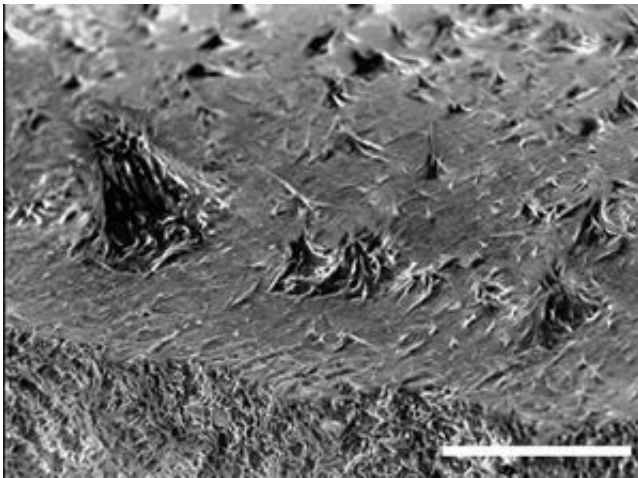


# Scientists work to stop chocolate going the way of George Clooney

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What do George Clooney and old chocolate have in common? Both are still delicious but have greyed with age – and while this certainly hasn't damaged the image of the former ER star, it does detract from the appeal of the beloved mocha ambrosia, despite being perfectly safe to eat.

To help maintain that seductive, shiny brown surface, scientists from Canada and Sweden have shown that understanding chocolate's microstructure is key to stopping those unappetising looking, and sounding, “fat blooms” – the grey coating on old chocolate. They report their findings in the Royal Society of Chemistry journal *Soft Matter*.

Fat blooms occur because chocolate is extremely sensitive to temperature – just a 2°C fluctuation will cause the cocoa butter to melt, then recrystallise, forming needle-like structures that scatter light, giving a dull appearance.

The team, led by D  rick Rousseau at Ryerson University, Canada, studied the surface of chocolate as it aged using a scanning electron microscope (SEM), which fires electrons at a surface and measures the electrons knocked back from it to build a picture of that surface with very high resolution.

They found that where the chocolate surface was rough, blooms were far more likely to form. Rousseau says that if manufacturers were to minimise the amount of surface imperfections, this would be a good way to reduce blooms.

Watch out if you like the strawberry cream, too – the team tested filled chocolates and found they were even more susceptible to the blooms. The liquid-state fat in the filling migrates through the chocolate, accelerating bloom formation and ultimately making the chocolate very soft.

Nigel Sanders, senior research scientist at Cadbury in Toronto, Canada, says that “as an industry, we haven’t got to the bottom of what tools we have to stop bloom formation from happening.”

“Companies as large as Cadbury do their own research – but never gets published,” adds Sanders. “It’s nice to see an academic study that helps the whole industry, and isn’t just for the big boys.”

Original article: Rousseau and Smith, *Soft Matter*, 2008, DOI: 10.1039/b718066g

Source: Royal Society of Chemistry

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