NO PREP

Cleaning vs. Sanitizing

They Are Not the Same Thing

Includes: Student reading, case study, differentiated questions, teacher key

Name: Period: Date:

Cleaning vs. Sanitizing: They Are Not the Same Thing

Two Different Jobs

Ask most people to clean a kitchen counter and they will wipe it with a soapy cloth and consider the job finished. In food safety terms they have completed exactly half of a two-part process, and the half they skipped is the half that kills anything. Cleaning and sanitizing are different operations with different chemicals, different goals, and a required order. Cleaning removes visible soil: grease, food particles, dust, and residue. It is a physical process driven by detergent, water, friction, and time. Sanitizing reduces the number of microorganisms on an already-clean surface to safe levels, using either heat or a chemical sanitizer. The order is not negotiable, and understanding why is the key to the entire reading. Sanitizers work by contacting microorganisms directly. Any layer of grease, food film, or detergent residue between

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The Chemistry of Getting Things Clean

Four factors determine whether cleaning actually works, and adjusting one usually means adjusting another. The first is the cleaning agent itself. Detergents handle everyday grease and food soil. Degreasers, which are strongly alkaline, cut baked-on

fat in ovens and hoods. Delimers, which are acidic, remove the mineral scale that builds up in dish machines, steam tables, and coffee equipment in hard-water areas. Abrasive cleaners handle stubborn deposits but scratch soft surfaces, and a scratched surface is a worse surface because scratches shelter bacteria. The second factor is temperature. Warmer water dissolves soil more effectively, which is why dish machines run hot. The third is agitation, meaning the scrubbing, spraying, or brushing that physically breaks soil loose. The fourth is contact time, the length of time the agent stays on the surface doing its work. Weakness in one factor can sometimes be compensated for by strength in another, which is why a long soak substitutes for hard scrubbing. Two rules override the chemistry. Never mix cleaning chemicals, because combining bleach with an acidic or ammonia-based product releases toxic gas that has killed workers in real incidents. And always store chemicals in labeled containers, below and away from food, never in a container that once held food or drink. That last rule has a body count behind it. Sanitizer or degreaser poured into an unlabeled water bottle or a used soda cup has been swallowed by workers and by children in real incidents, and it is the most common chemical hazard health inspectors write up in small kitchens.

Sanitizers and the Numbers That Matter

Sanitizing happens two ways: heat or chemicals. Heat sanitizing means immersing an item in water at 171 degrees F or above for at least thirty seconds, or running it through a high-temperature dish machine whose final rinse reaches 180 degrees F, or 165 degrees F at the dish rack in a stationary machine. Chemical sanitizing is far more common for surfaces and uses one of three approved compounds, each with its own concentration and contact time. Chlorine, usually plain unscented bleach, works at 50 to 100 parts per million with a contact time of about seven seconds, is inexpensive and fast, but corrodes metal and loses strength quickly in light and heat. Iodine works at 12.5 to 25 parts per million with about thirty seconds of contact, is gentle on skin, but stains surfaces and fails in water above 120 degrees F. Quaternary ammonium compounds, called quats, work at roughly 200 parts per million with thirty seconds of contact, are stable and non-corrosive, but are affected by water hardness and cost more. Concentration is verified with test strips, which are the entire point of the system. A sanitizer solution that is too weak does not kill; one that is too strong is a chemical contaminant on food surfaces and can be a health

hazard on its own. Four conditions change how any sanitizer performs and all four are worth checking when something is not working: concentration, contact time, water temperature, and water hardness. A solution mixed correctly in very hard water or applied for two seconds instead of thirty is a solution that failed, even though the label was followed.

The Three-Compartment Sink

Where dishes are washed by hand, the standard is a three-compartment sink and a five-step sequence that a surprising number of people run out of order. Step one happens before the sink at all: scrape and pre-rinse to remove leftover food, which keeps the wash water usable far longer. Step two is the first compartment, wash, filled with detergent and water at 110 degrees F or above. Step three is the second compartment, rinse, filled with clean water to remove detergent residue, since leftover detergent will neutralize the sanitizer in the next step. Step four is the third compartment, sanitize, holding either hot water at 171 degrees F or a chemical solution at the correct concentration for its required contact time. Step five is air drying on a clean rack. Towel drying is prohibited because a towel recontaminates everything it touches, which undoes the previous four steps entirely. Two maintenance rules keep the system honest. Change the water in any compartment when it becomes visibly dirty, greasy, or drops below its required temperature, and test the sanitizer concentration with strips at regular intervals during the shift, because the solution weakens as soil and dishes are added to it. Items go into the sink disassembled, so a meat grinder or a blender is broken down to its parts rather than washed as a unit. Anything that cannot fit in the sink, like a slicer or a mixer, gets cleaned and sanitized in place with the power disconnected first.

