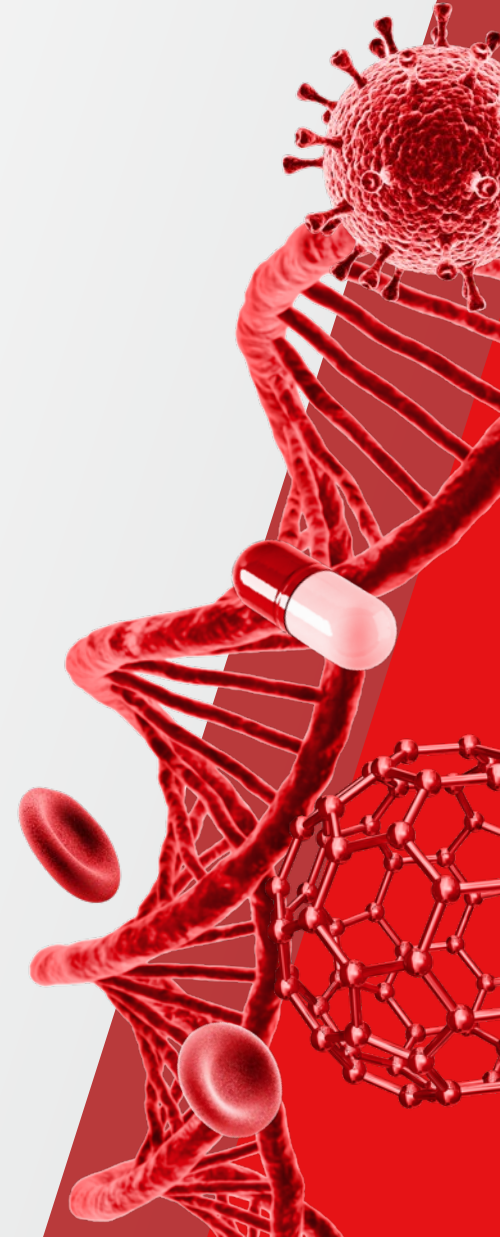


# Use of Thermo Scientific™ Trace™ GC for ASTM D2887 Accelerated Procedure with Alternative Carrier Gases

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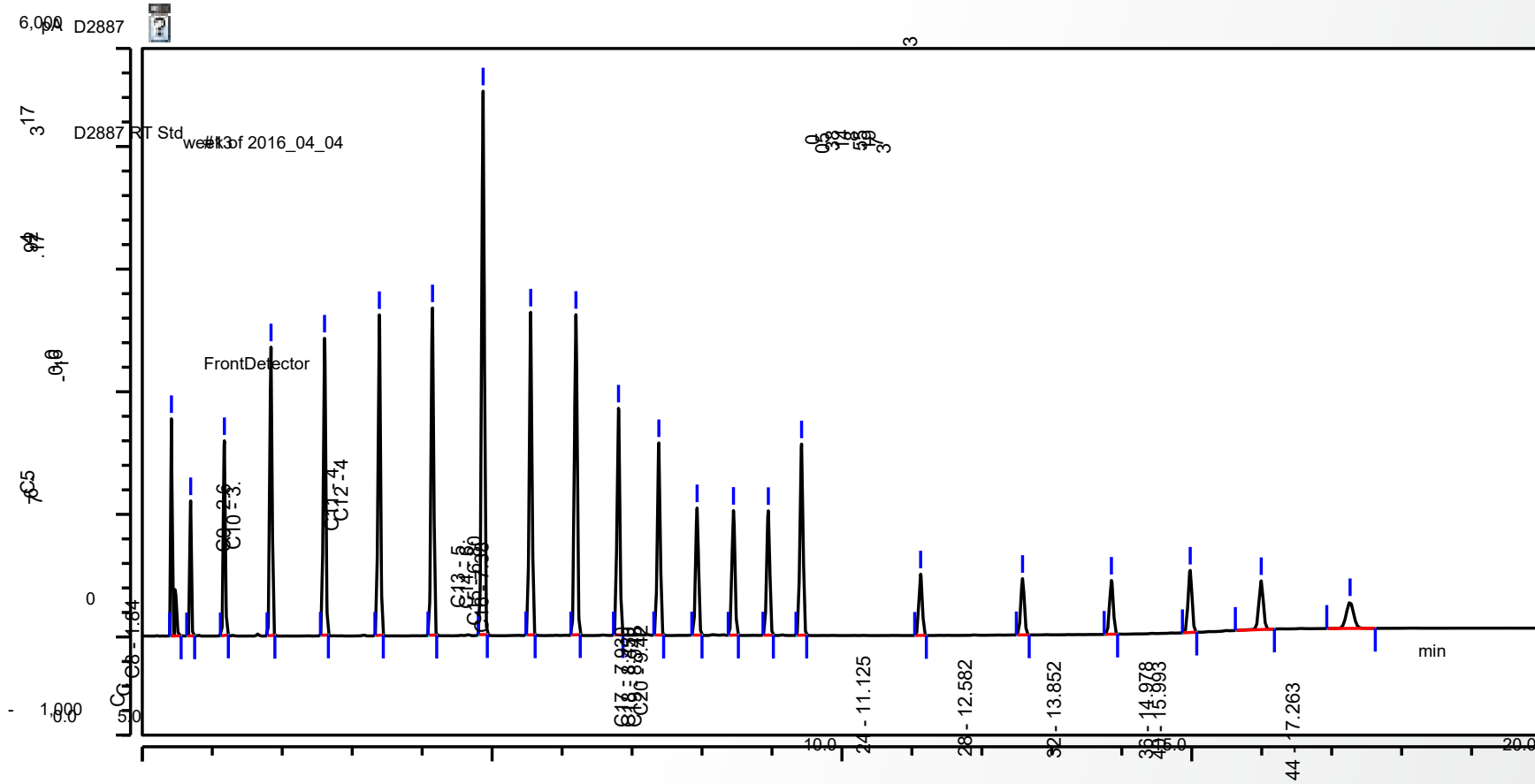
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## Important note

