



*Supplement of*

## **Adjustments to the Rock-Eval<sup>®</sup> thermal analysis for soil organic and inorganic carbon quantification**

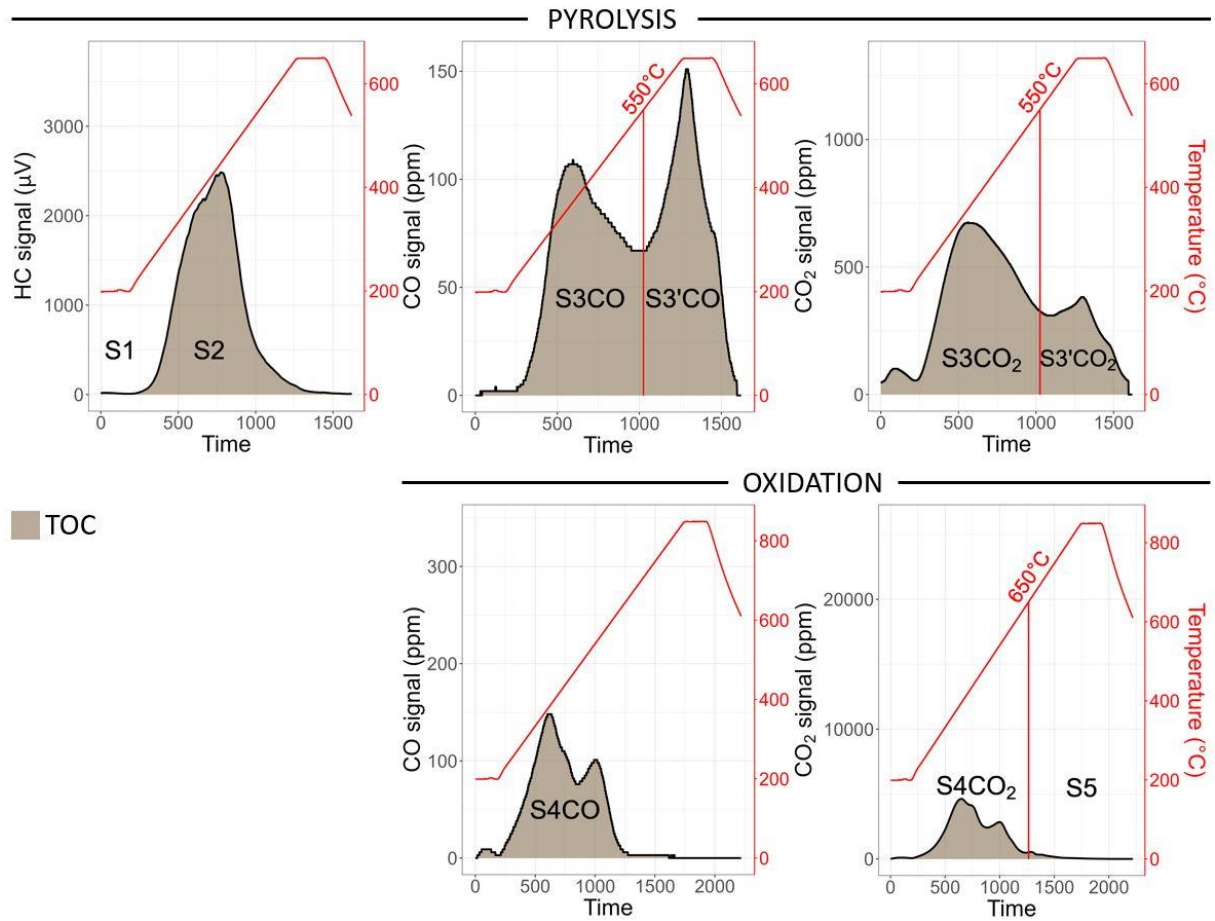
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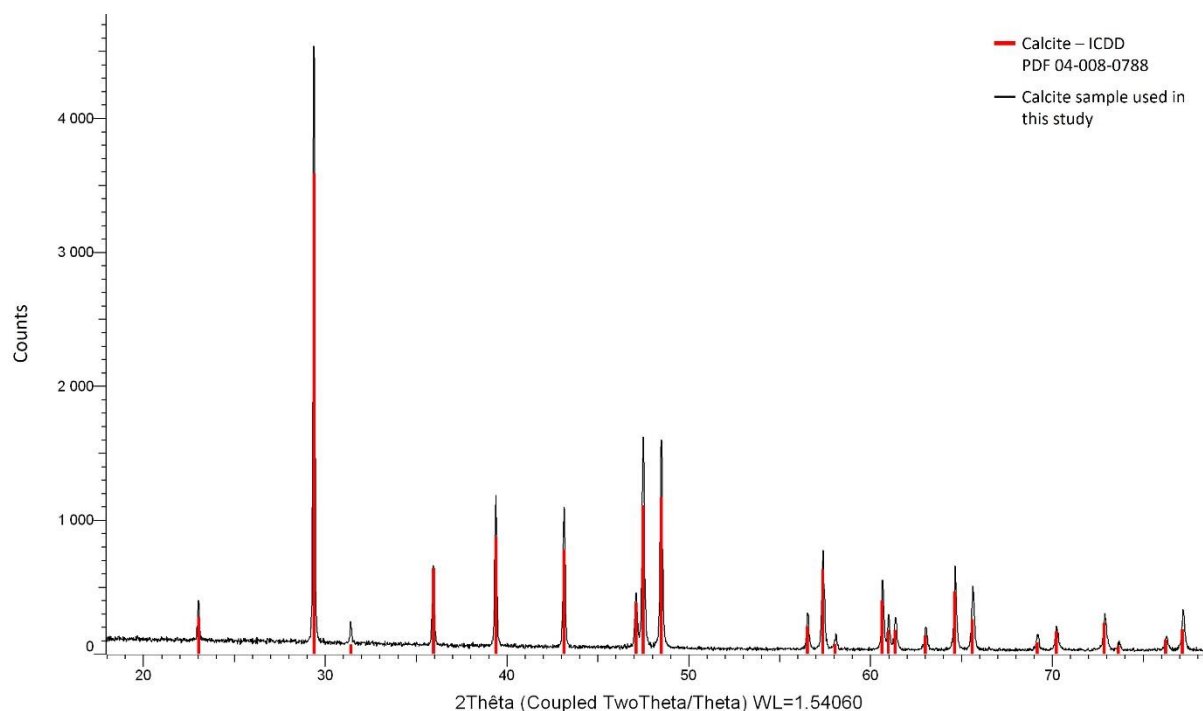
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## Supplementary Materials

