RADON/THORON EXHALATION CHARACTERISTIC OF HEAT TREATED RED MUD, RELATIONSHIP BETWEEN INTERNAL STRUCTURE FEATURES, POSSIBILITIES OF REDUCTION

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Radon exhalation is a problematic

- Radon exhalation greatly depends on the structure
- The investigation of possibilities to reduce exhalation capacity are very important
Rn/Tn exhalation and emanation

- Accumulation chamber technique
- Short accumulation period
  - 12-48 hours for Rn
- Rn/Tn exhalation and emanation can be measured simultaneously

Great influence of temperature on internal structure
Great possibility to reduce exhalation capacity
Results

- The exhalation reduced greatly as a result of heat-treatment.
  - Radon exhalation: 75 ± 10 mBqkg⁻¹h⁻¹ (100 °C treated) to 7 ± 4 mBqkg⁻¹h⁻¹ (1000 °C)
  - Thoron exhalation: 312 ± 19 Bqkg⁻¹h⁻¹ (100 °C treated) to 80 ± 7 Bqkg⁻¹h⁻¹ (1000 °C)

- The massic exhalation capacities were very low in the high temperatures treatments in the case of radon and thoron exhalation as well.

- The pores size distribution shows that in the lower case range (< 100 nm), the frequency of the pores was very low.