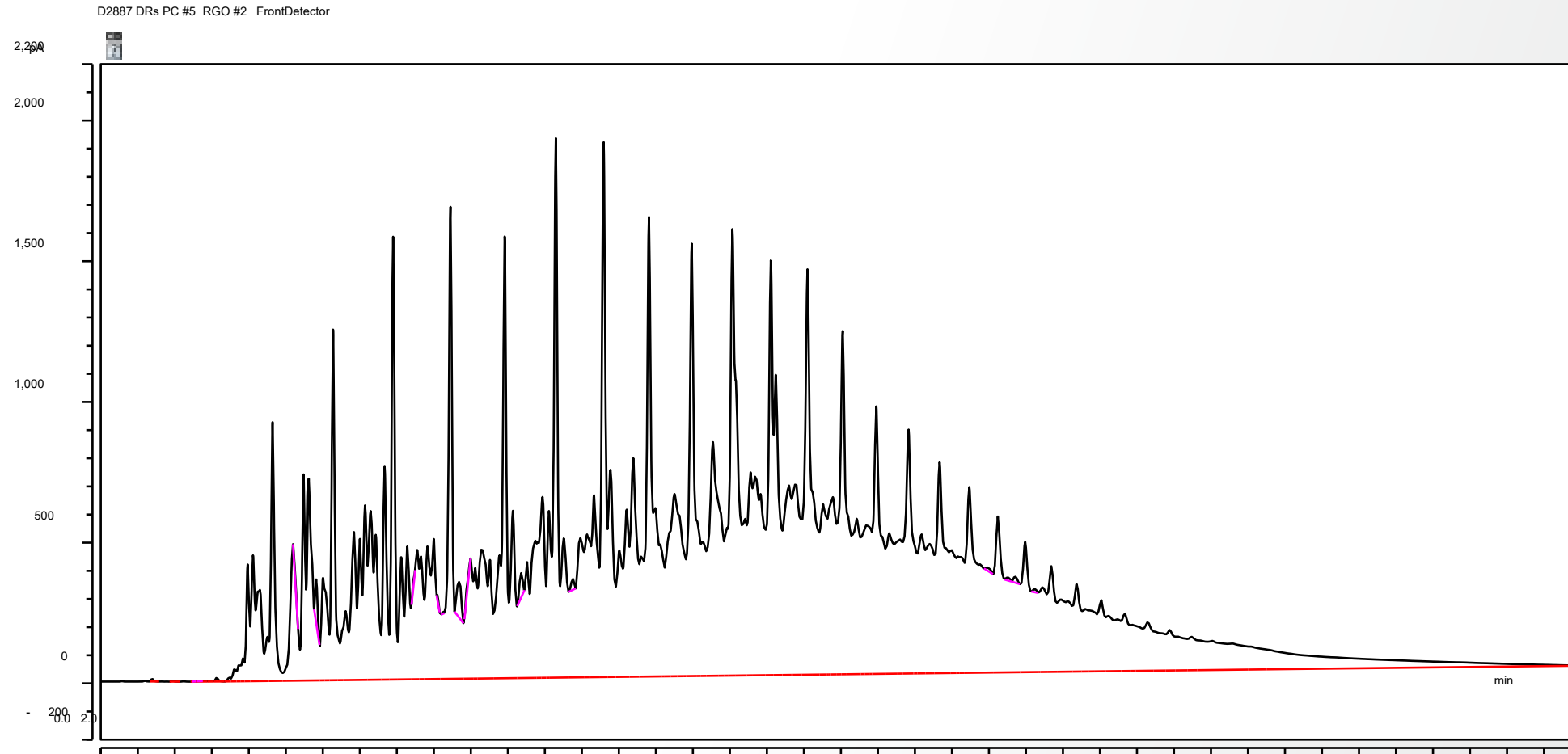
- It is **HIGHLY RECOMMENDED** that you check and verify your GC oven meets the accelerated ramp rate of 35C per minute over the full oven range – 60C to 360C.
- GC oven performance varies due to the age of the GC and the condition of the oven heating element.
- If you determine that your GC is not capable of the accelerated ramp rate, you must lower your ramp rate to the highest possible **LINEAR** ramp.
- **OR** utilize the standard D2887 oven ramp rate of 15C per minute.

