

Sample Preparation Guidelines for GC-MS

Concentrations: Solutions should be submitted approximately 10 ug/mL in a solvent suitable for GC-MS analysis. Sample concentration should be prepared with the aim to achieve a column loading of approximately 10 ng with a 1 uL injection (splitless). Samples should not contain any particles or precipitate that will block the syringe, and contaminate the injector and column. Centrifuge prior to transferring to vial. Samples should be prepared in glass 1.5 mL GC autosampler vials, with or without insert. Minimum 50uL of sample is recommended to load to guarantee that the needle will reach and pick up the sample (the injector does not have a vial bottom sensor).

Solvents: GC-MS requires volatile organic solvents such as dichloromethane, hexane, methanol, ethyl ether, etc. GC-MS can not be performed directly on samples dissolved in water.

Avoid: Some classes of compounds are not amenable to GC-MS analysis and should not be submitted. These compounds include strong acids, strong bases, salts, water, metals, or polymeric material. Plastic vials and parafilm should also be avoided. Ensure your sample components are volatile at temperatures of less than 300 degC, otherwise they will remain on the column and contaminate it.

If possible, specify the GC temperature program and the injector temperature and the type of column either highly polar (DB-Wax) or non-polar (DB-5).

Semi-volatile and polar compounds can be analyzed by derivatizing the sample. If you follow a derivatization protocol, please mention the method and or reagents in the submission form. If you are not sure about what derivatization reaction to choose please contact MSF for advice and training.

Compounds in the headspace (**gas phase**) can be analyzed directly, either by direct injection with gas tight syringe or by Solid Phase MicroExtraction (SPME). For introduction to SPME analyses please watch the tutorial at <https://www.youtube.com/watch?v=Gno-S8FBpXM>. Four conventional SPME fibers are commercially available. Please consult literature for selecting the right SPME fiber for your experiment.