



Qatarenergy LNG - North Operations

Onshore Operations Support - Laboratory

CORRELATION TEST - COMPARISON OF RESULTS

Sample	: CPC - QELNG CORRELATION TEST 2025 - PART - B
Correlation Test Cyl. No.	: DL6131
Location	: QELNG - North Laboratory
Analysis Date	: 28-Oct-2025
Analyst	: FM
Analysis Method	: GPA 2261

COMPONENT	Unit	QG North Lab Gas Chromatographs			Max-Min	Conclusion	Correlation Limit [nGPA 2261-64]
		GC#42	GC#48	GC#49			
CH4	% MOL	92.85	92.83	92.84	0.02	OK	0.30
C2H6	% MOL	6.44	6.45	6.44	0.01	OK	0.10
C3H8	% MOL	0.15	0.15	0.15	0.00	OK	0.05
I-C4H10	% MOL	0.01	0.01	0.01	0.00	OK	0.03
N-C4H10	% MOL	0.01	0.01	0.01	0.00	OK	0.03
I-C5H12	% MOL	0.00	0.00	0.00	0.00	OK	0.03
N-C5H12	% MOL	0.00	0.00	0.00	0.00	OK	0.03
C6H14	% MOL	0.00	0.00	0.00	0.00	OK	0.03
N2	% MOL	0.54	0.55	0.55	0.01	OK	0.03
CO2	% MOL	0.00	0.00	0.00	0.00	OK	0.03
O2	% MOL	0.00	0.00	0.00	0.00	OK	0.03
TOTAL	% MOL	100.00	100.00	100.00			

CORRELATION TEST - FINAL COMPARISON OF RESULTS

[illegible]

QATARENERGY LNG - LABORATORY DIVISION

LNG CARGO CALCULATION SHEET

EQUIPMENT: GC-42

LNG vessel	CORRELATION TEST
Destination	0.00
Consignee	

Cargo # :	CPC 2025
Loading ex Tank	CYL. No. DL6131
Berth No.	3

Component	Sampling Date: 28-10-25		Sampling Time: 1000H		
	LNG SHIPMENT SAMPLE				
	Run 1		Run 2		Mean %N
	ESTD	%N	ESTD	%N	
	N ₂	0.542	0.544	0.542	0.544
C ₁	92.532	92.843	92.523	92.842	92.842
C ₂	6.422	6.443	6.421	6.443	6.443
C ₃	0.149	0.150	0.150	0.151	0.151
i-C ₄	0.008	0.008	0.008	0.008	0.008
n-C ₄	0.012	0.012	0.012	0.012	0.012
i-C ₅	0.000	0.000	0.000	0.000	0.000
n-C ₅	0.000	0.000	0.000	0.000	0.000
C ₆ +	0.000	0.000	0.000	0.000	0.000
CO ₂	0.000	0.000	0.000	0.000	0.000
Total	99.665	100.000	99.666	100.000	100.000
Analyzed by:			FM <i>28/10/25</i>		

Component	FINAL RESULT
	MOL %
N ₂	0.54
C ₁	92.85
C ₂	6.44
C ₃	0.15
i-C ₄	0.01
n-C ₄	0.01
i-C ₅	0.00
n-C ₅	0.00
C ₆₊	0.00
CO ₂	0.00
Total	100.00

Remark:

ESTD means concentration in external standard mode

% N means concentration in normalized mode to 100%

C1 is balance which is calculated from 100 subtracted by other components

C6+ and CO2 are calibrated separately (if required)

Total Sulfur	0.00 mg/M ³
H ₂ S	0.00 ppm mole

Approved by (Shift Chemist):

