



GC Troubleshooting Tips and Tricks from Inlet Through to Detection

Webinar highlights:
Experts'
insights and
Q&A

Discover a systematic approach to identifying, resolving, and preventing GC-related issues

Problems can arise from any component in your gas chromatography (GC) setup. Dr. Ramkumar Dhandapani gives insight to troubleshoot quickly and efficiently.

My analytes are breaking down in the inlet. How do I prevent this?

When you have an analyte breaking down in the inlet, it is probably the case that the analyte is thermally labile. Look at the class of analyte and see if you have chosen the right liner, then maybe consider a premium deactivated liner. Zebron ZB PLUS GC inlet liners are premium deactivation liners. You could also try a premium deactivated liner with wool and without wool for optimization.

The next step is to look at the gold seal and make sure you have changed the gold seal and that there is no deposit or stripped-off surface in it. Once you change the gold seal, the next step is to look at the column itself. If you are talking about active analytes or thermally labile analytes, make sure to have a premium deactivated column. Depending on the nature of the analyte, you could choose a specific premium deactivated column.

Zebron PLUS columns are premium deactivated. In addition, there are application-specific columns like ZB-624 and ZB-SemiVolatiles. These have a concealed surface that does not have exposed active spots. So that would prevent any adsorption.

I'm looking for a fast analysis of PAH. What are your suggestions?

There are a couple of ways you could make your analysis faster. The first thing is to choose an optimal film thickness and a stationary phase that provides you with better separation and better resolution of critical pairs.

Once you have enhanced resolution, you could go high on temperature which would give you a shorter run time. Again, I am talking about a plugin approach here, so with an existing versus complementary selectivity. The next step to further expedite your analysis is to choose a shorter column dimension with a smaller internal diameter.

And then, there is the carrier gas itself. You can go for hydrogen as a carrier gas which provides you with higher efficiency even at higher flow rates. This way, without compromising on resolution, you could run your analysis at a higher speed and get shorter run times.

How should I extend the lifetime of my column?

The lifetime of a column is dependent on how you maintain the column. You should respect the temperature limit of the column. Go at least 5 to 10 degrees lower than the maximum temperature of the column.

Trim the column periodically, from 0.5 to 1 inch on the inlet side. Also, when you know that your sample might have semi-volatile or non-volatile contaminant, use a sample pretreatment to help clean the sample before introducing it onto the column. Use a guardian-based approach. Zebron columns are available with an integrated guardian. With this, the first few meters would be a guard column followed by the analytical column. This guard column would act as a sacrificial part without affecting your analytical column. So, when you trim your column, you are not sacrificing the analytical column, but just amputating any contaminated part from the guard.

How different is Zebron ZB-PAH-CT from a 5ms phase?

5ms is a 5% phenyl-arylene phase which is a common phase that most people use for mass spec-based detection. The primary reason for that is, that you don't have to switch columns between analyses, but this also means it is a very generic phase. It, therefore, doesn't give you adequate resolution for specialized analysis, while Zebron ZB-PAH-CT is unlike any other column available on the market.

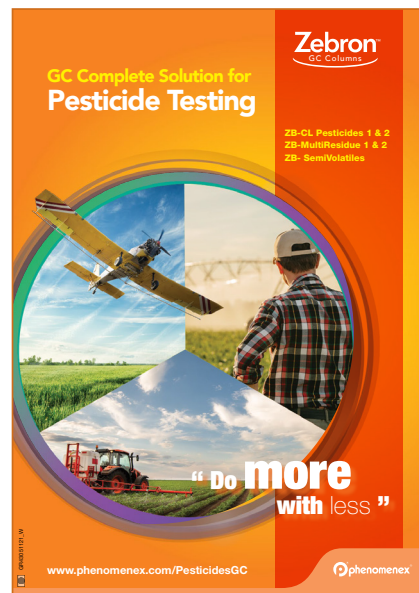
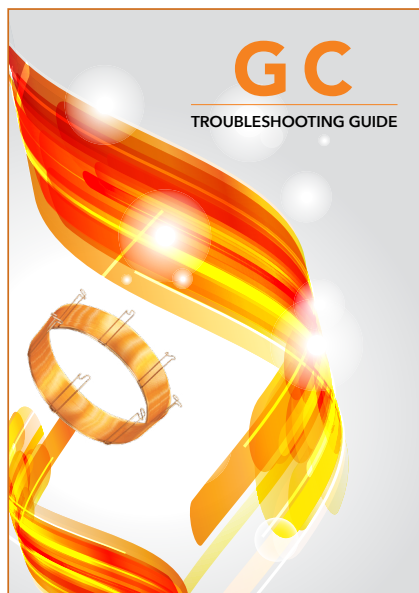
It is a complimentary unique selectivity that provides enhanced resolution for critical pairs like chrysene and triphenylene. A traditional phase like 5ms will not resolve chrysene and triphenylene, and it would have an overlapped coiled peak for chrysene and triphenylene. ZB-PAH-CT is a higher phenyl phase that offers enhanced resolution for chrysene and triphenylene along with other PAH components. So, selectivity is the key difference between ZB-PAH-CT and the 5ms.

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Meet Your New Zebron Gas Management Filters

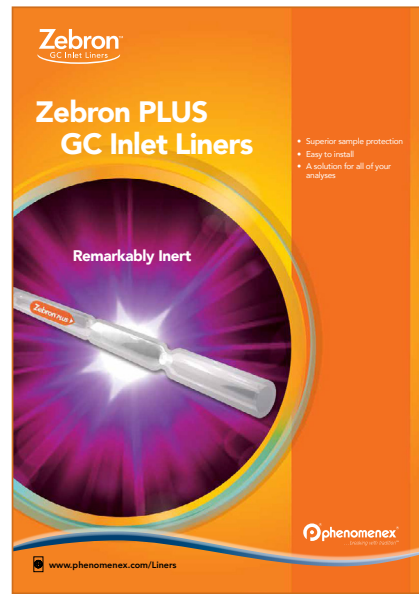
Select Your Zebron Gas Filter for GC or LC

What is your Detector?	Fitting	Connecting Unit	Your Choice of Zebron Gas Filter
GC/FID/FPD/NPD	1/8" NPT	AGS-2101 or AGS-2102 AGS-2203	AGS-1001 AGS-1010 AGS-1020 AGS-1030
GC/FID	1/8" NPT	AGS-2101 or AGS-2102 AGS-2203	AGS-1040 AGS-1050
GC-ECD/TCO	1/8" NPT	AGS-2101 or AGS-2102 AGS-2203	AGS-1060 AGS-1070
GC-MS	1/8" NPT	AGS-2101 or AGS-2102 AGS-2203	AGS-1070 AGS-1080
LC-MS	1/8" NPT	AGS-2203	AGS-1090 AGS-1100 AGS-1110

Meet Your New Zebron Inline Gas Traps

Select Your Zebron Gas Trap for GC or GC-MS analysis

What is your Gas Source?	What is your Detector?	Click-On Fitting	Your Choice of Zebron Click-On Gas Traps
FID/FPD/NPD	1/8" NPT	AGS-3170 or AGS-4140 AGS-3180	AGS-3120 AGS-3110 AGS-3130 AGS-3140
Gas Cylinder	ECD/TCO	AGS-3170 or AGS-4140 AGS-3180	AGS-3120 AGS-3110 AGS-3130 AGS-3140
Gas Generator	FID/FPD/NPD/ ECD/TCO/MSD	AGS-3170 or AGS-4140 AGS-3180	AGS-3120 AGS-3110 AGS-3130 AGS-3140



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