included in the hazard analysis.*

R

Relevant microorganisms

Microorganisms able to contaminate, multiply or survive in the product and be harmful to the consumer or product quality.

Removable

see Easily or Readily removable

Rinsing

Removal of product, dirt, chemicals, cleaning residues or any objectionable matter by flowing potable water

***NOTE**: rinsing is done prior to cleaning, between cleaning and disinfection, after disinfection, and additionally can be done before a production run*

Risk

A function of the probability of an adverse health effect and the severity of that effect, consequential to a hazard(s) in food. (Codex)

***NOTE 1:** In Codex terminology 'risk' relates to food safety and not to quality related matters. It is expressed as the probability or frequency of an adverse health effect caused by a specified hazard e.g." the risk of disease D in Country X is n for 100 000 person per year".*

***NOTE 2:** In non Codex context, risk is synonymous to probability or likelihood.*

Risk analysis

A process consisting of three components: risk assessment, risk management and risk communication. (Codex)

***NOTE**: Whereas hazard analysis is under the responsibility of food manufacturers, risk analysis is a public health matter.*

Risk Assessment

A scientifically based process consisting of the following steps: (i) hazard identification, (ii) hazard characterization, (iii) exposure assessment, and (iv) risk characterization. (Codex)

***NOTE**: Risk assessment is the scientific part of the risk analysis process in which the hazards and risk factors are identified and the risk is calculated.*

Apart from an end point calculation of risk, the risk model developed can be of value in determining the parts of the chain which contribute most to risk or to investigate the effect of changes in practices or processes throughout the chain on the risk level.

Hazard identification identifies particular hazards in a product or process;

Hazard characterization relates exposure to the hazard with a public health effect (illness, death) frequently by assessing the dose-response relationship;

Exposure assessment estimates the intake/exposure of the hazard by/of the consumer; risk characterization calculates the risk from the exposure (intake) and dose-response estimate (effect).

Risk Management

The process, distinct from risk assessment, of weighing policy alternatives, in consultation with all interested parties, considering risk assessment and other factors relevant for the health protection of consumers and for the promotion of fair trade practices, and, if needed, selecting appropriate prevention and control options. (Codex)

NOTE 1: *Risk managers are governmental, national or international, organizations (Codex).*

NOTE 2: *Risk management is a political evaluation of the acceptability of the risks and the enforcement of measures to reduce these risks if necessary.*

Risk Communication

The interactive exchange of information and opinions throughout the risk analysis process concerning risk, risk-related factors and risk perceptions, among risk assessors, risk managers, consumers, industry, the academic community and other interested parties, including the explanation of risk assessment findings and the basis of risk management decisions. (Codex)

NOTE 1: *Risk communication involves transparent communication between the risk assessors (scientists) and the risk managers (national or international governmental organizations).*

NOTE 2: *The results of risk assessment and risk management should be communicated widely to the relevant stakeholders, including consumers.*

Risk zone

see

Zoning

S

Sanitation

Cleaning, disinfection if necessary, pest control and waste management. (Codex)

NOTE*: Sometimes used in place of* ***hygiene****.*

Sanitizing or Sanitization (USA)

A process applied to a cleaned surface capable of reducing the numbers of the most resistant human pathogens by at least 5 $\log_{10}$ reductions (99.999%) to 7 $\log_{10}$ reductions (99.99999%) by applying accumulated hot water, hot air, or steam, or by applying an EPA-registered sanitizer according to label directions. Sanitizing may be effected by mechanical or manual methods using hot water, steam, or an approved sanitizer.

NOTE 1: *The word disinfection is preferred in Codex texts and in Europe*

NOTE 2: *The conditions in which the processes are applied seldom enable to achieve the number of reductions obtained in laboratory tests.*

Sanitizer (USA)

A substance that reduces the microbial contaminants on inanimate surfaces to levels that are considered safe for public health. According to the official food contact surface sanitizer test, a

sanitizer is a chemical that reduces the microbial contamination of two standard organisms, *Staphylococcus aureus* and *Escherichia coli*, by 99.999% or 5 logs in 30 seconds, at 25°C. Non-food contact sanitizers must reduce contamination by 99.9% or 3 logs in 5 minutes.

NOTE 1: *The word* **Disinfectant** *is preferred in Codex texts and in Europe*

NOTE 2: *The conditions in which the substances are applied seldom enable to achieve the number of reductions obtained in laboratory tests.*

Soil

Any undesirable/objectionable material on surfaces in the equipment or process environment.

NOTE: *Soil may or may not contain microorganisms*

Splash contact surfaces

Non-product contact surfaces that during normal use are subject to accumulation of soil and which require routine cleaning to avoid soil to drop or to be drawn into the main product or container. (see Product contact surfaces)

Sterilization

A process effected by chemicals, heat or other physical means, aimed at removing or killing all forms of microorganisms, including bacterial spores.

