

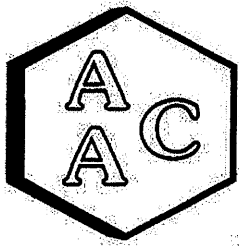
# **Volatile Organic Compound Analysis Results for Samples Collected in Nuiqsut, Alaska**

Sample Location: Nuiqsut Ambient Air Quality Monitoring Station

Date Sample Collected: 4/17/2022

Analysis Conducted by: Atmospheric Analysis & Consulting, Inc.

Analysis Method: EPA Method TO-12/PAMS Protocol by GC/MS/FID



# Atmospheric Analysis & Consulting, Inc.

## Laboratory Analysis Report

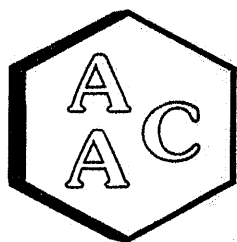
**CLIENT** : SLR International Corporation  
**PROJECT NO** : 220835  
**MATRIX** : AIR  
**UNITS** : ppb (v/v)

**DATE RECEIVED** : 04/19/2022  
**DATE REPORTED** : 04/20/2022

### HYDROCARBONS (C2-C12) SPECIATED

Client ID AAC ID	NUI			Sample Reporting Limit (SRL) (MRLxDFs)	NUI DUP			Sample Reporting Limit (SRL) (MRLxDFs)	Method Reporting Limit (MRL)
	220835-30316				220835-30317				
Date Sampled	04/17/2022				04/17/2022				
Date Analyzed	04/19/2022				04/19/2022				
Can Dilution Factor	1.52				1.45				
	Result	Qualifier	Analysis DF		Result	Qualifier	Analysis DF		
Ethylene	<SRL	U	1	0.76	0.75		1	0.72	0.50
Acetylene	0.78		1	0.76	0.80		1	0.72	0.50
Ethane	2.42		1	0.76	2.94		1	0.72	0.50
Propylene	1.17		1	1.02	1.13		1	0.97	0.67
Propane	0.73		1	0.51	0.74		1	0.48	0.33
Isobutane	<SRL	U	1	0.38	0.45		1	0.36	0.25
1-Butene	<SRL	U	1	0.38	<SRL	U	1	0.36	0.25
n-Butane	<SRL	U	1	0.38	<SRL	U	1	0.36	0.25
trans-2-Butene	<SRL	U	1	0.38	<SRL	U	1	0.36	0.25
cis-2-Butene	<SRL	U	1	0.38	<SRL	U	1	0.36	0.25
Isopentane	<SRL	U	1	0.30	0.39		1	0.29	0.20
1-Pentene	<SRL	U	1	0.30	<SRL	U	1	0.29	0.20
n-Pentane	<SRL	U	1	0.30	0.38		1	0.29	0.20
Isoprene	<SRL	U	1	0.30	<SRL	U	1	0.29	0.20
trans-2-Pentene	<SRL	U	1	0.30	<SRL	U	1	0.29	0.20
cis-2-Pentene	<SRL	U	1	0.30	<SRL	U	1	0.29	0.20
2,2-Dimethylbutane	<SRL	U	1	0.25	<SRL	U	1	0.24	0.17
Cyclopentane	<SRL	U	1	0.30	<SRL	U	1	0.29	0.20
2,3-Dimethylbutane	<SRL	U	1	0.25	<SRL	U	1	0.24	0.17
2-Methylpentane	<SRL	U	1	0.25	<SRL	U	1	0.24	0.17
3-Methylpentane	<SRL	U	1	0.25	<SRL	U	1	0.24	0.17
1-Hexene	<SRL	U	1	0.25	<SRL	U	1	0.24	0.17
n-Hexane	<SRL	U	1	0.25	<SRL	U	1	0.24	0.17
Methylcyclopentane	<SRL	U	1	0.25	<SRL	U	1	0.24	0.17
2,4-Dimethylpentane	<SRL	U	1	0.22	<SRL	U	1	0.21	0.14
Benzene	<SRL	U	1	0.25	<SRL	U	1	0.24	0.17
Cyclohexane	<SRL	U	1	0.25	<SRL	U	1	0.24	0.17
2-Methylhexane	<SRL	U	1	0.22	<SRL	U	1	0.21	0.14
2,3-Dimethylpentane	<SRL	U	1	0.22	<SRL	U	1	0.21	0.14
3-Methylhexane	<SRL	U	1	0.22	<SRL	U	1	0.21	0.14
2,2,4-Trimethylpentane	<SRL	U	1	0.19	<SRL	U	1	0.18	0.13
n-Heptane	<SRL	U	1	0.22	<SRL	U	1	0.21	0.14
Methylcyclohexane	<SRL	U	1	0.22	<SRL	U	1	0.21	0.14
2,3,4-Trimethylpentane	<SRL	U	1	0.19	<SRL	U	1	0.18	0.13