# D2887a standard method with helium carrier gas



Retention time mix C5 to C44

# D2887a standard method with helium carrier gas



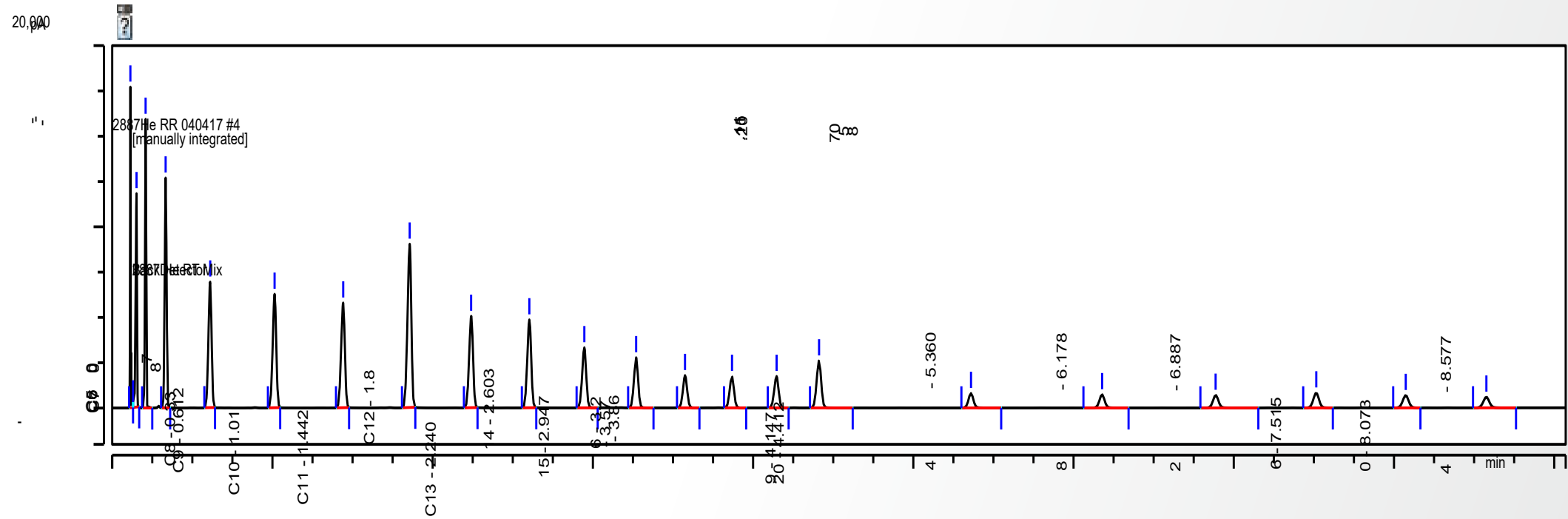
Reference gas oil

# D2887b accelerated method – Conditions for He, H2, N2

Parameter	Helium	Hydrogen	Nitrogen*
Column	10M x .53 x .88 PDMS	10M x .53 x .88 PDMS	10M x .53 x .88 PDMS
