How Is Caffeine Removed from Tea? Decaffeination Explained

From the teas.co.uk wiki

> **How tea is decaffeinated, in summary:** Decaf tea is reduced, not caffeine-free, and the method matters: gentle CO2 best for flavour, water process solvent-free, older solvent methods strip more.

Decaf tea does not grow that way; the caffeine is removed after harvest by one of three industrial processes, and which one matters for both flavour and the "is it natural" question. This page explains the science; the buying angle is in decaf, CO2 vs solvent and the dose context in the caffeine guide.

Last reviewed by the teas.co.uk team in January 2026.

First, decaf is not caffeine free

Every decaffeination method leaves a small residual amount of caffeine; "decaf" means greatly reduced, not zero. If you need no caffeine whatsoever, choose a naturally caffeine free infusion such as rooibos or herbal tea rather than decaf tea, the distinction made clearly in decaf vs caffeine free.

CO2 (supercritical carbon dioxide)

The method most quality decaf tea now uses. Pressurised carbon dioxide is brought to a state between liquid and gas where it acts as a selective solvent, pulling caffeine out while largely leaving the flavour compounds behind. No chemical solvent is involved, the CO2 is recaptured and reused, and flavour is best preserved. "Naturally decaffeinated" from a reputable brand usually means this, and it is the one to prefer.

The water process

Caffeine is extracted using water and a carbon filter, with no added chemical solvent. It is gentle and clean, though it can strip slightly more flavour than CO2 depending on how it is run. It is a thoroughly good, chemical free method, and common in better decaf.

Solvent processing (ethyl acetate or methylene chloride)

The older, cheaper route binds and removes caffeine with a chemical solvent. Ethyl acetate occurs naturally in fruit, so tea decaffeinated with it is sometimes labelled "naturally decaffeinated", which is technically defensible but slippery. Methylene chloride is tightly regulated with strict residue limits. Properly done, residues are minimal and within safe limits, but flavour tends to suffer most, and this is the method behind much of the flat, papery cheap decaf that gave decaf its poor name.

Why your decaf tastes thin

If decaf has always tasted weak or cardboardy to you, the method and the base are usually why, not decaf as a concept. A good CO2-decaffeinated tea on a decent base can be close to the full caffeine version; a cheap solvent processed one on a thin base will not be. The fix is buying better decaf and brewing it at full strength and time, see best decaf tea UK and the water temperature guide.

The takeaway

Prefer CO2 or water processed decaf, treat "naturally decaffeinated" as a prompt to check which, brew it strong, and remember it is low caffeine, not zero. Get those right and decaf stops being a compromise, the practical conclusion carried into decaf, CO2 vs solvent.

Tea decaffeination, at a glance

Method	The read
Decaf is not zero	It is reduced, not caffeine-free; a small amount remains
CO2 (supercritical)	The best modern method: gentle, no solvent, flavour better preserved
Water process	Solvent-free; decent but can thin the flavour
Ethyl acetate / methylene chloride	Solvent methods; effective but the older flavour-stripping route
Why decaf tastes thin	Processing removes flavour compounds along with caffeine

For the matching kit, the decaffeinated range.

Reference noted

- NHS guidance on caffeine

FROM THE CURATOR

teas · For decaf, cost per cup is the only price to compare. Loose decaf leaf tends to win, and the odd supermarket bag keeps up.

Decaf reference reading

- Is decaf tea good

- Caffeine in tea
- Caffeine-free tea
- Decaf vs caffeine-free

More from the tea wiki

- Green tea
- Black tea
- Oolong tea
- White tea
- Herbal tea
- Caffeine in tea
- How to make tea properly
- Loose leaf vs teabag

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