

# FID Noise

## Zero air vs Room air

The chromatogram at right shows 1ml of room air containing 2ppm of methane detected on a FID detector with “zero” air from a cylinder as the combustion gas.

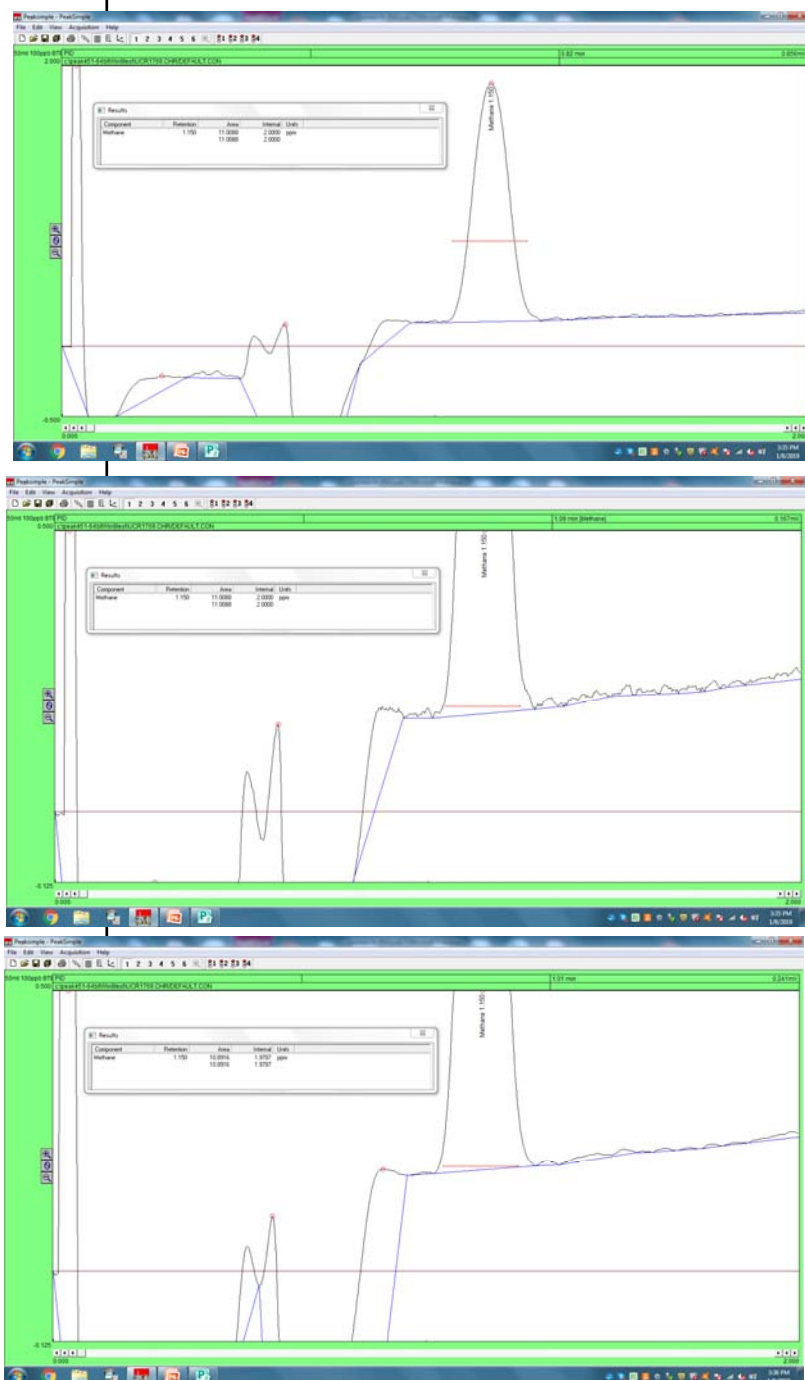
The air pressure was set to 3psi through a restrictor tube to give a total air flow of 250ml/minute.

Hydrogen carrier gas was set to about 20ml/minute.

This is the same chromatogram zoomed in for a better view of the signal noise.

The noise is about 20micro-volts peak to peak.

This is the same chromatogram after applying the smoothing algorithm. Noise is now about 10 micro-volts.



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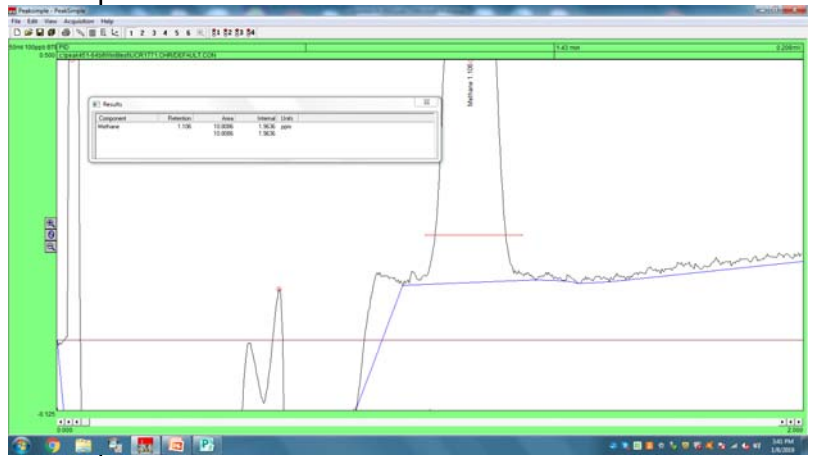
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## Zero air vs Room air

This is the same exact FID and sample ( room air ) but the air is supplied from a 12psi Medo air pump. The noise and sensitivity are almost the same as when “zero” air was used. No filtration was used, just un-filtered room air for the FID.

This is the Medo air pump used inside many SRI GCs.



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# FID Noise

## Zero air vs Room air

This is the same hardware except an aquarium pump capable of 3psi pressure was used for the room air sample.

No filtration of any kind was used.

Noise and sensitivity are almost the same as when using "zero" air.



This is the aquarium pump used in many SRI GCs to supply air to the FID.

Its clear that "zero" air has no substantial improvement in noise of peak size compared with un-filtered room air.

There is a place for cylinder air however if the ambient air has lots of hydrocarbons or if liquid hydrocarbons are being used for extractions etc next to the GC.

Its not really practical to filter the air because at the rate it flows ( 250ml/minute ) any filter will become water saturated quickly.



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