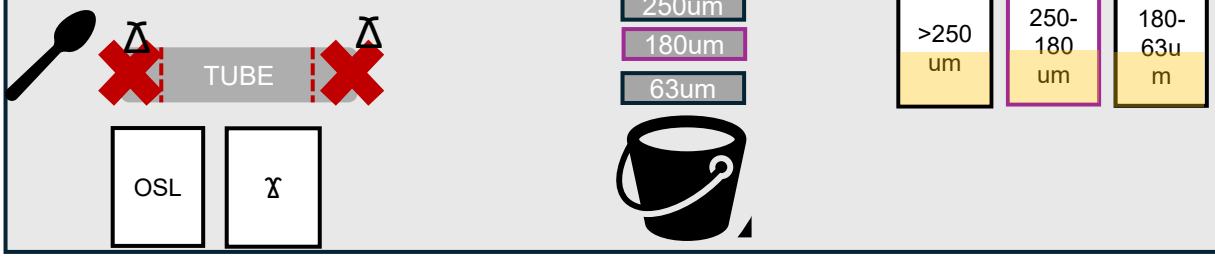
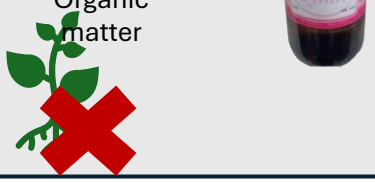
Sample Preparation for Optically Stimulated Luminescence (OSL) Dating

The preparation of sediment samples for Optically Stimulated Luminescence (OSL) dating follows nine steps, described below. All procedures must be carried out in a darkroom to prevent unintended bleaching.

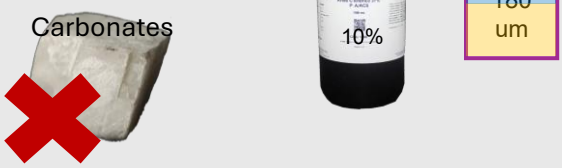
Wet sieving



Hydrogen Peroxide (H_2O_2) treatment



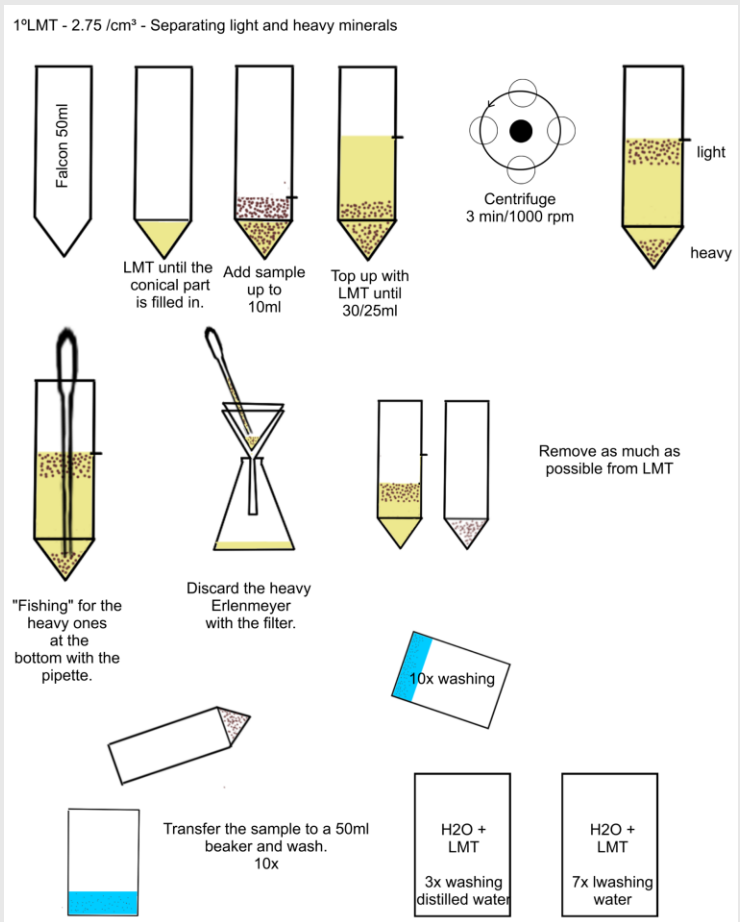
Hydrochloric Acid (HCl 10%) treatment



Rinse the sample 5 times after each chemical treatment.

