

Which grades of Stainless Steel are suitable for Food Contact?

Stainless Steel is an ideal material for product contact however it is the end user's responsibility to ensure that the right grade of stainless steel is used for a particular product.

ANSI (American National Standards Institute)

When used in a food zone, stainless steel shall have a minimum chromium content of 16%. Stainless steel with a chromium content of less than 16% may be used for cutlery, blades, and similar applications requiring a sharp edge.

FDA 21 CFR 211.65 Equipment Construction.

Equipment shall be constructed so that surfaces that contact components, in-process materials, or drug products shall not be reactive, additive, or absorptive so as to alter the safety, identity, strength, quality, or purity of the drug product beyond the official or other established requirements.

Stainless Steel is an iron and carbon alloy to which may other elements are added. The different types of stainless steels are made by varying the concentration of these different elements.

Sampling Systems routinely use the following grades of stainless steel:

Stainless Steel Grade	Carbon (%)	Chromium (%)	Nickel (%)	Molybdenum (%)
316	< 0.08	16.00 to 18.00	10.00 to 14.00	2.00 to 3.00
316L	< 0.03	16.00 to 18.00	12.00 to 15.00	2.00 to 3.00
304	< 0.08	18.00 to 20.00	8.00 to 10.50	-
420	< 0.15	12.00 to 14.00	< 1.00	-

316 and 316L

This is the grade of stainless steel most commonly used as a product contact material within the pharmaceutical industry. 316L is the 'Low Carbon' version of 316 stainless steel. Both 316 and 316L stainless steels have excellent corrosion resistance.

304 Stainless Steel

304 stainless steel has very good corrosion resistance but not quite as good as grades 316 or 316L. 304 stainless steel is commonly used as a product contact material in the food industry.

420 Stainless Steel

The grade of stainless steel has good corrosion resistance. Grade 420 stainless steel is frequently used for surgical instruments and scissors. Due the 'springy' nature of 420 stainless steel it is ideal for use in palette knives and scrapers.