

A safe and healthy option

Cooking Using Stainless Steel Frying Pans



Introduction

Stainless steel pans are not classified as 'non-stick' which means they are not covered in a water-repellent coating like ceramic or Teflon. Food will however slide off them if you use enough oil and the right techniques.

4 Important Golden Rules:

- Always start with a clean pan (no food residues or discoloration)
- Preheat your pan
- Use the water test to make sure it's at the right temperature
- Use enough and a high smoke point oil

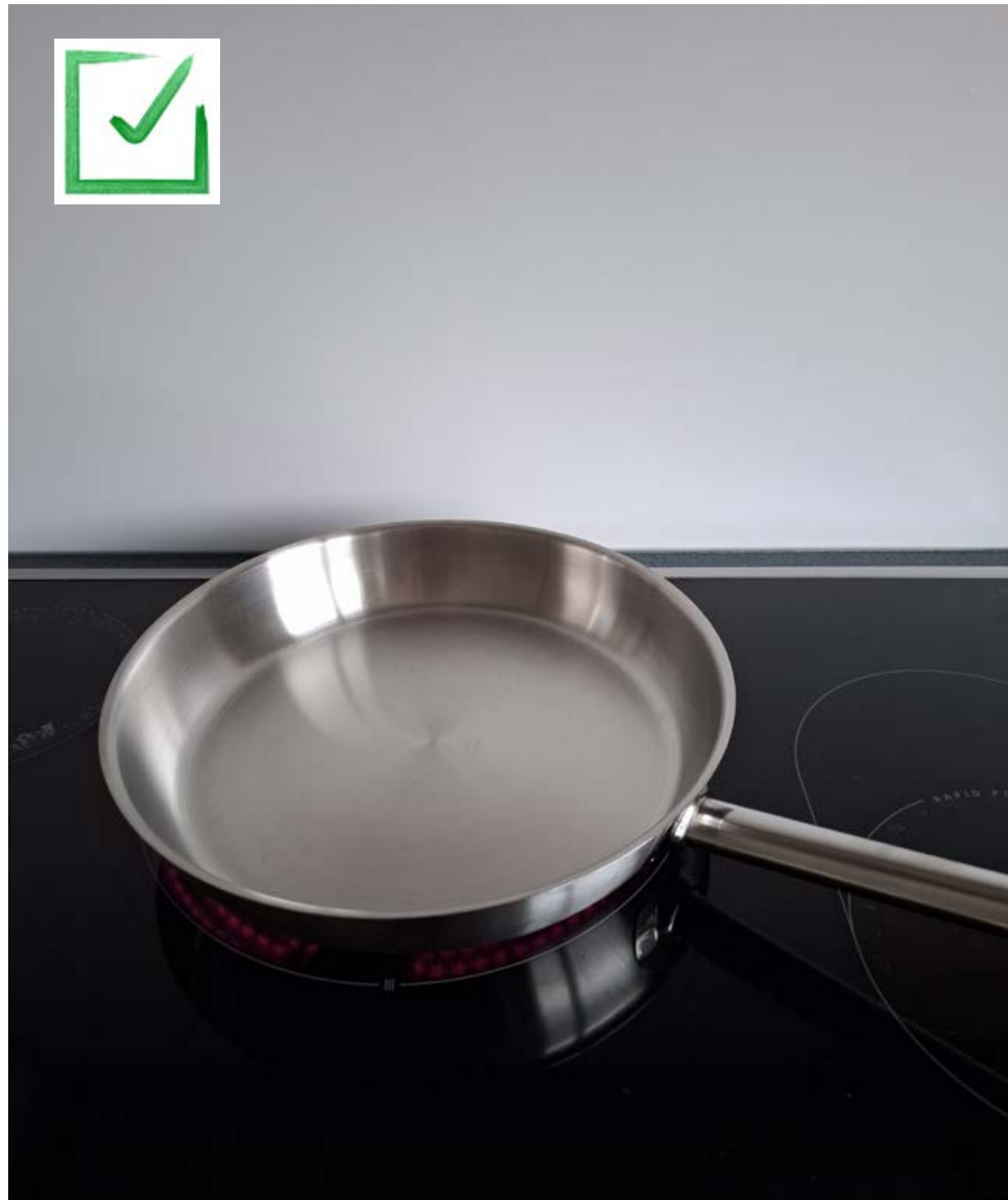
In this overview we will focus on the golden rules and give some extra tips.