Flow	26 ml/min	35 ml/min	35 ml/min
Initial temperature	60C	40C	40C
Final temperature	360C	360C	360C
Oven ramp	35C/min	35C/min	35C/min
Inject volume	0.1 ul, neat	0.1 ul, neat	0.1 ul, neat

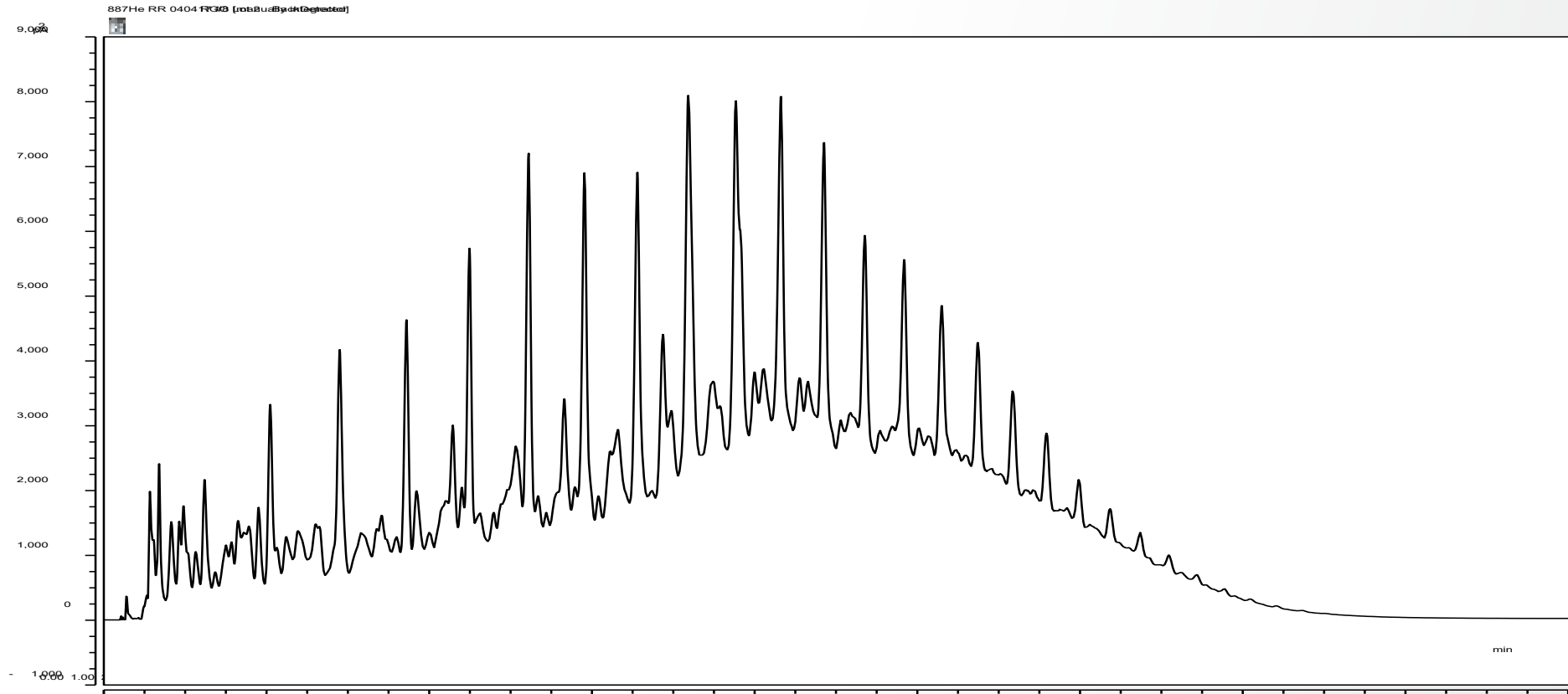
\*Actual column employed. Method lists 7.5M x .53 x 1.5 PDMS

