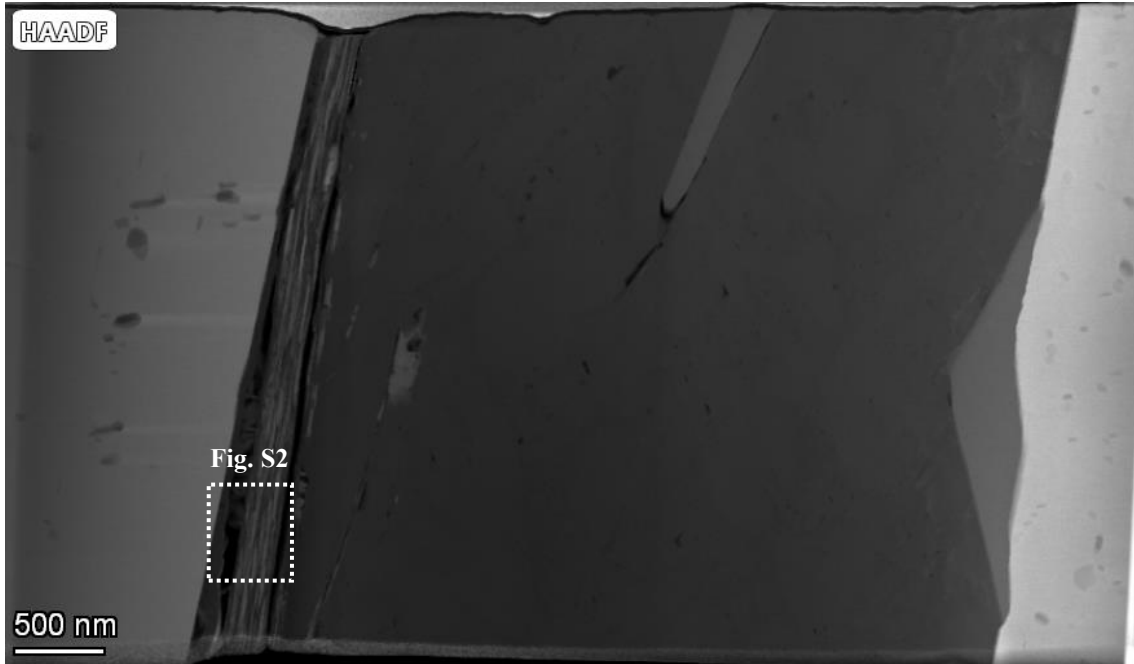
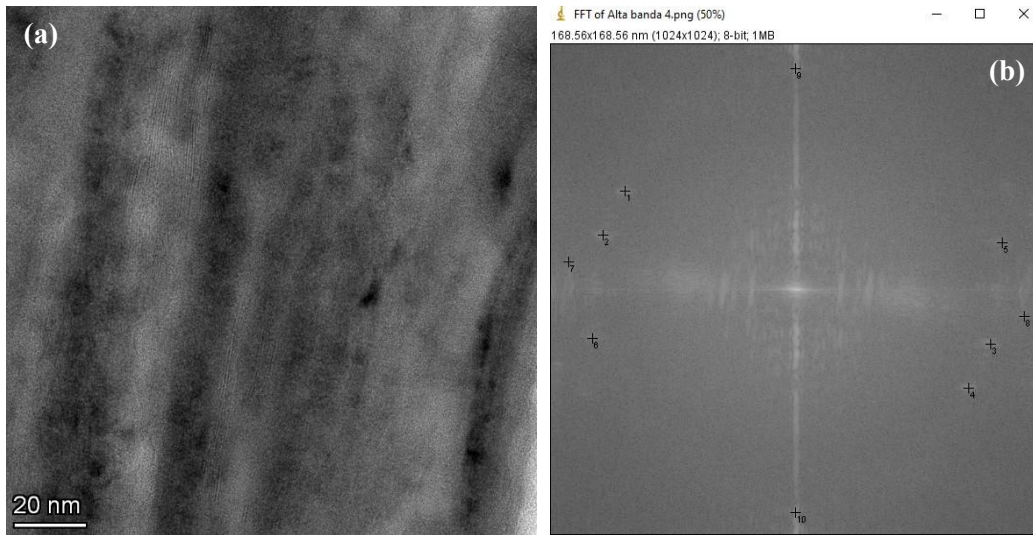