Note: Stainless steels are one of a very small group of materials that satisfy all global hygiene standards for food and beverage preparation. [Find out more here.](#)

| Photo by Tanya Gorelova via Pexels



Start with a Clean Pan



Discolouration (heat tint, rainbow discoloration, pitting in a stainless steel pan means it's not clean.

Stainless steel pans can often acquire some discolouration, which is often caused by overheating. While these stains won't come out with regular dish soap, a little vinegar will do the trick. Pour some vinegar into your pan and let it sit for a few minutes. Scrub the pan with a non-abrasive sponge.



Burnt-on oils or food residues are sticky, impacting the stainless steel's ability to cook food without sticking.

If you have gentle dish soap on hand, simply make a paste using dish soap and baking soda. Apply the paste to any affected areas and leave it on for several hours. When you're ready, simply wash thoroughly and dry as normal.

Always preheat the pan

Shiny stainless steel looks like it is non-stick but on a microscopic level, stainless steel is somewhat porous. Food proteins will fill the pores and bond to the pan surface if the pan is not pre-heated properly.

As the pan preheats, the pores become smaller; If food is added too early before the pores shrink and the pan is hot enough to form a steam barrier, then food particles can get trapped in the pores.

| Photo by cottonbro studio via Pexels



Do the Simple Water Test

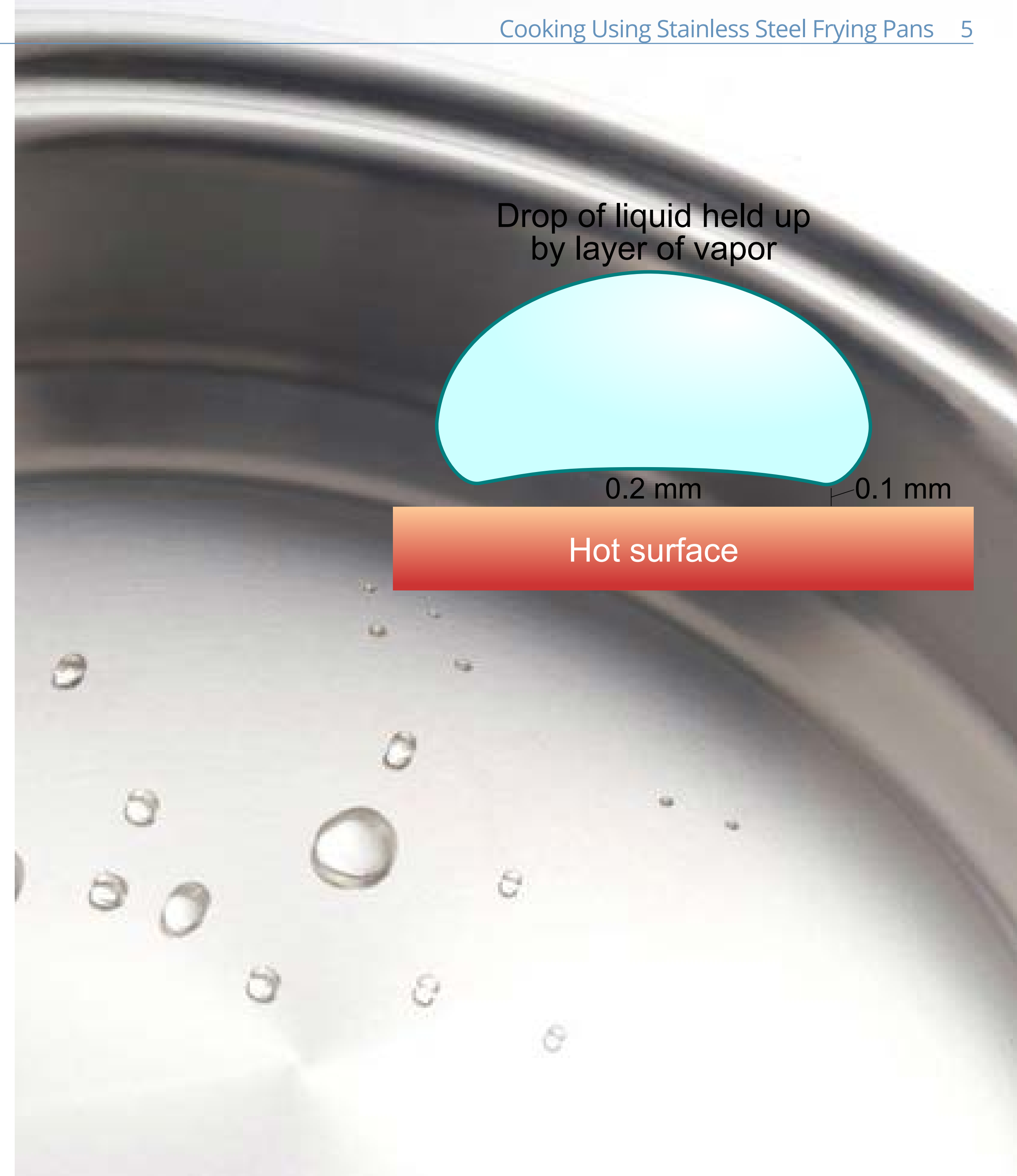
When a stainless steel pan is hot enough any food that you add will start to sizzle immediately and form a steam barrier keeping the food from sticking to the pan.