# D2887b accelerated method with helium carrier gas



Retention time mix C5 to C44

# D2887b with helium carrier gas



Reference gas oil

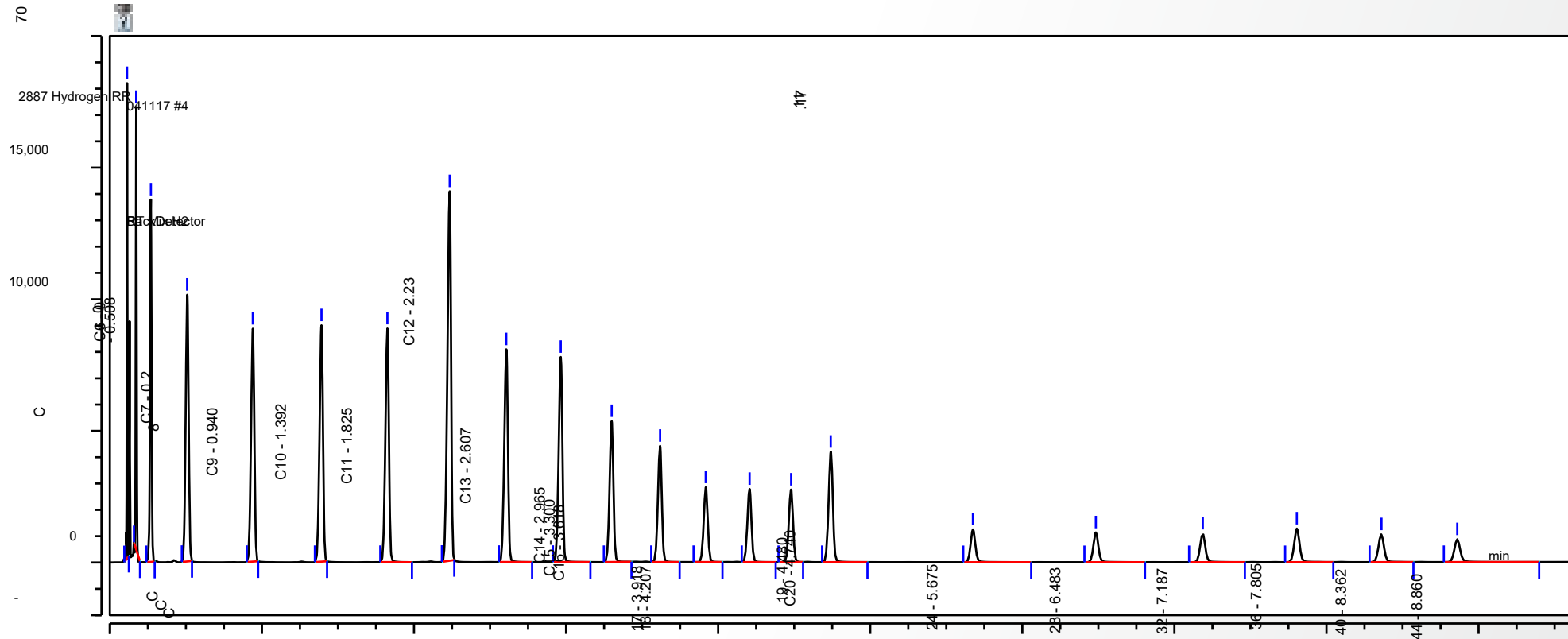
# D2887b with helium carrier gas

%OF F	Value C.	RGO He	Diff C.	Result
IBP	113.3	110.2	7.97	Pass
5%	150.0	151.8	2.92	Pass
10%	174.6	175.0	3.03	Pass
20%	223.9	229.8	3.25	Pass
30%	259.7	260.1	3.41	Pass
40%	289.4	288.9	3.87	Pass
50%	312.4	312.7	3.65	Pass
60%	331.8	332.0	3.73	Pass
70%	354.1	355.0	3.83	Pass
80%	378.5	379.1	3.94	Pass
90%	407.7	407.5	4.08	Pass
95%	429.8	430.1	4.17	Pass
FBP	480.8	483.0	7.63	Pass

