

20 years of the Crystallinity Index Standard – a progress report

L. Warr^{1,2}

¹University of Greifswald, IGG, Greifswald, United Kingdom

²University of Greifswald, Geography and Geology, Greifswald, United Kingdom

The Crystallinity Index Standard (CIS) developed by Warr & Rice (1994: *Journal of Metamorphic Geology*) is a calibration approach used to standardized the Full-width-at-half-peak-maximum (FWHM) parameter of the X-ray diffraction basal reflections of clay minerals so that different laboratories can more easily produce the same results from the same rocks. The most common use of the CIS standards has been to calibrate the FWHM of the illitic 10 Å and the 14 Å chlorite reflections, referred to as the Kübler and Arkai index, respectively. These indexes are widely used for determining the grade of diagenesis and low temperature metamorphism of argillaceous rocks, allowing recognition of diagenetic, low anchi-, upper anchi- and epi-zone conditions. The use of these rock chip standards that require sample preparation has generally taken over the use of polished rock slabs as they have the advantage of calibrating all the differences between laboratories, and not just variations caused by different X-ray diffraction machine settings. One often stated “problem” with the Crystallinity Index Standard is that the FWHM values used are significantly broader than B. Küblers’ original scale of the Neuchatel Laboratory: which is actually the case. The reason for this difference is that the CIS scale made an attempt to reproduce Küblers’ original “anchizonal” values indirectly using the polished rock standards circulated by H. Kisch. The procedure failed to work because the sample preparation differences between the laboratories in question were not included. Despite the relevant broadness of the CIS scale, this standardization procedure has found widespread usage over the last 20 years and has achieved its goal in enabling researchers to produce directly comparable results between laboratories. This presentation will make some suggestions for the future of the CIS procedure, which can be openly discussed in the accompanying “Round table to discuss problems in “Kübler index” standardisation”.