

SUMMARY

This thesis is focused on prominent uranium deposits in Czech Republic and their secondary uranium mineralization. Main goal of this thesis is to analyze collected minerals and to determine their ages. Next step is to prove or disprove hypothesis that this secondary uranium minerals are products of Quaternary glacier weathering. As a suitable analytical method, an alpha spectrometry was used and the age was calculated by $^{230}\text{Th}/^{234}\text{U}$ ratio. Firstly, chosen methodology was verified with admixture of reference material PU1 (Příbram uraninite) in secular equilibrium and internal standard, both with known activity. Analyzed spectra confirmed that some of the samples lay on the very edge of datability, especially in case of PL1 and GF1, both samples are very young, so they easily could be products of anthropogenic activity (changed environment due to mining works). On the other hand, in case of sample GF3, the age was successfully determined, although it is also quite young phase. In case of samples ME3, ME4 and ME6 was used threshold dating method, because they were considered to be too old for age calculation. The rest of the samples chosen for age determination was analyzed without further complications. Based on the age and geological setting, samples GF3 ($3\,725 \pm 845$ years), JE1 ($10\,655 \pm 1\,795$ years) and JE3 ($24\,865 \pm 3\,885$ years) are the most probably products of weathering during the last interglacier period. Sample ZA1 ($101\,020 \pm 47\,530$ years) belongs to upper Pleistocen and its origin is connected with Riss/Würm interglacier period. In case of samples ME3, ME4 and ME6, due to the higher age and high scatter, threshold dating was used to indicate their minimum age ($> 203\,300$, $> 203\,400$, $> 117\,700$ years). Together with ME2 sample ($242\,845 \pm 70\,745$ years), dating and interpretation of origin of ME samples is quite problematic, but we can say for sure that these minerals belong to middle Pleistocene. There is a slight chance that these minerals could be products of interstadial weathering during the Riss glacier period. Separate chapter is KO1 sample, ages of this samples wasn't calculated due to high $^{230}\text{Th}/^{234}\text{U}$ ratio, which is an evidence of massive uranium leaching caused by supergene processes on Kokonín locality.