

Moly's in the kitchen

Is molybdenum key to the perfect sear on scallops? Type 316 stainless steel cookware provides unparalleled functionality for professional and amateur chefs alike. Pots, pans and other cooking products made with this alloy are both corrosion and high-temperature resistant. Molybdenum helps cookware to perform at the highest level for decades, even in industrial kitchens.

What makes a great meal? Usually, quality ingredients come to mind. But the materials used to prepare and cook food are also important. Just like certain oils perform better than others at high temperatures, so do certain materials. Stainless steel works brilliantly and remains unaffected even when repeatedly heated up. The ability to tolerate heat opens a smorgasbord of culinary possibilities: stainless steel cookware can sear, fry, flambé, or go in an oven at 250°C for the ultimate cooking versatility.

Metallurgy meets food science

Getting a delicious sear on a piece of meat or tofu is a delight – but it does not come easily. Robust cast iron pans can create that tasty crust and are known for maintaining a uniform heat. But cast iron is porous. To make it non-stick and give foods that perfect sear, cast iron must be seasoned by oils binding with the porous surface in a process called polymerization. The bind, which will not be removed by appropriate cleaning, will degrade in the oven at high heat. Seasoning is part of cast iron's appeal, but it significantly limits which foods can be cooked with the pan and at what temperature. Cast iron is also too heavy for some people to use, and it is prone to rust. Enameled cast iron cookware won't rust, but its coating is somewhat fragile and can easily chip.

➤ Food turns from pink to brown and crispy through a chemical phenomenon known as the “Maillard Reaction.”



Non-stick cookware is coated with polymers that prevent the sticking of delicate foods like eggs or fish but also inhibit the forming of that delicious crust. The fragility of the coating also limits the pan's life. Some non-stick coatings were linked in the past to health concerns when overheated. The harmful constituents have been phased out by major manufactures, and today these coatings are considered safe in normal use.

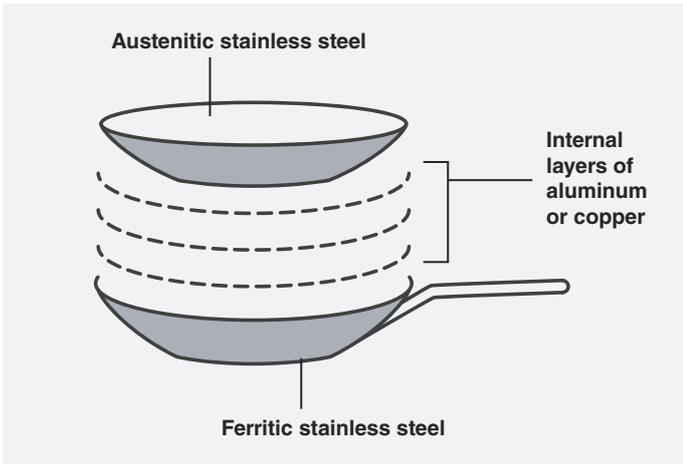
Aluminum and copper are popular cookware materials because they are excellent conductors of heat. However, these materials are reactive, and cooking highly acidic or alkaline foods can impair the quality of a dish. Most notoriously, these metals can produce a tinny taste when cooking acidic products like tomatoes.

Stainless steel needs no coating nor seasoning to brown food impeccably. Many chefs also desire the flavorful layer of “fond”, the bits of caramelized food that stick to the bottom of stainless steel pans. When deglazed, this fond makes an excellent base for sauces and soups. Some cookware made with Type 316 stainless steel needs less fat or broth than other cooking materials, which preserves the original flavor of food and maintains its nutrients. And an Italian manufacturer developed a technology known as URA (Ultra Resistant Application) to make stainless steel pans more non-stick without any coating.

Austenitic stainless steels like Type 316 offer many benefits, but they are not the best conductor of heat. If cookware were made with only this material, heat would concentrate directly above the burner rather than spreading evenly across the pan's base. This can lead to hot spots over the flame, where food can easily burn without constant attention and stirring. Therefore, high-quality pots and pans also contain internal layers of aluminum or copper to boost heat conductivity. Either the entire cookware consists of multiple layers of metal, or its bottom is made of a “sandwich” disc consisting of a high-conductivity metal encapsulated by stainless steel. Some manufactures use ferritic stainless steel as the outside or bottom layer of their cookware. Why? Because ferritic grades are magnetic, and increasingly popular induction stoves only work with magnetic materials – non-magnetic austenitic cookware will simply not heat on these stoves. These multi-layered designs work on any stove and combine excellent heat distribution with all the benefits of stainless steel.

Bacteria beware

Stainless steel cookware is non-porous, preventing tiny deposits of odor and harmful bacteria from growing. This non-porous surface is also easy to clean, either by hand or in the dishwasher. Regular dish soap and baking soda or vinegar are generally all that is needed to remove any stains. One way to brighten up a well-loved pot or pan is to pour in some baking soda and water, bring it to a boil,



➤ Stainless steel pots and pans work best when the stainless steel layers sandwich high-thermal conductivity metals such as aluminum or copper.

➤ Like many stainless steel products, cookware receives scrupulous grinding, polishing and finishing.

then scrub in the film left behind by the evaporated water with a soft brush. However, in a commercial environment, stainless steel cookware withstands repeated cleaning and even disinfecting with strong detergents required by the food and hospitality industries. Because these industrial cleaning processes can corrode and damage the surface of other materials, Type 316 stainless can provide benefits to these industries. Stainless steel's smooth, non-reactive surface and cleanability make it a popular material throughout the food supply chain, in commercial kitchens, in food and beverage processing plants and in the home.

Different materials excel at different things, but overall, stainless steel offers the widest versatility paired with the lowest maintenance requirements – and it is almost indestructible. Thanks to the addition of 2% molybdenum, cookware made with Type 316 or Type 316Ti stainless steel is among the most corrosion resistant available. Cookware of this alloy not only reduces costs for industrial equipment replacement but also provides home chefs with a lifetime of culinary escapades and a family heirloom for generations. (Karlee Williston)

➤ Stainless steel cookware is durable and non-reactive.