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## *Quality Control/Quality Assurance Report* PAMS Calibration Verification Analysis

Initial Calibration Date : 02/11/2022  
Standard ID : MS1-020922-01

Instrument ID : MS01  
Analysis Date : 04/18/2022  
Analyst : RB

### Continuing Calibration Verification

Propane	xRF	Daily RF	RPD*
	698	711	1.86

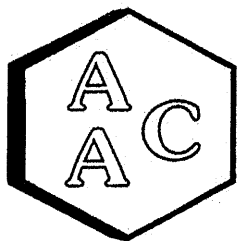
\* Must be <10%

### Laboratory Control Spike (LCS) / Laboratory Control Spike Duplicate (LCSD)

Propane	Sample Conc. (ppbC)	Spike Added (ppbC)	Recovery (ppbC)		% Recovery**		RPD***
			LCS	LCSD	LCS	LCSD	
	0.00	4.24	4.32	4.38	101.9	103.3	1.38

\*\* Must be 80-120%

\*\*\* Must be <25%



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## Quality Control/Quality Assurance Report

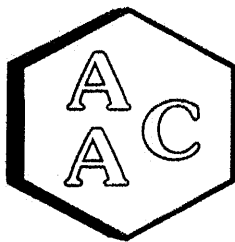
### PAMS Method Blank Analysis

Matrix : Air  
Units : ppbC

Instrument ID : MS01  
Analysis Date : 04/18/2022  
Analyst : RB

Analyte	Result	PQL
Ethylene	<PQL	1.0
Acetylene	<PQL	1.0
Ethane	<PQL	1.0
Propylene	<PQL	2.0
Propane	<PQL	1.0
Isobutane	<PQL	1.0
1-Butene	<PQL	1.0
n-Butane	<PQL	1.0
trans-2-Butene	<PQL	1.0
cis-2-Butene	<PQL	1.0
Isopentane	<PQL	1.0
1-Pentene	<PQL	1.0
n-Pentane	<PQL	1.0
Isoprene	<PQL	1.0
trans-2-Pentene	<PQL	1.0
cis-2-Pentene	<PQL	1.0
2,2-Dimethylbutane	<PQL	1.0
Cyclopentane	<PQL	1.0
2,3-Dimethylbutane	<PQL	1.0
2-Methylpentane	<PQL	1.0
3-Methylpentane	<PQL	1.0
1-Hexene	<PQL	1.0
n-Hexane	<PQL	1.0
Methylcyclopentane	<PQL	1.0
2,4-Dimethylpentane	<PQL	1.0
Benzene	<PQL	1.0
Cyclohexane	<PQL	1.0
2-Methylhexane	<PQL	1.0
2,3-Dimethylpentane	<PQL	1.0
3-Methylhexane	<PQL	1.0
2,2,4-Trimethylpentane	<PQL	1.0
n-Heptane	<PQL	1.0
Methylcyclohexane	<PQL	1.0
2,3,4-Trimethylpentane	<PQL	1.0