Precision values RGO #1 Batch 2



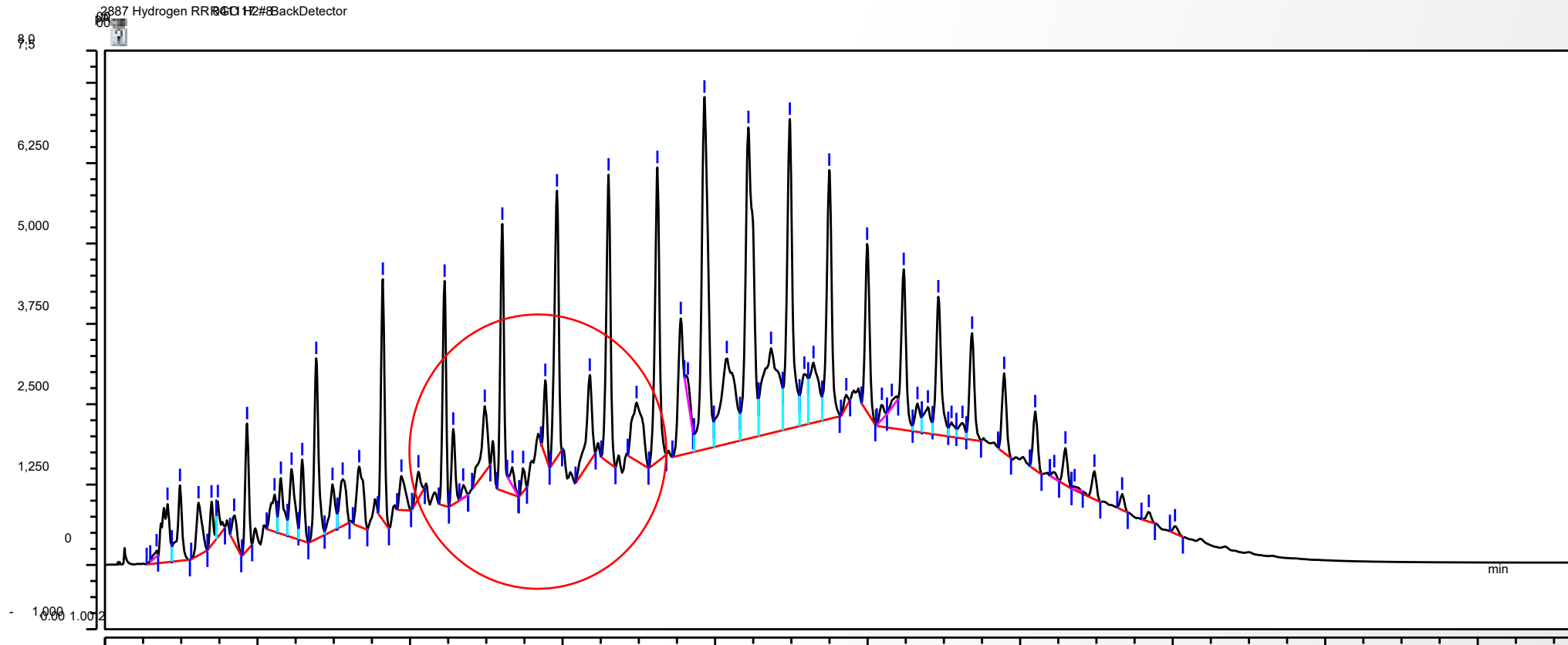
# D2887b with hydrogen carrier gas



Retention time mix C5 to C44

