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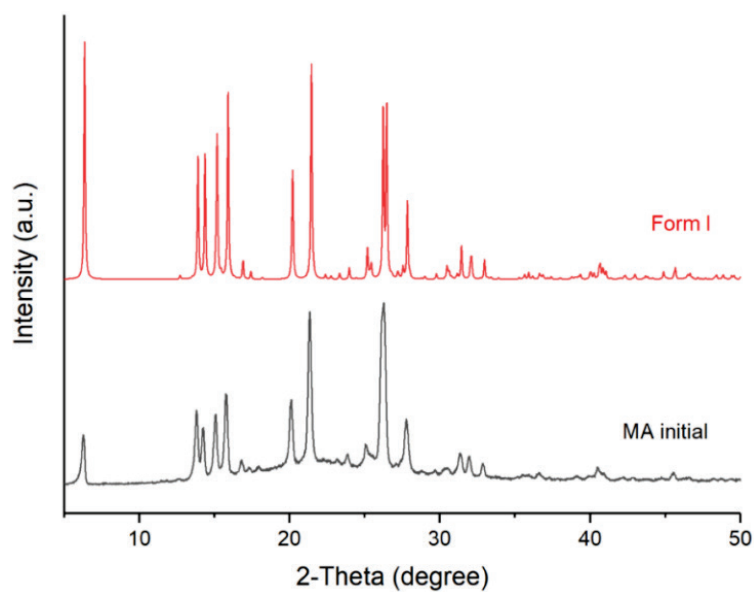
**Supporting information for article:**

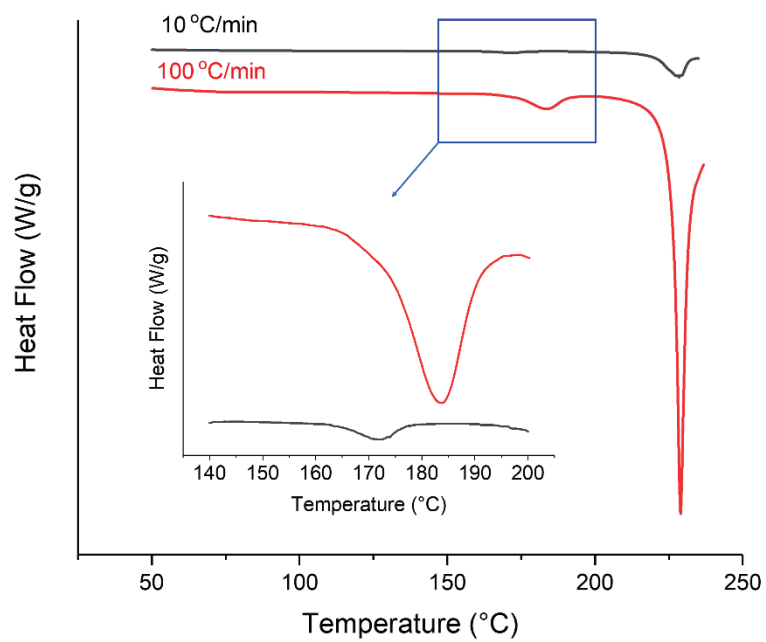
**A simultaneous X-ray diffraction differential scanning calorimetry study into the phase transitions of mefenamic acid**

**Yuying Pang, Asma Buanz, Richard Telford, Oxana V. Magdysyuk, Simon Gaisford and Gareth R. Williams**

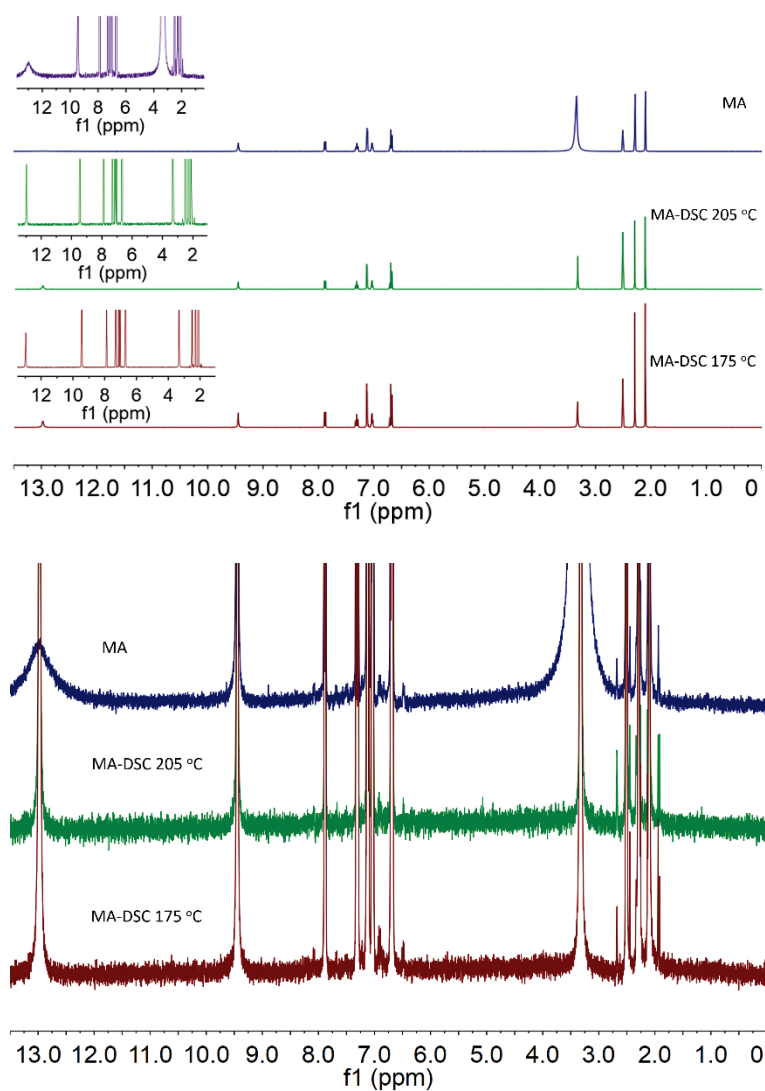
**Table S1** Crystallographic data for computationally predicted MA polymorphs, taken from Case *et al.* 2018.

