The manuscript was improved significantly, it is clearer, provides a better discrimination of different sample properties and their impact on IN and the discussion is more structured. My critique in the first review regarding the sample classification and characterization is not fully resolved and the work would still benefit from more petrographic micrographs, SEM images and in particular EPMA analyses, but in the context of the work's scope, the portrayed main characteristics (Al-Si ordering, microcline/orthoclase, Na-K-composition, perthites) and their impacts on IN are well discriminated and well discussed.

A few sentences need to be fixed:

197-199: "The absence of mica phases in the Imerys samples implies that Al is incorporated into the feldspar structure via Si-Al substitution, with charge compensation provided by elevated K^+ content (Ribbe, 2018)." => There is space for 4 K^+ per unit cell yielding the composition $KAlSi_3O_8$. If the Si-Al ratio is less than 3, i.e. the composition is $(K,Na,Ca,...)Al_{1+x}Si_{3-x}O_8$, the Si-Al substitution goes together with the incorporation of 2+ ions (Ca, Ba, Sr) not with "elevated" K^+. The Si/Al-ratio of 2.9 shown in table 1 should be explained with higher Ca content of IK1 and minor muscovite (or sericite) inclusions. The higher K of IK1 compared to IK2 is only the different K-Na composition.

511-517: It should be clarified that samples FS08-64o and FS08-64c were shifted to intermediate compositions (K_K=0.43) at 850°C before they were annealed at 550°C. During this shift, cracks parallel to the Murchison plane are formed (Kiselev et al. 2021, section 2.1.1 and Fig 1). During annealing at 550°C for 64d, more cracks are formed in sample FS08-64o and in sample FS08-64c no additional cracks but 30nm wide exsolution lamellae are formed (Kiselev et al. 2021, Fig. 5).

526: "...crack walls generated during vacuum annealing" => should be adjusted accordingly

533-534: "We hypothesize that these additional sites may be associated with increased surface disorder" => in the context of this work, I read "disorder" as Al-Si disorder. The starting material for Kiselev et al. (2021) is highly disordered sanidine equilibrated at around 1000°C, annealing at 550°C could only increase Al-Si ordering. Please clarify.

Technical:

Line 406: "Table Table"