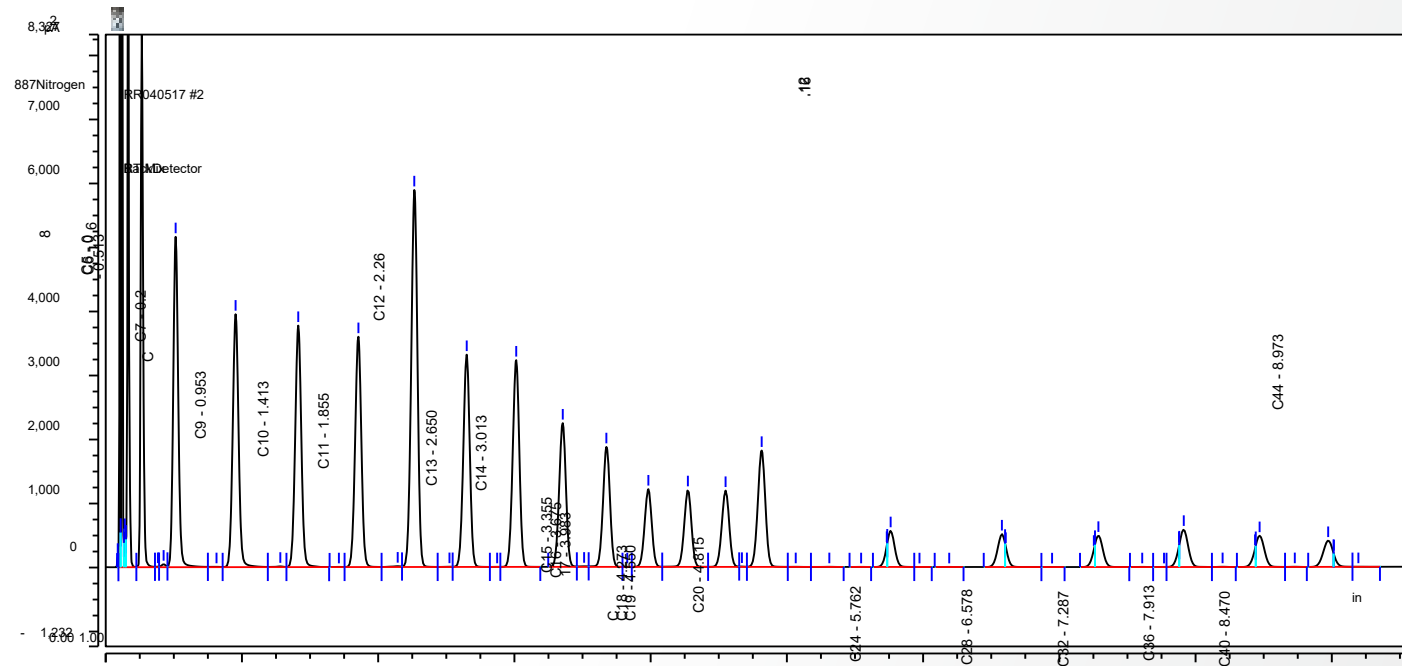
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# D2887b with hydrogen carrier gas



