

**Identification and quantification of preservative chemicals in common household products**

**Session 3**

The aim of this session is to analyse the extract that you purified during Session 2. You will identify and quantify the parabens present in your extract and therefore be in a position to assess whether the product you have decided to investigate complies with the 76/768/EEC council directive relating to the use of preservatives in cosmetic products.

Using your findings from the Session 3 pre-laboratory exercise, discuss the aims of the current session and suggest some methods that should enable you to achieve these aims. You will have **15 minutes** to do this.

**Note:** When designing your experimental procedure, consider the following:

- The desired outcome(s)
- Glassware/equipment/solvents that are available to you
- Time
- Safety
- Data/information to be recorded

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**Method to carry out analysis of extracts containing parabens**

Parabens can be analysed using GC or GC-MS techniques. However, they need to be derivatised prior to the analysis. In the case of parabens, a suitable silylation (derivatising) agent is bis-trimethylsilyl trifluoroacetamide (MTBSTFA).

**Silylation procedure:**

1. Add 10  $\mu\text{g}$  of each of the paraben standards to a 2 mL GC vial (use the solution that you prepared during Session 2). Evaporate the solvent and add 1 mL of ethyl acetate.
2. Dissolve your extract in 1 mL of ethyl acetate and transfer 10  $\mu\text{L}$  of the solution into a 2 mL GC vial. Evaporate the solvent and add exactly 1 mL of ethyl acetate to the vial.
3. Add 1 mL of ethyl acetate to your procedural blank extract.
4. Add 40  $\mu\text{L}$  of MTBSTFA into each vial and heat them at 70°C for 30 minutes in a heating block in a fume cupboard. When cool, your 3 samples will be ready for analysis by GC or GC-MS.

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