

3-A® Sanitary Standards for Equipment for Packaging Dry Products, Number 27-07

Standards Developing Organizations
 3-A Sanitary Standards, Inc. (3-A SSI)
 In collaboration with
 United States Public Health Service (USPHS)/
 United States Food and Drug Administration (USFDA)
 United States Department of Agriculture (USDA)
 European Hygienic Engineering & Design Group (EHEDG)

Note: The **highlighted** text denotes changes to the previous document.

It is the purpose of 3-A SSI, USPHS/USFDA, USDA, and EHEDG in connection with the development of the 3-A Sanitary Standards Program to allow and encourage full freedom for inventive genius or new developments. Dry milk and dry milk products packaging equipment specifications heretofore or hereafter developed which so differ in design, materials, and fabrication or otherwise as not to conform to the following standards but which, in the fabricator's opinion, are equivalent or better, may be submitted for the joint consideration of 3-A SSI, USPHS/USFDA, USDA, and EHEDG at any time. The 3-A Sanitary Standards and 3-A Accepted Practices provide hygienic criteria applicable to equipment and systems used to produce, process, and package milk, milk products, and other perishable foods or comestible products. Standard English is the official language of 3-A Sanitary Standards and 3-A Accepted Practices.

A SCOPE

A1 These standards cover the sanitary aspects of equipment for performing the functions of holding, forming, dispensing, filling, weighing, deaerating, closing, and/or sealing containers, and all parts which are essential to these functions when they are performed as an integral part of the packaging operation. These standards do not pertain to the container nor to a duct(s) which is not a part of the packaging equipment.

A2 In order to conform to these 3-A Sanitary Standards, equipment for packaging dry milk and dry milk products shall conform to the following design, material, and fabrication criteria and the applicable documents referenced herein.¹

B DEFINITIONS

B1 *Product:* Shall mean dry milk and dry milk products.

B2 *Container:* Shall mean a packaging enclosure holding the product, including multi-wall bags.

B3 *Holding, Opening, Forming, and Dispensing Equipment:* Shall mean all equipment for holding, opening, forming, and dispensing the empty container.

B4 *Filling Equipment:* Shall mean the equipment for mechanically filling the container with the product.

B5 *Closing and Sealing Equipment:* Shall mean the equipment for mechanically closing and sealing the container.

B6 Surfaces

B6.1 *Product Contact Surfaces:* Shall mean all surfaces which are exposed to the product, surfaces from which other materials may drain, drop, or be drawn into the product or into the container, and surfaces that touch product contact surfaces of the container.

B6.2 *Nonproduct Contact Surfaces:* Shall mean all other exposed surfaces.

B7 *Coatings:* Shall mean the results of a process where a different material is deposited to create a new surface. There is appreciable, typically more

¹ Use current revisions or editions of all referenced documents cited herein.

than 1 µm, build-up of new material. The coating material does not alter the physical properties of the substrate.

B7.1 Coating processes include:

1. Chemical (conversion coatings)
2. Engineering Plating (e.g., Electrodeposition², gold plating)
3. Thermal spraying (e.g., flame, plasma, arc spray)
4. Physical Vapor Deposition
5. Chemical Vapor Deposition
6. Overlays and Encapsulation

B8 *Scale Pans:* Shall mean removable filling equipment components used for holding or transporting product.

B9 *Sintered Material:* Shall mean a porous component which is molded by bonding small particles of a base material(s) through a combination of heat and pressure.

C **MATERIALS**

C1 **Metals**

C1.1 Product contact surfaces shall be of stainless steel of the American Iron and Steel Institute (AISI) 300 Series³ or corresponding Alloy Cast Institute (ACI) types⁴ (See Appendix, Section E), or metal which under conditions of intended use is at least as corrosion resistant as stainless steel of the foregoing types, and is nontoxic and nonabsorbent, except that:

C1.1.1 Bearings may be made of metal covered with an engineering plating of nickel, chromium, or equally corrosion-resistant nontoxic material.

C1.1.2 Surfaces of container holding, forming, opening, dispensing, closing, or sealing components which touch the product contact surfaces of the container

² Federal Specification #QQ-C-320B for Chromium Plating (Electrodeposited), with Amendment 4. Federal Specification #QQ-N-290A for Nickel Plating (Electrodeposited). Available from the General Services Administration, Federal Supply Services Bureau, Specification Section, 470 East L'Enfant Plaza, Suite 8100, Washington, DC 20407 (202) 755-0325.

³ The data for this series are contained in the *AISI Steel Products Manual, Stainless & Heat Resisting Steels*, Table 2-1. Available from the American Iron and Steel Society, 410 Commonwealth Drive, Warrendale, PA 15086 (412) 776-1535.

⁴ Steel Founders Society of America, Cast Metal Federation Building, 455 State Street, Des Plaines, IL 60016 (708) 299-9160.

or from which contaminants may drain, drop, or diffuse into the container may be made of a nontoxic, nonabsorbent metal that is corrosion resistant under conditions of intended use or may be made of metal made corrosion resistant and wear resistant by surface coatings.

C1.2 Silver soldered or brazed areas and silver solder or brazing material shall be nontoxic and corrosion resistant.

C2 **Nonmetals**

C2.1 Rubber and rubber-like materials may be used for container opening, dispensing, and closing parts, filling nozzles, flexible connectors, plungers, bonded or removable gaskets, diaphragms, shields, filling valve members, seals, and parts used in similar applications.

C2.1.1 Rubber and rubber-like materials, when used for the above-specified applications, shall conform to the applicable provisions of the 3-A Sanitary Standards for Multiple-Use Rubber and Rubber-Like Materials Used as Product Contact Surfaces in Dairy Equipment, Number 18-.

C2.2 Plastic materials may be used for container holding, opening, forming, dispensing, and closing parts, filling nozzles, flexible connectors, plungers, bonded or removable gaskets, diaphragms, shields or guards, filling valve members, covers, seals, diverting aprons, screening and perforated media, screen frame assemblies, sintered deaeration probes, and parts used in similar applications.

C2.2.1 Plastic materials, when used for applications specified in C2.2, shall conform to the applicable provisions of the 3-A Sanitary Standards for Multiple-Use Plastic Materials Used on Product Contact Surfaces for Dairy Equipment, Number 20-, except for sintered deaeration probes which shall meet the requirements of 21 CFR Parts 170-199 or otherwise accepted by Food and Drug Administration for food contact.

C2.3 The final bond and residual adhesive, if used, of bonded rubber and rubber-like materials and bonded plastic shall be nontoxic⁵.

⁵ Adhesives shall comply with 21 CFR 175 - Indirect Food Additives: Adhesives and Components of Coatings. Document for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 (202) 512-1800.