Dry (40-60ºC)

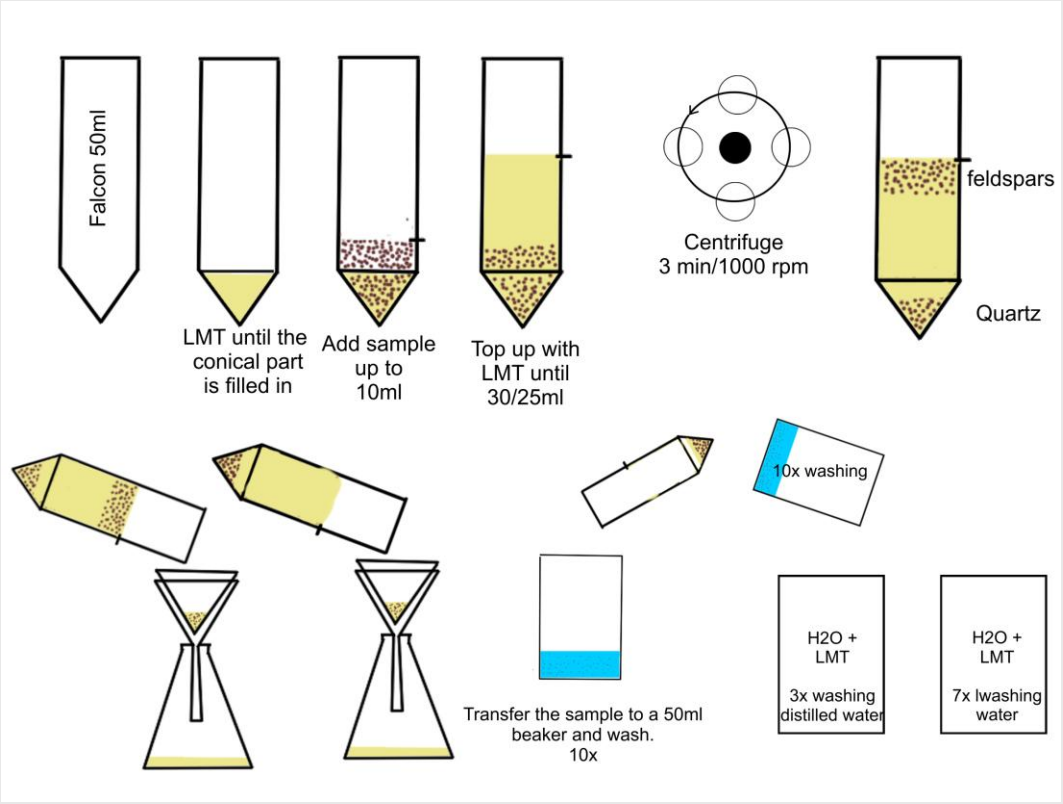
Density separation using Lithium Metatungstate (LMT)



Separation of light and heavy minerals (LMT 2.75g/cm^3)

