Acquiring MIR spectra from soil specimens

# Afternoon before acquisition

* Place specimens to be analysed in oven to re-dry at 60°C (without lids)

# Daily preparation

* Remove specimens from oven
  + Cool in desiccator (if possible)
  + Replace lids
* Retrieve desiccant pack from oven at 105°C
* Unscrew plate at rear of instrument and remove desiccant pack
  + Replace with desiccant pack from oven
  + Place removed desiccant pack in oven at 105°C
* Turn on computer
  + Start OPUS
  + The instrument should beep as it connects to the computer
  + The indicator in the bottom right of the OPUS screen should be green
  + If OPUS indicates that an OQ or PQ test, run test
    - PQ test required every 7 days
    - OQ test required every 365 days
    - To run test click <Validation><Run the instrument test>
    - Check box for test to be run
    - Click <Run selected tests>
* Scan reference (repeat every hour)
  + Place gold reference in instrument
  + Click <Acquire> tab
  + Click <Advanced measurement>
  + Click <Background single channel>
  + Wait while instrument scans reference (64 scans)

# Spectra acquisition

* Prepare 4 replicates for scanning
  + Place specimen jar on sample tray
  + Place specimen cup in filling device
  + Use spatula to fill cup with specimen
  + Gently scrape away excess specimen with flat end of spatula
  + Remove specimen cup from filling device by gently turning device until it drops height
  + Place full specimen up on sample tray
  + Repeat 3 more time
* Prepare OPUS for new sample
  + Click <Acquire><Advanced measurement>
  + Enter specimen name in “Sample description”
* Acquire spectra
  + Place specimen cup on measurement arm of instrument – ensure lug on bottom of sample cup locates into hole in arm
  + Gently push arm into instrument
  + In OPUS click <Sample single channel>
  + Wait while instrument conducts 64 scans
    - The instrument may reject some scans but will continue trying to acquire 64 scans
    - If too many are rejected, the measurement can be aborted by right clicking the green task bar at the bottom of the OPUS window, and then clicking <Abort>
  + When scan has finished check the spectra looks reasonable
  + Gently pull out measurement arm
  + Remove specimen cup
  + Replace with second specimen and repeat above process
* Check spectra names are correct and that the four replicates are name “.0”, “.1”, “.2” and “.3”
* If spectra window becomes too cluttered, remove spectra by clicking the <Unload all> button

# End of day tidy up

* Close OPUS
* Open Windows Explorer – spectra will be in C:\Data
* Check spectra names. Check there are 4 replicates per specimen
* Select all spectra (<Ctrl A> is the shortcut)
* Move all spectra from C:\Data to a project folder
* C:\Data should be empty
* Shut down computer
* LEAVE MIR instrument ON.