Building a Schedule Instead of a Habit

Kitchens divide cleaning work into two categories, and confusing them is how equipment quietly becomes a hazard. Food-contact surfaces, which include cutting boards, knives, prep tables, slicer blades, thermometers, and the inside of an ice machine, must be cleaned and sanitized after every use, whenever a task changes, and at minimum every four hours during continuous use. Non-food-contact surfaces, which include floors, walls, shelving, equipment exteriors, ceilings, and light fixtures, must be cleaned regularly but do not require sanitizing. Both categories live on a written master cleaning schedule that names every item, states how often it is

cleaned, specifies the exact procedure and chemical, and assigns a person to it. The schedule exists because the tasks that get skipped are never the obvious ones. Nobody forgets the counter. What gets forgotten is the can opener blade, the gasket around the walk-in door, the underside of the prep table, the ice machine interior, the shelf brackets in the dry store, and the deflector plate nobody has looked at in a year. A written schedule with assigned names turns those from things somebody should do into things a specific person did on a specific date, which is also exactly what a health inspector asks to see. A school lab version fits on one laminated page. List every surface and tool in the room, mark each one as food-contact or not, assign a frequency, and put a student's initials and a date beside it each period. The list takes an afternoon to build and it makes the difference between a room that looks clean and a room that is.

Key Information: Cleaning and Sanitizing

Detail	Information
Cleaning	Removes visible soil using detergent, water, friction, and time
Sanitizing	Reduces microorganisms on an already-clean surface to safe levels
Required Order	Always clean first; soil blocks and neutralizes sanitizer
Heat Sanitizing	Immersion at 171 degrees F for at least 30 seconds
Chlorine	50 to 100 ppm, about 7 seconds contact time
Quats	About 200 ppm, about 30 seconds contact time
Sink Sequence	Scrape, wash, rinse, sanitize, air dry
Food-Contact Surfaces	Clean and sanitize after each use or every four hours

Case Study: The Test Strips in the Drawer

Hannah took over closing duties at a sandwich shop and inherited a sanitizer bucket routine from the previous closer. She mixed the quat solution by eye, the way she had been shown, filling the bucket and adding what looked like the right splash of concentrate. Three weeks in, a health inspector asked her to test the bucket. Hannah found an unopened container of test strips in a drawer under the register. The strip came back at roughly 50 parts per million, a quarter of the 200 the label required. "It looked the same as always," she said. The inspector explained that a weak quat solution wipes surfaces without killing anything, so every table and cutting board in the shop had been cleaned but never actually sanitized. Hannah now mixes to the label, tests at open and at every bucket change, and writes the result on a log taped beside the sink.

1. Hannah's surfaces looked clean the whole time. Using the reading, explain what her weak solution failed to accomplish.

2. Explain why the reading treats test strips as essential rather than optional, using both the too-weak and too-strong cases.

Multiple Choice

1. Why must a surface be cleaned before it is sanitized?

    a) Sanitizer will permanently stain any visible soil

    b) Soil blocks and neutralizes the sanitizer

    c) Cleaning raises the surface temperature first

    d) Health codes require two chemicals per surface

2. What is the correct order for a three-compartment sink?

a) Scrape, sanitize, wash, rinse, then air dry

b) Rinse, wash, sanitize, then towel dry

c) Scrape, wash, rinse, sanitize, then air dry

d) Wash, sanitize, rinse, then towel dry

3. Why is towel drying dishes prohibited after sanitizing?

a) Drying too fast causes glassware to crack

b) The sanitizer needs surface moisture to keep working

c) Towels leave lint that customers can see

d) The towel recontaminates the sanitized surface

Matching

Write the letter of the correct definition on the line next to each term.

Term	Definition
1. ___ detergent	A) An acidic product used to remove mineral scale from dish machines and steamers
2. ___ delimer	B) The everyday cleaning agent used to lift grease and food soil from surfaces
3. ___ quats	C) How long a chemical must stay on a surface to do its job
4. ___ contact time	D) A written plan naming each task, its frequency, procedure, and responsible person
5. ___ master cleaning schedule	E) A stable, non-corrosive sanitizer affected by water hardness

Fill-in-the-Blank

1. Chlorine sanitizer works at 50 to _____ parts per million.

2. Heat sanitizing requires immersion at _____ degrees F or above.

3. Verify sanitizer concentration using _____ strips.

Short Answer

Answer each question in 2-4 complete sentences.

1. Explain the difference between sanitizing and sterilizing, and why kitchens only need one of them.

2. Why does the reading warn so strongly against mixing cleaning chemicals?

3. Explain why a written cleaning schedule catches problems that a careful worker would miss.