

Avoid Contamination in your LC-MS experiment

Sources

Polymers from bottle caps
 Plasticizers from pipette tips
 Soaps from glass ware
 Researcher

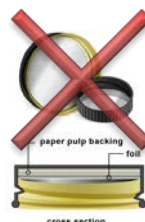
Polymers from bottle caps

Anything that comes in contact with your solvents needs to be resistant to chemicals to avoid polymers and plasticizers leaching into your solvents and samples.

Use glass bottles with Teflon / PTFE lined caps for your working solvents and solutions.

e.g. [Qorpak™ Glass Bottle Beakers](#) with Green Thermoset F217 and PTFE lined caps, they come in various sizes

Here is the manufacturers part number for the 30ml GLC-01450 (Fisher 02 992 128) and the 60ml GLC-01472 (Fisher 02 992 601)



Never use rubber or aluminum foil lined caps!

Plasticizers from pipette tips

Start with clean HPLC or LCMS grade solvents (e.g. Fisher Optima LCMS)

Never use pipette tips or plastic serological pipettes to transfer solvents from your stock solvent bottles.

Preferably pour the solvent to a clean bottle or measuring cylinder. Glass serological pipets and Pasteur pipets are ok to use.



Glass

Never use pipette tips to transfer concentrated acids, always use glass pipettes or glass syringes with stainless steel needles (rinse the syringe immediately after transferring with LCMS grade water). For larger quantities we use disposable glass pipets.

Once the solvents are transferred to a smaller bottle and for diluted acid solutions (<5%) it is ok to use pipette tips. Replace those working solvents and solutions regularly; you can use the same bottle for the same solvent over and over, just rinse it a little bit before your new solution.

Soaps from glass ware

If you hand wash your glass ware use soap that rinses off without leaving a residue, e.g. Liqui-Nox Critical cleaning liquid detergent (Phosphate-Free Liquid Detergent concentrate is noncorrosive soluble in hot, cold, hard or soft water and for use in cleaning analytical and EPA sample equipment. Free rinsing formula leaves no residue. (VWR part # 21837-005))

If you use a dishwashing facility ask if they can include a special rinse cycle

In any case thoroughly rinse all glassware prior to use. Preferable the final rinse should be with the solvent to be stored/prepared in that glass ware.

Reuse the same bottle for the same solvent; simply rinse it when you make up a fresh batch.

Researcher

In bottom up LC-MS experiments any protein contamination induced by the researcher prior to the tryptic digest may show up. This is most prominent in in-gel digestion experiments, where the most abundant contaminant is human keratin.



Always wear gloves and appropriate protective gear to protect you **and your sample!**

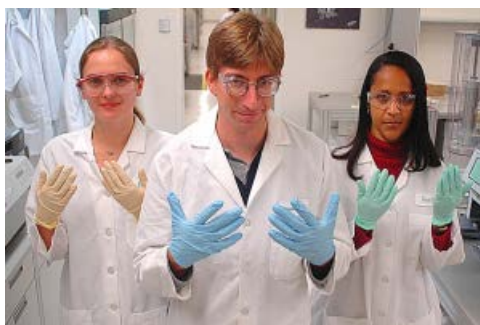


Image stole from: <http://sciencereview.berkeley.edu/do-rules-make-us-safer/>

Thoroughly clean all surfaces, including a final wipe with methanol

Use clean tools

Use common sense... ☺

Description	part number	Vendor
Qorpak™ Glass Bottle Beakers with Green Thermoset F217 and PTFE Caps 30 ml GLC-01450	02 992 128	Fisher
Qorpak™ Glass Bottle Beakers with Green Thermoset F217 and PTFE Caps 60 ml GLC-01472	02 992 601	Fisher
Qorpak™ Glass Bottle Beakers with Green Thermoset F217 and PTFE Caps 120 ml GLC-01504	02 992 588	Fisher
Qorpak™ Glass Bottle Beakers with Green Thermoset F217 and PTFE Caps 240 ml GLC-01532	02 992 647	Fisher
Qorpak™ Glass Bottle Beakers with Green Thermoset F217 and PTFE Caps 480 ml GLC-01560	02 992 801	Fisher
Hamilton Company 1700 Series Gastight™ Syringes 10 µL, Model 701 N SYR, Cemented NDL, 22s ga, 2 in, point style 3 (80365)	14-815-287	Fisher
Hamilton Company 1700 Series Gastight™ Syringes 25 µL, Model 1702 N SYR, Cemented NDL, 22s ga, 2 in, point style 3 (80275)	14-813-133	Fisher
Hamilton Company 1700 Series Gastight™ Syringes 50 µL, Model 1705 N SYR, Cemented NDL, 22 ga, 2 in, point style 3 (80985)	14-813-137	Fisher
Hamilton Company 1700 Series Gastight™ Syringes 100 µL, Model 1710 N SYR, Cemented NDL, 22 ga, 2 in, point style 3 (81085)	14-813-139	Fisher
Hamilton Company 1700 Series Gastight™ Syringes 250 µL, Model 1725 LTN SYR, Cemented NDL, 22s ga, 2 in, point style 3 (81175)	14-813-140	Fisher
Hamilton Company 1700 Series Gastight™ Syringes 500 µL, Model 1750 LTN SYR, Cemented NDL, 22 ga, 2 in, point style 3 (81216)	14-813-142	Fisher
Borosilicate Glass Disposable Serological Pipets with Regular Tip, Short Length 1 ml	13-678-36A	Fisher
Borosilicate Glass Disposable Serological Pipets with Regular Tip, Short Length 5 ml	13-678-36B	Fisher
Borosilicate Glass Disposable Serological Pipets with Regular Tip, Short Length 10 ml	13-678-36C	Fisher
Borosilicate Glass Disposable Serological Pipets with Regular Tip, Short Length 25 ml	13-678-36D	Fisher
Borosilicate Glass Disposable Serological Pipets with Regular Tip, Short Length 50 ml	13-678-36E	Fisher
Water (Optima™ LC/MS), Fisher Chemical	W6-500	Fisher
Acetonitrile (Optima™ LC/MS), Fisher Chemical	A955-500	Fisher
Methanol (Optima™ LC/MS), Fisher Chemical	A456-500	Fisher
Acetic Acid, Optima* LC/MS, Fisher Chemical	A113-50	Fisher
Formic Acid, Optima* LCMS Grade, Fisher Chemical	A117-50	Fisher
Trifluoroacetic Acid (Optima™ LC/MS), Fisher Chemical	A116-50	Fisher
0.1% Formic Acid in Acetonitrile, Optima™ LC/MS, Solvent Blends, Fisher Chemical	LS120-500	Fisher
0.1% Formic Acid in Water, Optima™ LC/MS, Solvent Blends, Fisher Chemical	LS118-500	Fisher
0.1% Trifluoroacetic Acid in Water, Optima* LC/MS, Solvent Blends, Fisher Chemical 0.5L	LS119-500	Fisher
0.1% Trifluoroacetic Acid in Acetonitrile, Optima* LC/MS, Solvent Blends, Fisher Chemical 0.5L	LS121-500	Fisher
Liqui-Nox* Phosphate-Free Liquid Detergent	21837-027	VWR

Please e-mail corrections/suggestions etc. to priska@uw.edu. Thanks!