The water test is a simple way to tell if your pan is ready to start cooking

- Science buffs call it the Leidenfrost Effect
- Add a teaspoon of water to the pan and it should slide around as a perfect bubble
- No splashing, no sizzling, just gliding across the pan like a hockey puck over ice

When this happens, your pan is ready for you to cook!

By Vystrix Nexoth at the English Wikipedia,
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Do Add Oil

- Pour the water out of the pan
- Add your cooking oil of choice and give it a few seconds to come up to heat before adding any food. Ensure the oil covers the whole cooking surface.
- This creates a layer that will prevent the food protein from bonding with the bottom of your pan and sticking so the food doesn't lift easily
- Never dry fry when using stainless steel. The food sears to the bottom of your pan and is extremely hard to remove



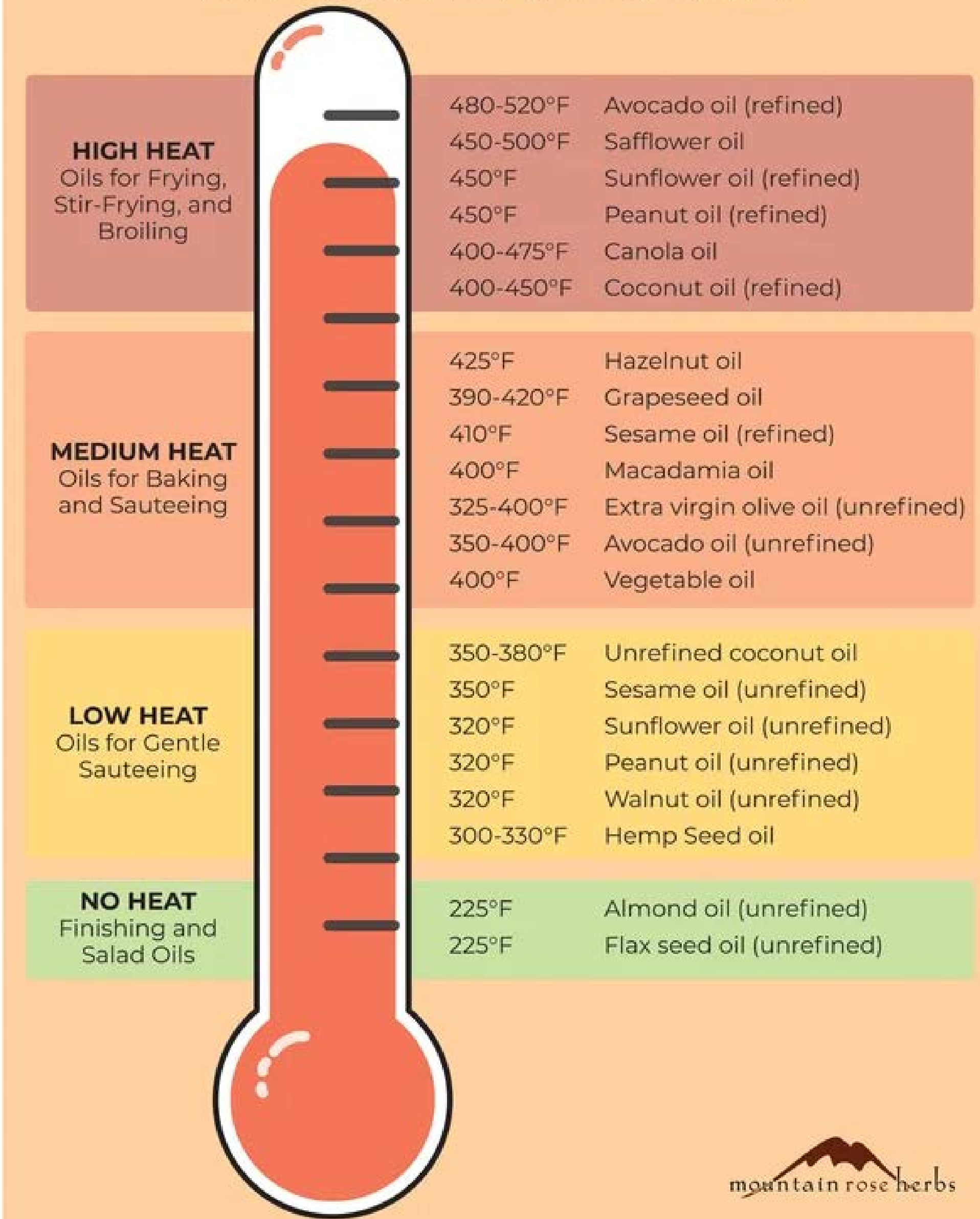
Don't Overheat the Oil

- Very hot oil is dangerous, both for you and your stainless steel cookware
- Every oil has a different heat tolerance, which is called the smoke point
- Butter has a low smoke point so it burns and smokes quickly.
- Whereas peanut oil has a high smoke point it won't smoke unless your pan is overheated
- Know the smoke points of different oils and use high smoke point oils

| Illustration from Mountain Rose Herbs

OIL SMOKE POINT CHART

These are approximations and smoke points can range, depending on quality of oil.





Don't Use Cooking Sprays

- Don't use cooking sprays as they burn too quickly.
- This rapid burn creates discoloration in a layer of burnt polymerized oil residue that is very hard to get off the pan surface
- Foods will stick to this layer and you will have burnt-on food and a deeper cleaning process will be needed to remove it.



Don't Add Cold or Frozen Foods

- Safely temper your proteins before cooking them on stainless steel. This means letting them warm up in a bowl of water for a few minutes before cooking
- There are four reasons not to add cold food to a hot pan:
 1. It's dangerous; Cold food causes hot oil to spit all over the place
 2. Frozen food causes hot oil to spit for a long time as moisture is released during the defrosting process
 3. It will stick. Very cold or frozen proteins, especially eggs, dairy, and meat, will bond with the metal of the pan and become burnt on and difficult to remove