Figure S1: Example of the 5 thermograms and 9 curves (S1, S2, S3CO, S3'CO, S3CO<sub>2</sub>, S3'CO<sub>2</sub>, S4CO, S4CO<sub>2</sub> and S5) obtained during the Rock-Eval® analysis of a non-calcareous agricultural topsoil with a SOC content of 14.27 g SOC kg<sup>-1</sup>. For non-calcareous soils, all the curves correspond to the pyrolytic cracking or the oxidative combustion of SOC and are thus integrated in the TOC parameter calculation.



**Figure S2: X-ray diffractogram of the calcite sample used in this study. ICDD: International Centre for Diffraction Data**



**Table S1: Organic C, inorganic C, and total C contents (g OC kg<sup>-1</sup>, g IC kg<sup>-1</sup> and, g TC kg<sup>-1</sup>) of the three standards materials (*ISE850*, *CC690*, and *SRI*) and total C content (g TC kg<sup>-1</sup>) of the calcite sample assessed by EA and RE on four aliquots (mean  $\pm$  standard deviation) compared to their reference values for total C content (g TC kg<sup>-1</sup>). The RE values are corrected excepted for the *SRI* and the calcite sample.**

	Measured values						Reference values
	Organic C		Inorganic C		Total C		Total C
	EA <sub>HCl</sub>	RE	EA <sub>550°C</sub>	RE	EA	RE	
ISE850	4.26	1.87	67.07	68.96	71.37	70.83	68.3 $\pm$ 1.9
0	$\pm$ 0.08	$\pm$ 0.11	$\pm$ 1.56	$\pm$ 0.74	$\pm$ 1.51	$\pm$ 0.84	
CC690	69.48	76.95	27.39	22.91	98.04	99.86	97 $\pm$ 4
0	$\pm$ 3.49	$\pm$ 2.42	$\pm$ 0.43	$\pm$ 0.56	$\pm$ 2.39	$\pm$ 1.92	
SR1	22.14	22.70	11.22	14.45	37.47	37.15	36.9 $\pm$ ND
0	$\pm$ 0.05	$\pm$ 0.03	$\pm$ 2.67	$\pm$ 0.12	$\pm$ 0.42	$\pm$ 0.13	
Calcite	NA	NA	NA	NA	119.87	120.20	120.0 $\pm$ NA
0					$\pm$ 0.29	$\pm$ 0.32	

**Figure S3: The 5 thermograms and 9 curves (S1, S2, S3CO, S3'CO, S3CO<sub>2</sub>, S3'CO<sub>2</sub>, S4CO, S4CO<sub>2</sub> and S5) obtained during the Rock-Eval® analysis of the calcite sample used in this study. For calcite, all the curves correspond to the thermal breakdown of CaCO<sub>3</sub> and are thus integrated in the MinC parameter calculation.**

