Tea Firing and Drying: The Finishing Heat

From the teas.co.uk wiki

> **Tea firing and drying, in summary:** The final processing step. It does two jobs: basic drying that preserves the tea, and, for some categories, a specialised roasting that creates flavour. Charcoal versus electric, light versus heavy roast.

Firing and drying is the finishing heat that makes tea stable and shelf-ready. This sits in the processing cluster beside kill green.

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

What it is: drying vs firing

Firing and drying applies controlled heat at the end of processing to drive off remaining moisture and stabilise the leaf, and it serves two distinct functions. Basic drying reduces moisture to a storage-stable 3 to 5%, usually at 60 to 100C over thirty minutes to a few hours, and every true tea gets it: this is the preservation job. Specialised firing, or roasting, goes further, deliberately creating flavour at 100 to 180C over three to eight hours or more, often in multiple passes, and it defines categories like Wuyi rock tea, aged Taiwanese oolong and Japanese houjicha. One important point: this is not the same as kill-green, which halts the enzymes early in processing, whereas firing and drying is the final moisture-and-aroma step. See tea processing steps for the full sequence.

Aspect	Answer
What it is	Final processing step; reduces moisture to storage-stable level; can add flavour
Two functions	Basic drying (preservation) AND specialised firing (flavour creation)
Target moisture	3-5% in finished tea; storage-stable; preserves quality
Standard drying	60-100C; 30 minutes to several hours; basic preservation role
Specialised firing	100-180C; 3-8+ hours; multiple passes; creates roasted character
Not same as kill-green	Kill-green halts oxidation early; firing/drying is final step
Charcoal traditional	Imparts subtle smoky/aromatic character; premium positioning
Electric modern	Consistent temperature; commercial standard; reliable results
Sun-drying tradition	Pu-erh tea preserves enzymes for ageing; some white teas

Aspect	Answer
Roasted teas	Wuyi rock, Taiwanese aged oolong, Japanese houjicha defined by firing
Light vs heavy roast	Light = floral retained, shorter storage; heavy = toasty, longer storage
Re-firing	Periodic re-firing maintains aged tea or restores character
Skill variable	Temperature and duration significantly affect cup; over-fire ruins; under-fire risks storage
Framing	Final step; preservation function AND optional flavour-creation function

Methods

Different firing methods leave their own signature. Traditional charcoal firing suspends tea in bamboo baskets above burning charcoal, with the heat controlled by charcoal selection and basket position; it imparts a subtle smoky, aromatic character, is prized in premium Wuyi rock tea and traditional Taiwanese oolong, and is labour-intensive and weather-affected. Modern electric firing uses ovens with precise temperature and humidity control for consistent results across volume, with no smoke, and is the commercial standard. Sun-drying, used for pu-erh and some white teas, relies on natural sunlight and preserves enzyme activity for later ageing. Traditional bamboo-basket roasting over a low heat source is a slow method used for some oolong styles. The method shapes the outcome: traditional ways can produce exceptional tea but with more variability, modern ways trade a little character for consistency.

How firing creates flavour

Specialised firing is real chemistry, not magic. At firing temperatures (100 to 180C), amino acids and reducing sugars react in Maillard reactions, the same browning chemistry as a bread crust, producing brown pigments and toasty, caramelised aromas. Heavier firing above about 160C begins limited pyrolysis of leaf compounds for a deeper toasted character, and aromatic compounds transform throughout, with some lost and others created, so the finished aroma differs markedly from the pre-firing leaf. One useful myth-buster: caffeine is heat-stable, so firing does not meaningfully reduce it, and the common belief that heavy roasting makes a tea low-caffeine is largely incorrect (any reduction is minor and only at extremes). See hojicha for a roasted example.

Roast levels

Roast level produces distinctly different teas. A light roast (qing xiang) is a brief firing at a moderate 90 to 110C that preserves floral, fresh character, common for modern Tieguanyin and lighter oolongs, with an optimal storage life of six to twelve months. A medium roast (nong xiang) uses a longer firing at 110 to 140C to balance toasted notes with the underlying tea, common for traditional Tieguanyin, keeping one to three years. A heavy roast (zhuang xiang or chen xiang) is substantial firing at 140 to 180C over many hours, giving a pronounced toasted, woody character with the base tea less prominent, and it stores for five to fifteen years or more, often improving with age. The trade-off is consistent: lighter roasts keep fresh character but a shorter shelf life, heavier roasts develop complexity and long storage. Green and lighter roasts dominate modern retail; traditional heavy roasts hold a niche premium position.

Re-firing, and what goes wrong

Re-firing is a legitimate technique, not a deception. Aged tea, especially oolong, can grow muted or pick up moisture in storage, and a gentle re-fire (typically a lower 90 to 110C in two to six hours, several light passes rather than one aggressive one) freshens it, removes musty notes and concentrates the remaining character; quality vendors are transparent about it. The risk is overdoing it, since an aggressive re-fire kills what is left. The firing faults to know are the same ones a taster can spot: over-firing burns the leaf to an acrid, charred character and loses the underlying tea; under-firing leaves too much moisture and risks mould or fast decline; uneven heat gives a mixed batch; poorly chosen charcoal introduces unwanted smoke; and firing without a subsequent resting period (weeks to months) leaves the tea unbalanced. See how to judge tea quality.

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