# Thin Foil 1



**Figure S1.** HAADF image of thin foil 1 including the location of HRTEM images of the next figure.

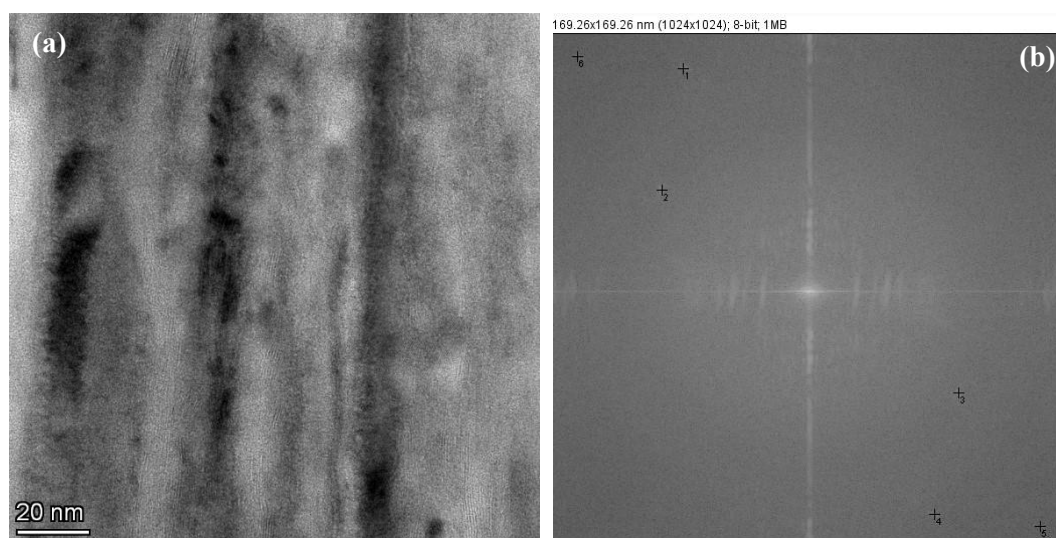


**Figure S2.** HRTEM image collected from the left part of thin foil 1 marked in figure S1, and corresponding FFT pattern.

Point	Distance (Å)	(hkl) chamosite
1	4.09	$\bar{1}12$
2	4.01	$\bar{1}12$
3	4.02	$\bar{1}12$

4	4.07	$\bar{1}12$
5	3.83	022
6	3.84	022
7	3.51	004
8	3.52	004
9	3.65	112
10	3.62	112

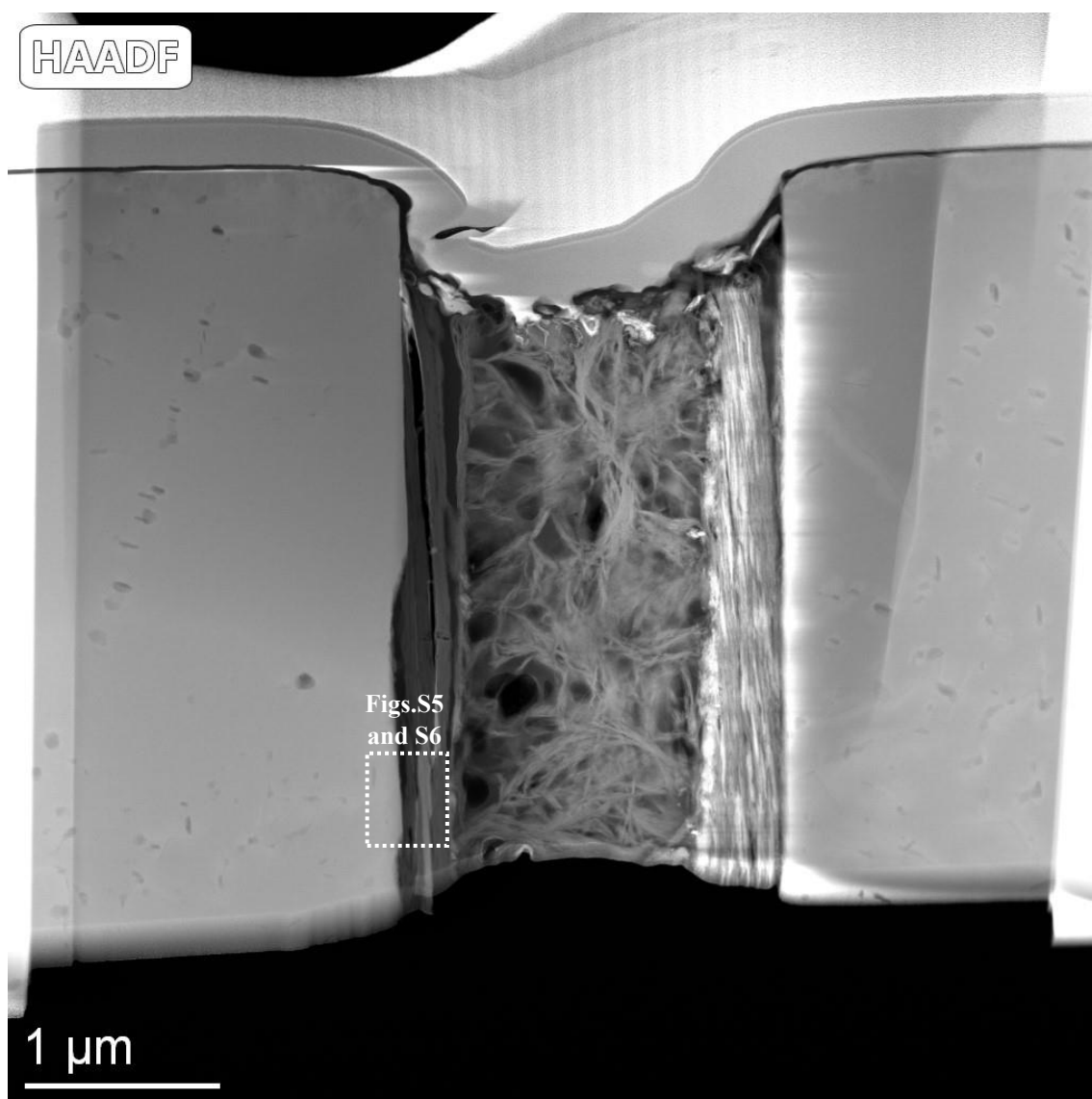
**Table S1.** D-spacings obtained from different points in the FFT pattern of Figure S2, and corresponding (hkl)



