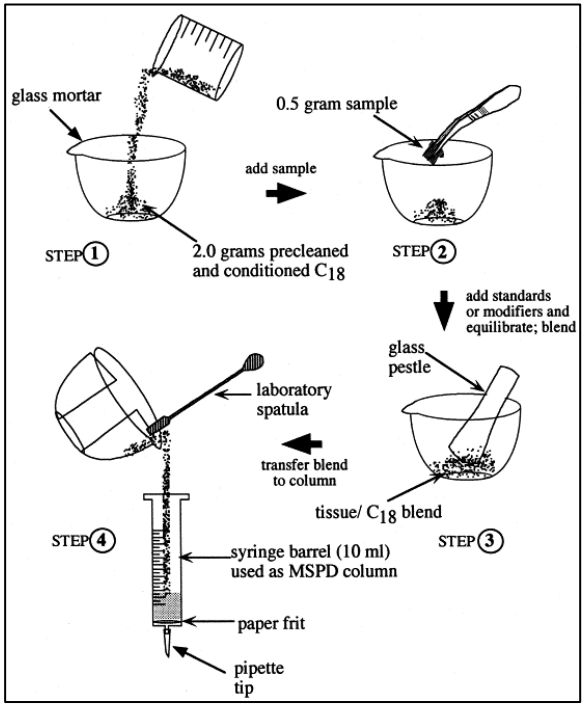
➢ DISPERSIVE SOLID PHASE EXTRACTION

Matrix Solid Phase Dispersion (MSPD)

- **blending of sample with suitable sorbent** (e.g. silica gel-C_{18})
- **transfer of the obtained mixture to column** (syringe-like)
- (**addition of other cleaning-up sorbents** – e.g. Florisil)
- **compression of column**
- **elution of analytes by solvent(s)**



Advantages:

- isolation and clean-up in one step
- time and solvents saving
- non-laborious

➢ DISPERSIVE SOLID PHASE EXTRACTION

Matrix Solid Phase Dispersion (MSPD)

Blending of sample with sorbent (sample : C_{18} = 1 : 4)

Membrane disruption – mechanical and hydrophobic forces (lipids release)

Solid phase solvates and disperses sample components (non-polar → C_{18}, polar → -OH silica gel)

Large contact area of phases

Matrix itself is creating „a new sorption phase“

→ affecting of the separation process

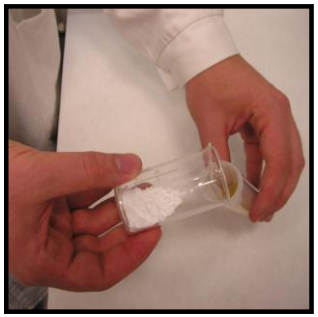
→ *analytes are eluted in fractions not corresponding to a simple system: analyte / pure solid phase / solvent)*

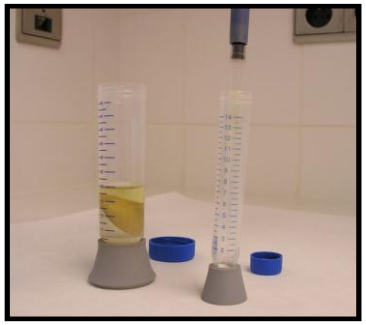
➢ DISPERSIVE SOLID PHASE EXTRACTION

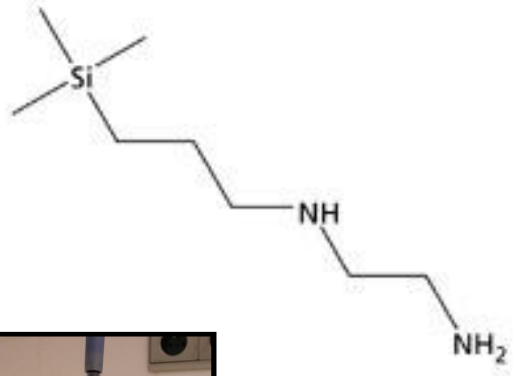
Quick, Easy, Cheap, Effective, Rugged and Safe

⇒ QuEChERS

- **sample extraction – acetonitrile + NaCl and/or $MgSO_4$,**
  + (acidification + other …)
- shaking → centrifugation ⇒ **salting out of analytes to organic phase**
- **crude extract + $MgSO_4$ or sorbent – PSA = Primary Secondary Amine**
- shaking → centrifugation







➢ DISPERSIVE SOLID PHASE EXTRACTION

Quick, Easy, Cheap, Effective, Rugged and Safe

⇒ QuEChERS

- removal of polar matrix components
  - organic acids, polar pigments, carbohydrates
- acidification for some analytes X degradation of others

Advantages:

- isolation and clean-up in one step
- time and solvents saving
- quick and … ⇒ **QuEChERS**