

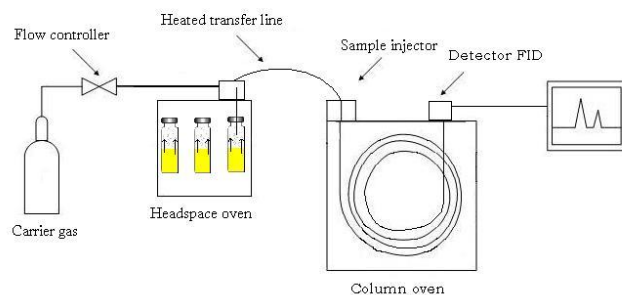
Static headspace analysis of cheese - going from HSGC-FID to HSGC-MS

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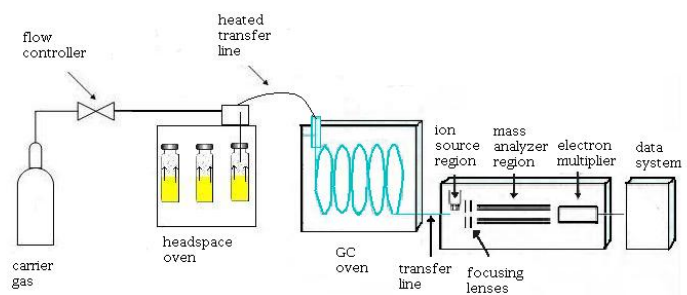
Static vs Dynamic headspace

- ❑ Static HS
 - Only the volatiles in a set volume of the headspace obtained
- ❑ Dynamic HS
 - The volatiles are concentrated on a trap

HS GC FID



HS GC MS



Differences static HS: FID vs MS

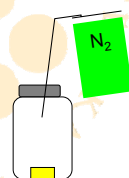
□ FID:

- Larger samples (10 g)
- Larger diameter of column
- Static headspace **OK**

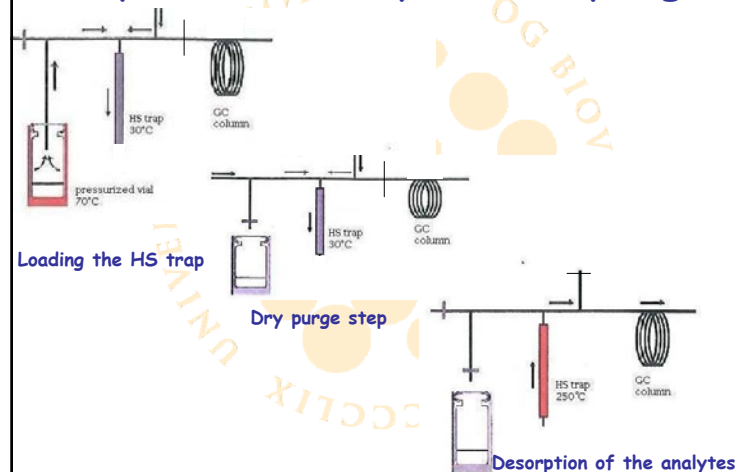


□ MS

- Smaller samples (2 g)
- Less diameter of column
 - because of vacuum in the MS
- Problem: to small compound concentration, difficulties to identify, Static headspace **not OK**
- Measure → dynamic HS:
 - Flush with N₂
 - Trap



Dynamic headspace sampling



Trap

- Compounds released by an increase in temperature
- Have to choose between:
 - Good release of low molecular compounds (mw <)
 - Good release of higher molecular compounds (i.e. AcA not obtained)
- When working with cheese which of those should be chosen?
- What type of trap should be used?

Problems

- What type of trap should we use
- Temperatures
- Sample preparation
 - Pure sample?
 - Water addition?
 - Solvent addition?

Approach

- ❑ Use HSGC-FID for routine
- ❑ Use HSGC-MS for identification of unknown compounds
 - Choose of trap according to probable compound