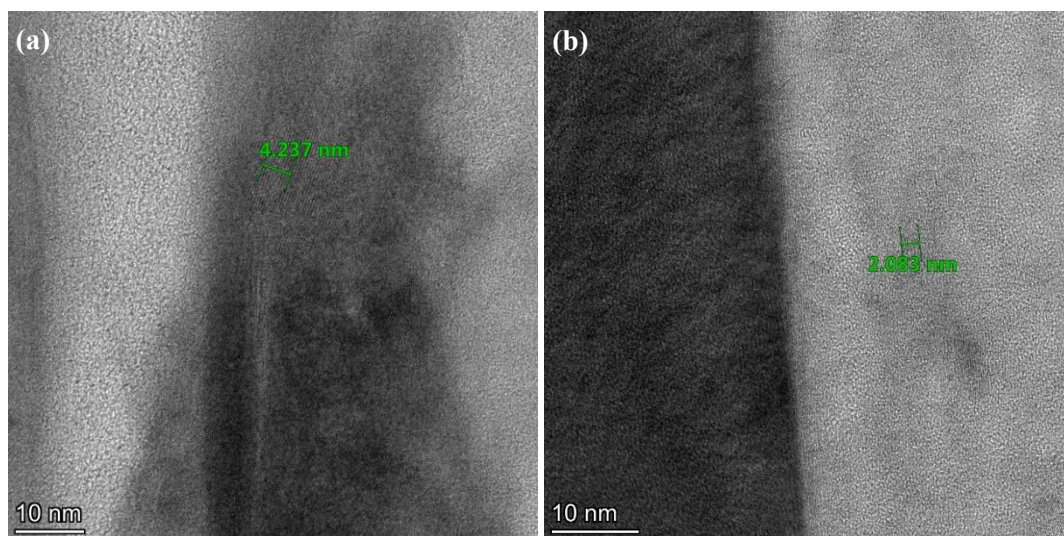
**Figure S3.** A second HRTEM image collected from the left part of thin foil 1 marked in Figure S1, and the corresponding FFT pattern

Point	Distance (Å)	(hkl) chlorite
1	3.32	116
2	4.74	006
3	4.72	006
4	3.33	116
5	2.58	$20\bar{2}$
6	2.57	$20\bar{2}$

