



**TABLE S1.** ROOM-TEMPERATURE HYSTERESIS PARAMETERS FOR ALTERED SAMPLES AND STARTING MATERIAL.

Sample	Heating time (min)	Temperature (°C)	Atmosphere	$M_s^1$ (Am <sup>2</sup> /kg)	$M_r$ (Am <sup>2</sup> /kg)	$H_c$ (mT)	$\chi$ (m <sup>3</sup> /kg x10 <sup>-6</sup> )
goethite	-	-	-	-	-	-	0.52
G01	150	250	air	-	-	-	0.97
G06	40	210	CO/CO <sub>2</sub>	0.32	0.01	3	-
G04	155	210	CO/CO <sub>2</sub>	3.8	0.59	4.6	-
G03	150	230	CO/CO <sub>2</sub>	4.3	1.1	10	-
G02	150	250	CO/CO <sub>2</sub>	49	15	17	-
G05	75	270	CO/CO <sub>2</sub>	65	18	19	-

<sup>1</sup>  $M_s$  is determined after high-field slope correction.