Structure ID	M318	M497	M664	M1069	M1090	M3912
<b>Space group</b>	C2/c	P-1	Pbca	Pbca	Pbca	P-1
<b>a/ Å</b>	24.6	8.1	23.0	23.1	23.2	14.3
<b>b/ Å</b>	6.9	8.5	16.1	15.6	15.6	28.2
<b>c/ Å</b>	16.3	9.9	7.0	7.1	7.1	4.3
<b><math>\alpha</math>/°</b>	90	70.1	90	90	90	152.7
<b><math>\beta</math>/°</b>	67.6	96.1	90	90	90	54.9
<b><math>\gamma</math>/°</b>	90	82.7	90	90	90	125.5
<b>Cell volume (Å<sup>3</sup>)</b>	2558	627.48	2592.1	2558.56	2569.63	639.342

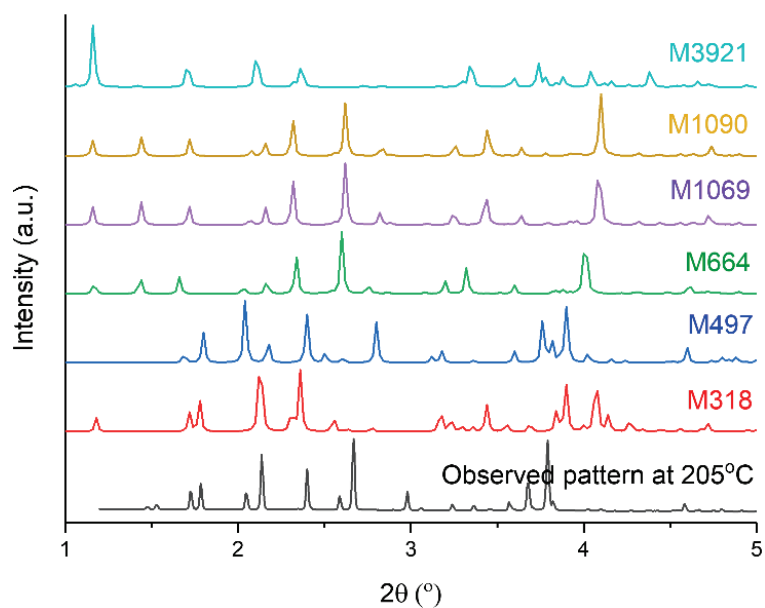
**Figure S1** The XRD patterns of as-supplied MA and that of MA form I (XYANAC) calculated from the CSD (wavelength: 1.5418 Å).



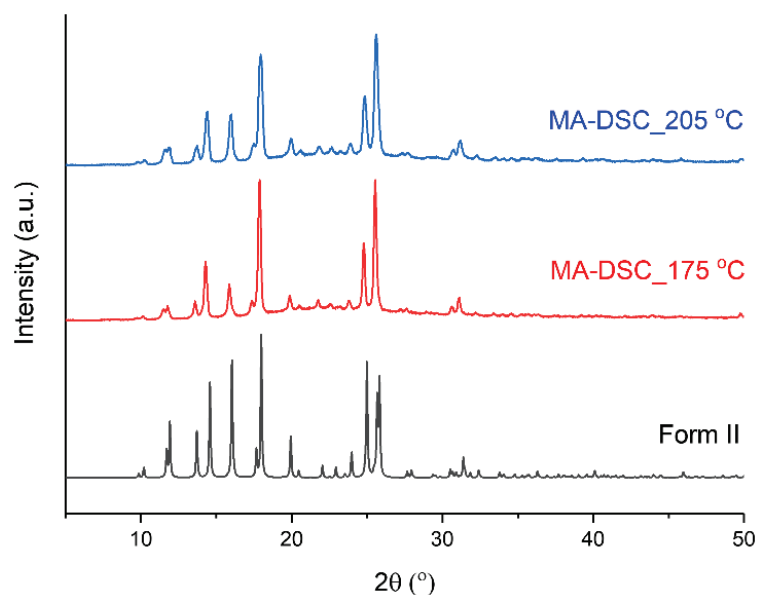
**Figure S2** DSC profiles of MA heated from 20 to 230 °C at 10 and 100 °C/min. Exo up.



**Figure S3** NMR spectra of MA heated to 175 and 205 °C and that of as-supplied MA. The peak at 13 ppm corresponds to the MA COOH group; this is hard to see in the as-supplied MA sample, but can be observed upon enlarging the spectrum.



**Figure S4** The XRD pattern of MA observed at 205 °C, together with computationally predicted patterns taken from Case *et al.* 2018 (wavelength: 0.234 Å). Distinct reflections at 1.47 and 1.53° cannot be matched with any of form I, II or III; it is clear that none of the predicted patterns fits these either.



**Figure S5** XRD patterns of MA form II (XYANAC02) calculated from the CSD (wavelength: 1.5418 Å), together with that of MA heated in DSC to 175 and 205 °C.