

The Home Fermentation Safety Card

A kitchen-door reference for lacto-fermenting vegetables safely: the pH 4.6 botulism boundary, 2% brine math by weight, full submersion, the right temperature window, and a keep / scrape / discard grid you can read with wet hands.

pH 4.6 botulism boundary

2% brine by weight

Keep · scrape · discard grid

Kahm yeast vs mould

3-page A4 printable PDF

CLINICAL RATIONALE — WHY THIS SPECIFIC TOOL

Lacto-fermentation is one of the oldest and safest preservation methods precisely because it is self-defending: salt and anaerobic conditions let lactic acid bacteria outcompete pathogens and drive the brine acidic.

pH 4.6 is the line that matters. *Clostridium botulinum* cannot grow below pH 4.6. A healthy vegetable ferment drops to roughly 3.4–3.9 within days, which is why correctly made fermented vegetables have a safety record far better than raw or canned produce. The rules on this card exist to get you to that acid floor quickly and keep everything below it.

Salt is the control knob. At about 2% of the total weight of vegetables plus water, salt slows spoilage organisms while lactic acid bacteria thrive. Too little salt invites mush and mould; too much stalls the ferment. Weighing beats guessing — a tablespoon measure is not a weight.

Air is the enemy. Everything edible stays below the brine surface: above it, oxygen lets surface yeasts and moulds establish; below it, the anaerobic, acidic brine protects you.

AUTHORITY / EVIDENCE BASE	WHAT IT ESTABLISHES FOR THIS TOOL
USDA / FDA acidified -foods guidance	pH 4.6 is the boundary below which C. botulinum does not grow; fermented vegetables should be clearly below it before eating.
Lactic acid bacteria physiology	Salt-tolerant LAB acidify the brine to roughly 3.4–3.9, outcompeting pathogens in a correctly salted, anaerobic jar.
Food-safety sensory evaluation	Off-smell, colour change and texture are the practical spoilage signals used to separate harmless surface yeast from a discard.

QUICK START — THE NEXT TEN MINUTES

- 1

Weigh, never scoop
Weigh the vegetables and water together and add 2% of that weight in salt. 1,000 g total = 20 g salt.
- 2

Submerge everything
Pack tight, add brine, and weight the vegetables so nothing breaks the surface. Check daily for the first week.
- 3

Hold the temperature
Aim for 18–22 °C for the active phase. Cooler slows it; warmer speeds spoilage organisms.
- 4

Wait for the acid floor
If you can measure, you want pH at or below 4.6 (ideally under 4.0) before you call it done. If you cannot, the smell and taste must be cleanly sour, never putrid.

WHEN IN DOUBT, THROW IT OUT

Discard the whole batch for fuzzy mould in any colour, pink or black discoloration, a putrid (not sour) smell, mushy texture, or pressure with an off smell. Never taste-test a suspect ferment. If pregnant or immunocompromised, check with a clinician before eating raw ferments.

THE FIVE NUMBERS THAT KEEP A FERMENT SAFE

4.6 PH CEILING C. botulinum does not grow below it	2% SALT BY WEIGHT of vegetables plus water combined	18–22 °C ACTIVE PHASE cooler slows, warmer invites spoilage	0 SURFACE BREAKS nothing edible above the brine line	3–7 DAYS TO ACID visible bubbling, then a clean sour smell
---	--	--	---	---

Medical disclaimer. This safety card is published by Health Secrets for educational, informational and personal habit-tracking purposes only. It is not medical advice, is not intended to diagnose, treat, cure or prevent any disease, and does not replace care from your own clinician. In an emergency call 911. **FTC disclosure.** Health Secrets may earn a commission from qualifying purchases made through links on our website, at no extra cost to you; recommendations are editorial and evidence-led. Board-certified clinical review · edition 1.0 · healthsecrets.com/lead-magnets/lm-03-fermentation-safety-card

THE ONE-SENTENCE RULE

Correct salt, everything submerged, warm enough to acidify, and a cleanly sour smell at the end. Any one missing is the whole problem; all four present is a ferment with a safety record older than refrigeration.

THE WORKING CARD

Brine math and the keep / scrape / discard grid

Weigh the jar's contents, find the row, add the salt. Then use the grid every time you open the jar — it is the entire quality and safety decision, reduced to what you can see and smell.

- - - BRINE QUICK CARD · CUT AND KEEP

TOTAL WEIGHT	SALT (2%)	ROUGH VOLUME
500 g	10 g	about 2 level teaspoons of fine salt
1,000 g (1 L)	20 g	the standard quart-jar batch
2,000 g (2 L)	40 g	a half-gallon of kraut
4,000 g (4 L)	80 g	a full-gallon crock

2% by total weight. Multiply the combined weight of vegetables plus water by 0.02. Weigh in grams on a kitchen scale; a "tablespoon" of salt varies by grind and brand.

My batch weight Salt added

TEMPERATURE AND TIMING

18–22 °C (65–72 °F) is the active-phase window: vigorous bubbling in days 2–5, settling after. Below about 16 °C the ferment stalls and can develop off-flavours before it acidifies; above about 24 °C spoilage organisms race the lactic acid bacteria. Finished kraut keeps for months refrigerated at 4 °C or below.