Reference gas oil

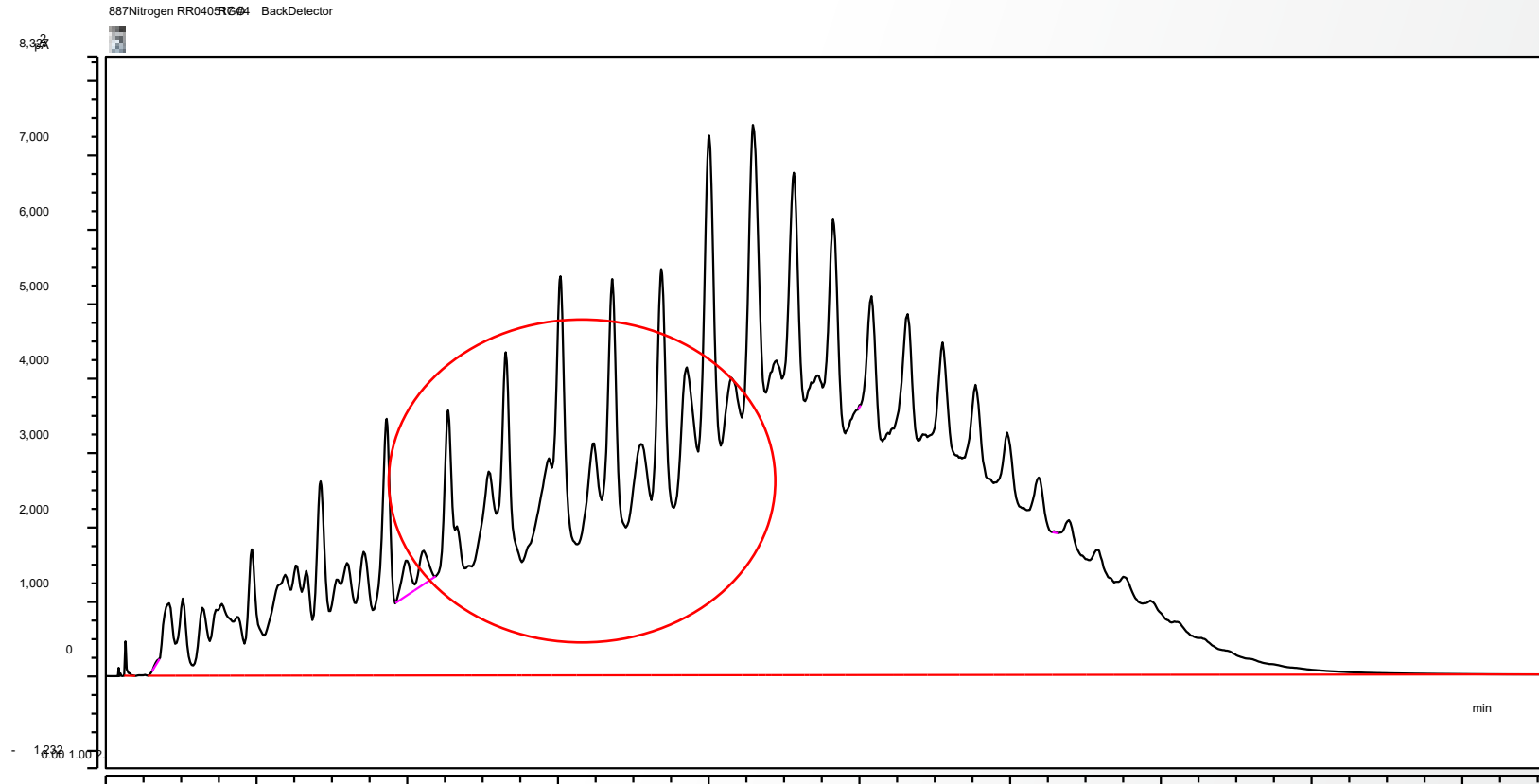
# D2887b with nitrogen carrier gas



Retention time mix C5 to C44

m

# D2887b rapid method – nitrogen carrier gas



Reference gas oil

# Summary of D2887b RGO results for alternate carrier gases

%OFF	Value C.	RGO He	RGO H2	RGO N2	Diff C.	Result
IBP	113.3	110.2	108	115.3	7.8	PASS
5%	150.0	151.8	149.8	151.5	3.8	PASS
10%	174.6	175.0	174.4	175.9	4.1	PASS
20%	223.9	229.8	223.6	223.8	4.8	PASS
30%	259.7	260.1	260.9	259.5	4.7	PASS
40%	289.4	288.9	287.8	291.3	4.3	PASS
50%	312.4	312.7	311.0	314.3	4.3	PASS
60%	331.8	332.0	333.8	333.3	4.3	PASS
70%	354.1	355.0	356.3	354.9	4.3	PASS
80%	378.5	379.1	377.3	378.8	4.3	PASS
90%	407.7	407.5	405.7	407.4	4.3	PASS
95%	429.8	430.1	430.7	428.7	5.0	PASS
FBP	480.8	483.0	481.1	475.9	11.8	PASS

# Questions

