Agilent Technologies

Title: What are the common contaminants in my GCMS

Contamination is usually identified by excessive background in the mass spectra. It can come from the GC or from the MSD. The source of the contamination can sometimes be determined by identifying the contaminants. Some contaminants are much more likely to originate in the GC. Others are more likely to originate in the MSD.

Contamination originating in the GC typically comes from one of these sources:

- Column or septum bleed
- Dirty injection port
- Injection port liner
- Contaminated syringe
- Poor quality carrier gas
- Dirty carrier gas tubing
- Fingerprints (improper handling of clean parts)

Contamination originating in the MSD typically comes from one of the following sources:

- Air leak
- Cleaning solvents and materials
- Foreline pump oil
- Fingerprints (improper handling of clean parts)

The following table lists some of the more common contaminants, the ions characteristic of those contaminants, and the likely sources of those contaminants.

Ions (*m/z*)	**Compound**	**Possible source**
18, 28, 32, 44 or 14, 16	H_20, N_2, O_2, CO_2 or N, O	Residual air and water, air leaks, out gassing from Vespel ferrules
31, 51, 69, 100, 119, 131, 169, 181, 214, 219, 264, 376, 414,426, 464, 502, 576, 614	PFTBA and related ions	PFTBA (tuning compound)
31	Methanol	Cleaning solvent
43, 58	Acetone	Cleaning solvent
78	Benzene	Cleaning solvent

91, 92	Toluene or xylene	Cleaning solvent
105, 106	Xylene	Cleaning solvent
151, 153	Trichloroethane	Cleaning solvent
69	Fore line pump oil or PFTBA	Fore line pump oil vapor or calibration valve leak
73, 147, 207, 221, 281, 295, 355,429	Dimethylpolysiloxane	Septum bleed or methyl silicone column bleed
77, 94, 115, 141, 168, 170, 262, 354, 446	Diffusion pump fluid and related ions	Diffusion pump fluid
149	Plasticizer (phthalates)	Vacuum seals (O-rings) damaged-by high temperatures, vinyl gloves
Peaks spaced 14 amu apart	Hydrocarbons	Fingerprints, fore line pump oil