NOTE 1: *In the US, "commercial sterilization" refers to the inactivation of all organisms of significance to public health and the absence of spoilage under normal conditions of storage.*

NOTE 2: *In the UK, still used to denote disinfection.*

NOTE 3: *Sterilization can equally apply to treatment of food or equipment.*

Sterilization-in-Place

Sterilization without dismantling

Surface rupture

Breaking or tearing of a surface usually obtained through the impact of a shot- or bead blasting medium. Under magnification, the damage to the surface will generally appear like fish scales, of which the openings face the source of the blasting medium. These areas can harbor soils and microorganisms and be difficult to clean. (see Crevice)

Surface treatment

A process whereby chemical or mechanical properties of the existing surface are altered.

NOTE 1: *There is no appreciable build-up of new material or removal of existing material.*

NOTE 2*: Examples of surface treatment are grinding, polishing, shot peening, surface hardening by laser or electron beam, carburizing, nitriding, etching, oxidation, passivation, ion implantation, electropolishing.*

U

Ultra-clean process

A process using equipment disinfected before use and protected against recontamination by microorganisms that may harm the safety and suitability of the product.

NOTE*: Measures for reduction of microbial load and against recontamination are less stringent than those applied for an aseptic process.*

V

Validation

Obtaining evidence that the control measures managed by the HACCP plan and by the operational PRPs are capable of being effective. (ISO 22000)

NOTE 1: *Validation is done before the application of a new process, or of a modified process.*

NOTE 2: *Validation requires that performance be measured against an expected outcome. For validation of an individual control measure or a defined combination of control measures, the expected outcome frequently will be expressed in terms of a performance criterion (e.g., reduction of the level of Salmonella by 99.999% [5-log reduction]). (Codex)*

Verification

Confirmation, through the provision of objective evidence, that specified requirements have been fulfilled. (ISO 22000)

NOTE 1*: Verification is done* ***after*** *a process, a control measure, etc. has been implemented.*

NOTE 2: *In the context of a food safety control system: The application of methods, procedures, tests and other evaluations, in addition to monitoring, to determine whether a control measure is or has been operating as intended outcome (Codex).*

W

Wet cleaning

Cleaning (and disinfection if necessary) of equipment or processing environment with aqueous solutions of detergent (and disinfectant if necessary) followed by rinsing.

NOTE 1*: Wet cleaning procedure should be carried out only when the product is not exposed using methods that limit the amount of water applied and its spread.*

NOTE 2: *Use as little water as possible and to be as dry as possible rapidly after cleaning are highly recommended practices.*

Z

Zoning

The physical or visual division of the plant into sub-areas, leading to the segregation of different activities with different hygiene levels.

Related terms and explanations. The following are proposals for use in EHEDG Recommendations.

Controlled environment refers to all zoning but may relate more to the high hygiene case.

Zoning cannot be defined for all plants and processes in black and white as there will always be site specific aspects that play a role. Most important is that zoning fits into the overall plan of prevention with respect requirements of process and safety of consumers.

High hygiene = high care or high risk

IDF states: a critical hygienic area within the plant where products and ingredients vulnerable to contamination and/or microbial growth are processed, treated, handled or stored.

An area within a plant's zoning plan where the following products and ingredients are processed or stored – either those destined for a highly susceptible consumer group, or ready for consumption, or those which will be handled in a refrigerated supply chain and which are susceptible to growth of pathogenic microorganisms such as *Listeria monocytogenes*.

NOTE: *The term* ***"high risk area"*** *could also be used for a zone where there is a high concentration of pathogens e.g. in fresh meat and chicken, raw cocoa bean, fresh raw milk and vegetable areas. These areas present a high risk for other process areas and there should be adequate barriers to stop spread of pathogens.*

High hygiene area *is equivalent to clean room in the context of food industry****.***

Medium hygiene = medium care or medium risk

Can be a process area for products, susceptible to contamination but where the consumer group is not especially sensitive and where also no further growth is possible in the product in the supply chain. Can also be the intermediate area leading into the high hygiene zone but where access is only across certain barriers.

Low (Basic) hygiene = low care or low risk

Low (basic) relative to others but where minimal GHP must be applied.

Low (basic) hygiene areas can be sub-divided as proposed in EHEDG Doc. 26 on dry materials.

An area where products are not susceptible to contamination and are protected in their final packages. Can also be an area where raw materials are handled before being subjected e.g. to a microbiocidal treatment.

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IDF. International Dairy Federation/Fédération International de Laiterie, 70/B, Boulevard Auguste Reyers, 1030 Brussels - Belgium
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