☐ Bubbling by day 2–3, lid not sealed airtight during the active phase.

☐ Vegetables still fully submerged at every daily check, week one.

☐ Cleanly sour smell by the time bubbling settles — never putrid.

☐ pH strip or meter reading at or below 4.6 before first serving.

KEEP · SCRAPE · DISCARD

WHAT YOU SEE OR SMELL	IT IS	THE DECISION
Thin white film, flat and dry-looking on the surface	Kahm yeast	Scrape it off. Harmless but can taint flavour; keep the vegetables submerged and it usually stays gone.
Fuzzy, raised, any colour (white, green, black, pink)	Mould	Discard the whole batch. Fuzzy texture means hyphae penetrate below the surface.
Cleanly sour, bright, appetising	Healthy ferment	Keep. This is the smell of lactic acid doing its job.
Putrid, rotten, cheesy, or faecal	Spoilage	Discard the whole batch. Putrid is never normal.
Firm-to-crisp vegetables	Healthy texture	Keep. Salt and acid preserve structure.
Slimy brine or mushy, hollow vegetables	Spoilage	Discard. Sliminess signals the wrong organisms.
Pink or black discoloration	Spoilage	Discard immediately.

THE RULE THAT HAS NO EXCEPTIONS

Fuzzy, coloured, pink or black — discard the whole batch. A thin flat white film is yeast and can be skimmed; anything with texture is mould and has already penetrated below the surface. Tasting a suspect ferment to decide is not a method.

Ready for the Complete Step-by-Step Blueprint?

This safety card gives you the immediate tools to take action today. But long-term health requires a complete, structured daily system — one that tells you **what to do on the days this sheet does not cover**, in what order, and how to adjust when your body does not respond the way the chart says it should.

HEALTH SECRETS

Fermentation Safety Starter Kit

Lacto-ferment vegetables at home with USDA-aligned food safety: correct brine, pH targets, and a troubleshooting atlas.

Kitchen Practice Series · 32 pages · A4 print + fillable

Fermentation Safety Starter Kit

Produce probiotic lacto-fermented foods at home with USDA-aligned food safety practice.

32 pages

Safety Guide + Brine Calculator

Kitchen Practice Series

\$19 one-time

WHAT IS INSIDE THE FULL EDITION

- 1 Microbiology and botulism safety** — what the pH 4.6 boundary actually means, how LAB win, and the full C. botulinum risk picture.
- 1 The master brine salinity calculator** — dial in 2% to 5% brines by jar size and vegetable, with the dry-salting method for kraut.
- 1 The visual troubleshooting atlas** — photographic keep / scrape / discard decisions for every surface film, colour and smell you will meet.
- 1 Six starter master recipes** — sauerkraut, carrots, cucumbers, kimchi-style cabbage, green beans and chilli peppers, each with a tested brine.

THIS FREE TOOL VERSUS THE COMPLETE SYSTEM

What this free safety card already gives you

- ☐ The pH 4.6 boundary and why it protects you
- ☐ 2% brine math and the submersion rule
- ☐ A one-page keep / scrape / discard grid

What only the 32-page edition has

- ☐ Brine calculator across 2–5% salinity for any jar or crock
- ☐ Photographic atlas that removes guesswork at the surface
- ☐ Six tested master recipes with timing by temperature
- ☐ The microbiology to know exactly when and why a ferment is safe

Get the Complete Guide

AT [HEALTHSECRETS.COM/PRODUCTS/FERMENTATION-SAFETY-STARTER-KIT](https://healthsecrets.com/products/fermentation-safety-starter-kit)

<https://healthsecrets.com/products/fermentation-safety-starter-kit>

READER-ONLY COUPON

READER20

Use code **READER20** for 20% off your full guide at checkout.

A4 print + fillable

Tape the card inside the cupboard door; fill in your own batch records on screen or paper.

USDA-aligned practice

Written to published acidified-foods guidance. No folklore, no miracle claims.

One-time payment

\$19 once, no subscription, instant download after checkout.

Medical disclaimer. Health Secrets publishes educational, informational and habit-tracking tools only. Nothing in this safety card or in the paid edition is medical advice, a diagnosis, or a treatment plan, and neither is intended to diagnose, treat, cure or prevent any disease. Always confirm changes to diet, supplements, exercise or medication timing with your own physician or licensed clinician. In a medical emergency call 911. **FTC disclosure.** This page promotes a Health Secrets product that we publish and sell; Health Secrets may also earn a commission from qualifying purchases made through links on our website, at no extra cost to you. Recommendations are editorial and evidence-led. Hardware and equipment referenced anywhere in this library is listed without affiliate tags at healthsecrets.com/shop. **Privacy.** You received this safety card because you asked for it at healthsecrets.com; unsubscribe from any email at any time.

© 2026 Health Secrets · Im-03-fermentation-safety-card · edition 1.0 · Board-certified clinical review · healthsecrets.com