

TS6 RAMPEC-DITUSC: RADIONUCLIDE SORPTION DATA AND DATABASES

Topics of the presentations:

- Identification of treatment of uncertainties in Thermodynamic Databases (DITUSC→THERMOGAP)
- Derivation of Sorption data on barrier materials and their further use related to feed into thermodynamic databases / sorption databases
→ different goals, different approaches



SUMMARY

- **Thermodynamic databases are key for the understanding of radionuclides behaviour in a repository environment - cornerstone of Safety Case.**
 - Excellent databases are available and are continuously evolving.
 - Focus of DITUSC: identification of datagaps and methods for uncertainty treatment.
 - THERMOGAP: deliver validated, SA oriented workflows for geochemical sensitivity and uncertainty analysis.
- **Understanding and parametrization of radionuclide sorption mechanisms are needed to underbuild Retention safety function**
 - Focus of RAMPEC - providing sorption data for clay/crystalline/cement systems under “perturbing” conditions
 - feed into Thermodynamic and PA oriented databases.
 - Need for proper documentation of the experimental conditions to ensure that the data can be used in a proper way for feeding databases
 - Uniformisation

SUMMARY

- **Kd approach remains a common methodology for carrying out SA calculations (simplicity, versatility for sensitivity analysis)**
 - Collection of Kd for specific material and specific condition – selection of data ranges
 - Often not digital
 - Sorption modelling used to underpin data selection
 - Benefit from establishing international initiatives in building digitized sorption basis (more generic)
- **Different types of “sorption” related databases exist but none is sufficiently extensive to answer all kinds of purposes....**
 - International initiatives are undertaken to discuss on the development of sorption databases starting from the needs of different types of end-users: availability of data (& data gaps), long term preservation, which data to capture, database structures, harmonization, tools,...
 - Rampec Task2 Retention/transport database
 - Workshops on sorption database development (A21-N/O-FZDR-LLNL)