 4. Adding cold to hot causes thermal shock. Adding frozen to hot can cause severe thermal shock, increasing the chance of warping the stainless steel

| Photo by SHVETS production via Pexels



Do Wait for Food to Release before Turning

When you add food to a stainless steel pan some of it may get trapped in the pores of the pan

- Especially if the food cools the pan when it touches it
- As the pan comes back up to heat, the pores will shrink again and release the food
- Give protein-rich foods a moment to cook and release naturally before you try to turn them

| Photo by cottonbro studio via Pexels



Don't Crowd The Pan

It's a hassle to have to cook in batches but packing too much food into a stainless steel pan leads to a sticky situation! The food may make irregular food contact with the pan, causing uneven heat transfer that can cause your food to stick to the bottom of the pan.

If you are cooking steak medallions, fish, or even zucchini fritters and the pieces are almost touching each other, the moisture will release faster from the food than it can evaporate on the open surfaces of the pan and your food ends up steaming instead of browning.

Without enough room on the pan you can't achieve that wonderful caramelization that provides crisp golden crusts to treat your tastebuds...

| Photo by Anthony Rahayel via Pexels

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About worldstainless

worldstainless is a not-for-profit research and development association which was founded in 1996 as the International Stainless Steel Forum.

Its primary roles are to undertake stainless steel industry beneficial tasks that are better coordinated centrally in the fields of

- Promoting industry and material sustainability benefits
- Conserving resources and promoting the circular economy
- Providing economic and industry-leading statistics
- Support industry health & safety needs and developments
- Outlining market development and expansion opportunities
- Maintaining brand reputational positioning
- Materials education

Contact

You can contact the worldstainless team through the following email address:

info@worldstainless.org

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world stainless association

Avenue de Tervueren 270
1150 Brussels
Belgium

T: +32 (0) 2 702 89 00
F: +32 (0) 2 702 88 99
E: info@worldstainless.org

C413 Office Building
Beijing Lufthansa Center
50 Liangmaqiao Road
Chaoyang District
Beijing 100125
China

T : +86 10 6464 6733
F : +86 10 6468 0728
E : china@worldsteel.org

worldstainless.org