Analyte	Result	PQL
Toluene	<PQL	1.0
2-Methylheptane	<PQL	1.0
3-Methylheptane	<PQL	1.0
n-Octane	<PQL	1.0
Ethylbenzene	<PQL	1.0
m/p-Xylenes	<PQL	1.0
Styrene	<PQL	1.0
o-Xylene	<PQL	1.0
Nonane	<PQL	1.0
Isopropylbenzene	<PQL	1.0
n-Propylbenzene	<PQL	1.0
m-Ethyltoluene	<PQL	1.0
p-Ethyltoluene	<PQL	1.0
1,3,5-Trimethylbenzene	<PQL	1.0
o-Ethyltoluene	<PQL	1.0
1,2,4-Trimethylbenzene	<PQL	1.0
n-Decane	<PQL	1.0
1,2,3-Trimethylbenzene	<PQL	1.0
m-Diethylbenzene	<PQL	1.0
p-Diethylbenzene	<PQL	1.0
n-Undecane	<PQL	1.0
n-Dodecane	<PQL	1.0
TNMHC (ppbC)	<PQL	20



# Atmospheric Analysis & Consulting, Inc.

## Quality Control/Quality Assurance Report PAMS Duplicate Analysis

AAC ID : 220696-29720  
 Matrix : Air  
 Units : ppbC

Instrument ID : MS01  
 Analysis Date : 04/18/2022  
 Analyst : RB

Analyte	Sample Analysis	Sample Duplicate	RPD
Ethylene	64.3	72.4	12
Acetylene	<PQL	<PQL	NA
Ethane	18.0	19.7	9.0
Propylene	226	223	1.3
Propane	52.3	52.2	0.2
Isobutane	33.9	33.5	1.2
1-Butene	61.3	61.1	0.3
n-Butane	30.9	29.6	4.3
trans-2-Butene	25.3	25.0	1.2
cis-2-Butene	19.8	19.8	0.0
Isopentane	33.9	33.3	1.8
1-Pentene	121	119	1.7
n-Pentane	341	336	1.5
Isoprene	257	254	1.2
trans-2-Pentene	<PQL	<PQL	NA
cis-2-Pentene	<PQL	<PQL	NA
2,2-Dimethylbutane	<PQL	<PQL	NA
Cyclopentane	<PQL	<PQL	NA
2,3-Dimethylbutane	<PQL	<PQL	NA
2-Methylpentane	8.33	7.68	8.1
3-Methylpentane	<PQL	<PQL	NA
1-Hexene	45.6	45.0	1.3
n-Hexane	13.0	12.8	1.6
Methylcyclopentane	<PQL	<PQL	NA
2,4-Dimethylpentane	<PQL	<PQL	NA
Benzene	57.2	56.5	1.2
Cyclohexane	3.48	3.53	1.4
2-Methylhexane	93.6	92.5	1.2
2,3-Dimethylpentane	<PQL	<PQL	NA
3-Methylhexane	32.0	30.8	3.8
2,2,4-Trimethylpentane	52.6	51.9	1.3
n-Heptane	63.8	63.7	0.2
Methylcyclohexane	<PQL	<PQL	NA
2,3,4-Trimethylpentane	<PQL	<PQL	NA
Toluene	43.7	43.7	0.0
2-Methylheptane	4.55	5.01	9.6
3-Methylheptane	<PQL	<PQL	NA
n-Octane	42.0	41.6	1.0
Ethylbenzene	24.6	24.4	0.8
m/p-Xylenes	36.1	35.7	1.1
Styrene	39.1	38.9	0.5
o-Xylene	14.0	13.6	2.9
Nonane	19.2	18.9	1.6
Isopropylbenzene	4.98	4.73	5.1
n-Propylbenzene	3.65	3.40	7.1
m-Ethyltoluene	<PQL	<PQL	NA
p-Ethyltoluene	<PQL	<PQL	NA

Analyte	Sample Analysis	Sample Duplicate	RPD
1,3,5-Trimethylbenzene	5.41	5.36	0.9
o-Ethyltoluene	48.3	44.2	8.9
1,2,4-Trimethylbenzene	27.6	25.9	6.4
n-Decane	27.8	25.7	7.9
1,2,3-Trimethylbenzene	3.48	2.95	16
m-Diethylbenzene	11.7	11.5	1.7
p-Diethylbenzene	4.45	4.50	1.1
n-Undecane	18.8	18.6	1.1
n-Dodecane	<PQL	<PQL	NA
Total PAMS (ppbC)	2030	2010	1.0
TNMHC (ppbC)	18400	18200	1.1