

Why is my fudge grainy?

From the sweeties.net wiki

Fudge is a crystalline sweet. Unlike toffee, which should have no crystals at all, fudge is meant to be full of them, as long as they are tiny. Very small crystals give fudge its creamy texture that melts in the mouth.

Grainy fudge is fudge whose crystals grew too big: see [how is fudge made?](#)

How big crystals happen

Once sugar starts to crystallise, other sugar molecules attach to the crystals already there. If there are only a few crystals to start with, and plenty of room for the sugar to move, those few grow large. If lots of crystals start at once, each one stays small. Controlling that is the key to smooth fudge.

The usual causes

- **Stray crystals.** While fudge boils, sugar crystals can form on the sides of the pan above the liquid. If they fall back in, they give the sugar something to grow on. Cookbooks recommend buttering the sides of the pan, or brushing them with a pastry brush dipped in water to dissolve the crystals back into the syrup.
- **Stirring during the boil.** Early fudge recipes were stirred all the way through the boil, and the result was crumbly, because the syrup crystallised. Gentle stirring is needed at first to stop the mixture catching, but not once it is boiling hard.
- **Beating while it is too hot.** Hot syrup is runny, so sugar molecules move easily and join the few crystals that form, which grow large. Cooled fudge is much thicker, which the food chemist Christina Blais compares to trying to swim in molasses, so when you beat it, many crystals start at once and stay small.

When to beat

Methods vary. One classic method cools the fudge on a slab to about 48 to 49°C before beating it by hand until it is thick, creamy and less glossy. Christina Blais suggests waiting until it has cooled to 43 to 45°C, about 15 minutes off the heat. The food science site FoodCrumbles stresses the other half of the job: keep stirring for long enough as it cools, so that lots of small crystals form.

A word on glucose syrup

Glucose syrup and acids hold back crystallisation. A little helps keep fudge smooth, but FoodCrumbles warns that too much can stop the sugar crystallising at all, which leaves fudge that will not set: see [why is my fudge not setting?](#) and [what is glucose syrup?](#)

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