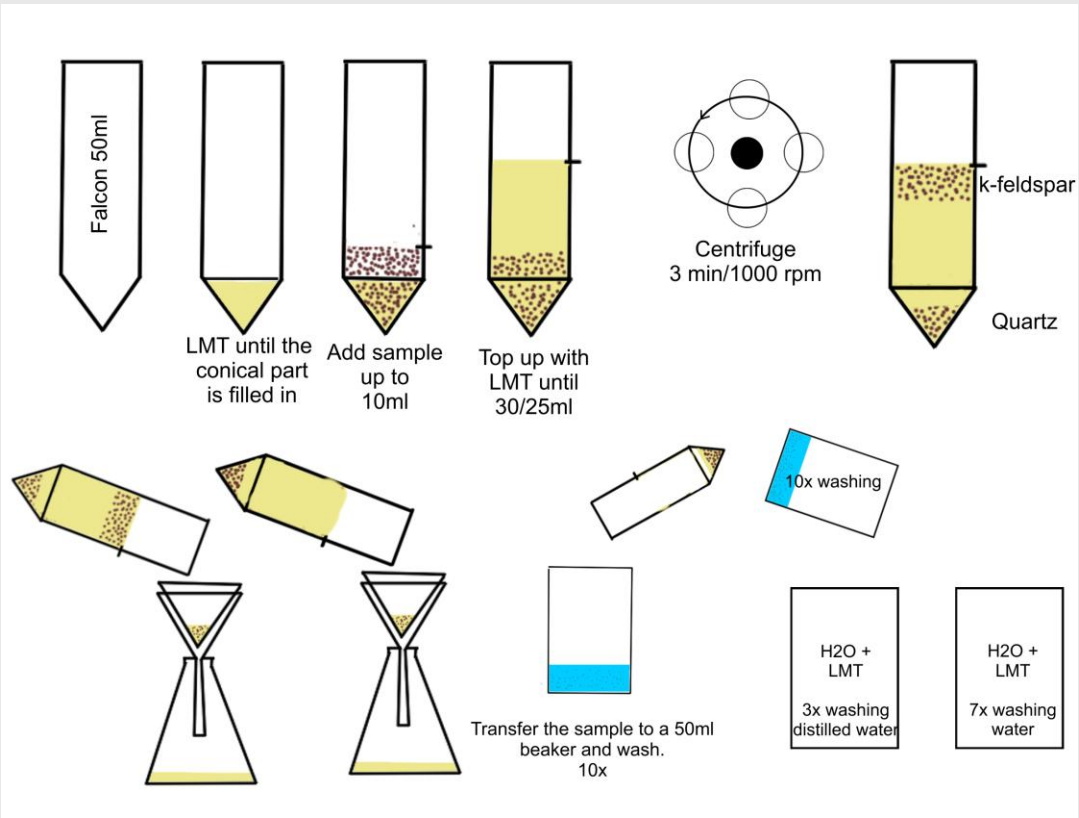
Dry (40-60ºC)

Separation of feldspar e quartz (LMT 2.62g/cm^3)

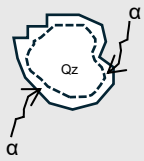


Dry (40-60ºC)

Separation of feldspars and potassic feldspar (k) (LMT 2.58g/cm^3)



Quartz – eliminate the remaining feldspar and approximately 20 mm of the grain surface influenced by alpha radiation.

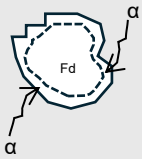


Hydrofluoric Acid (HF) treatment (HF 40% - quartz or 10% - k feldspar)

250-180 um

40 minutes

k - feldspar – remove approximately 20mm from the surface of the grains influenced by alpha radiation.



Do not forget PPE

250-180 um

40 minutes

After the attack, place the HF in the disposal bottle.

Rinse the sample **5x** after each chemical treatment.

Hydrochloric Acid (HCl 10%) treatment

30 minutes

250-180 um

Remove any fluorides that may have precipitated in the previous attack.

Rinse the sample **5x** after each chemical treatment

Dry (40-60ºC)

Dry sieving

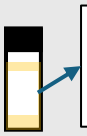
250-180 um

180um

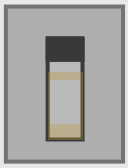
Lower size limit

Due to the HF attack, the quartz or feldspar grains lost their initial size and must be disregarded.

Store and label the sample.



- Lab. Code
- Grain-size fraction
- Mineral (Qz ou Fd)



RISOS/Lx room

Keep the sample protected from light