**Table S2.** D-spacings obtained from different points in the FFT pattern of Figure S3, and corresponding (hkl)

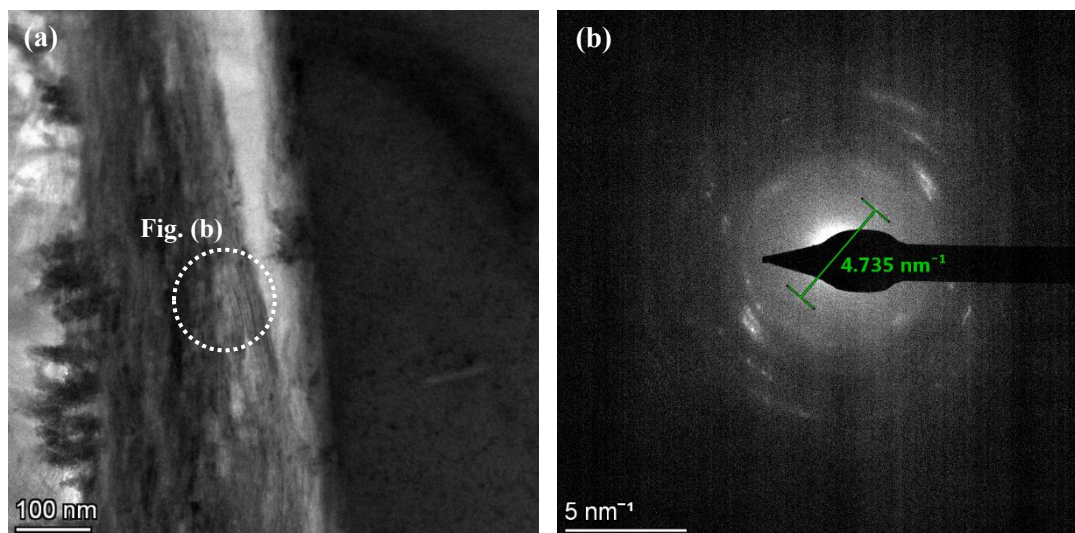


**Figure S4.** HAADF image of thin foil 2 including the location of HRTEM images of the next slide.

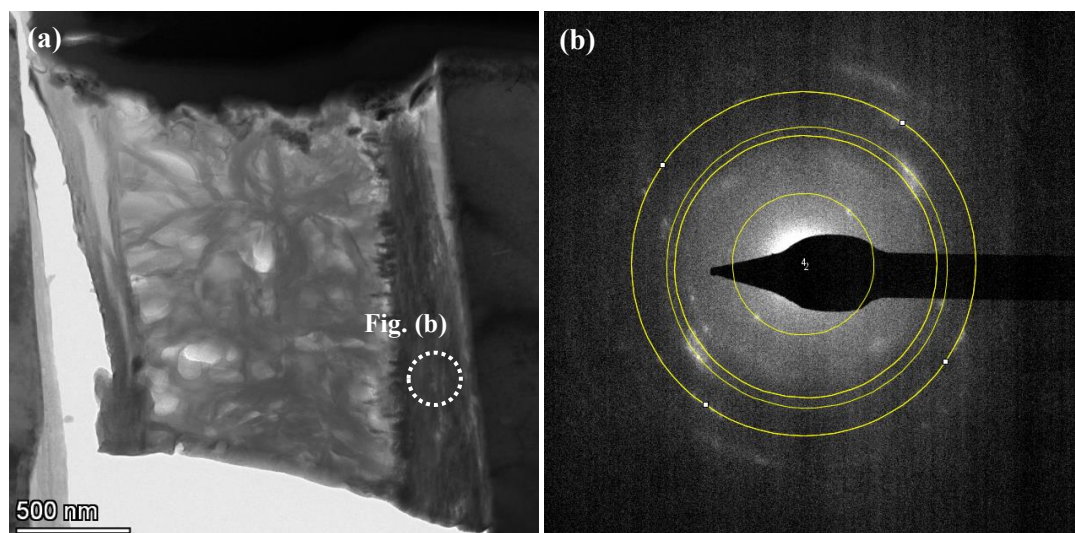


**Figure S5.** HRTEM images of the left region of thin foil 2. (a) A measured d-spacing of 4.237 Å (a) corresponding to (1 $\bar{1}$ 1) of chamosite. (b) A measured d-spacing of 2.083 Å corresponding to ( $\bar{2}$ 05) of chamosite.





**Figure S6.** (a) HAADF image of the right part of the thin foil 2 showing the location of the SAED pattern in (d). and the d-spacing of  $4.22 \text{ Å}$  calculated in (c) correspond to  $(1\bar{1}1)$  of chamosite.



**Figure S7.** (a) HAADF image of the right part of the thin foil 2 showing the location of the SAED pattern in (b).

Circle	Distance (Å)	(hkl) chamosite
1 (inner)	4.19	$\bar{1}11$
2	2.26	$(\bar{2}04)$
3	2.10	—
4 (outer)	1.72	$207^*$

**Table S3.** D-spacings obtained from SAED diffraction pattern in Figure S2, and corresponding (hkl). \*The d-spacing of  $1.72 \text{ Å}$  corresponds to  $(207)$  of monoclinic polytype IIb chlorite