[Signature] 28/10/25

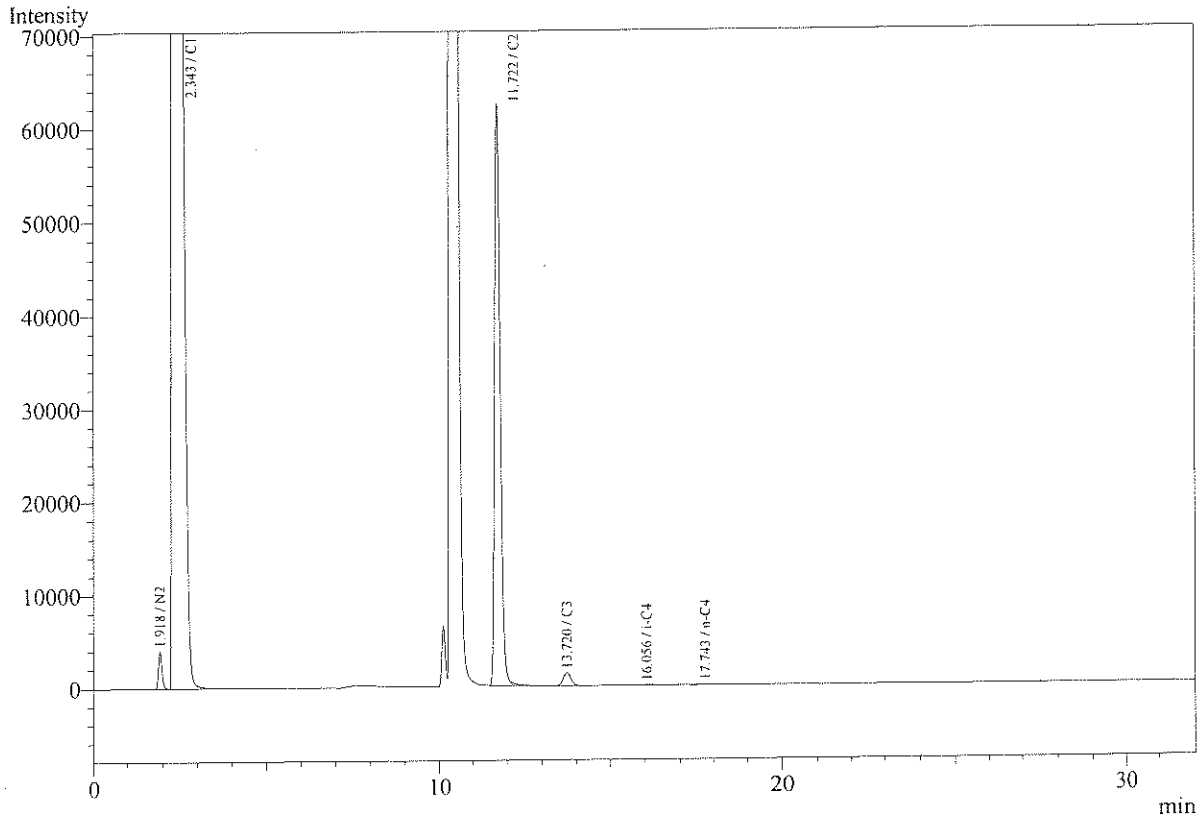


QatarEnergy LNG

Operations Support - North Lab

GC # 42

Analysis Date & Time : 28/10/2025 10:51:13 AM
User Name : Admin
Sample Name : CORRELATION TEST - CPC 2025
Sample ID : CYL. NO. DL6131
Sample Type : Unknown
Data Name : C:\GCsolution\Data\10-2025\28102025-006.gcd
Method Name : C:\GCsolution\Data\10-2025\LNG Loading.gcm
Operator : FM



Peak#	Ret. Time	Area	Conc.	Unit	Cmpd Name
1	1.918	27612	0.5422	%	N2
2	2.343	3883859	92.5314	%	C1
3	11.722	713923	6.4219	%	C2
4	13.720	20908	0.1494	%	C3
5	16.056	1207	0.0075	%	i-C4
6	17.743	2004	0.0123	%	n-C4
Total		4649513	99.6647		

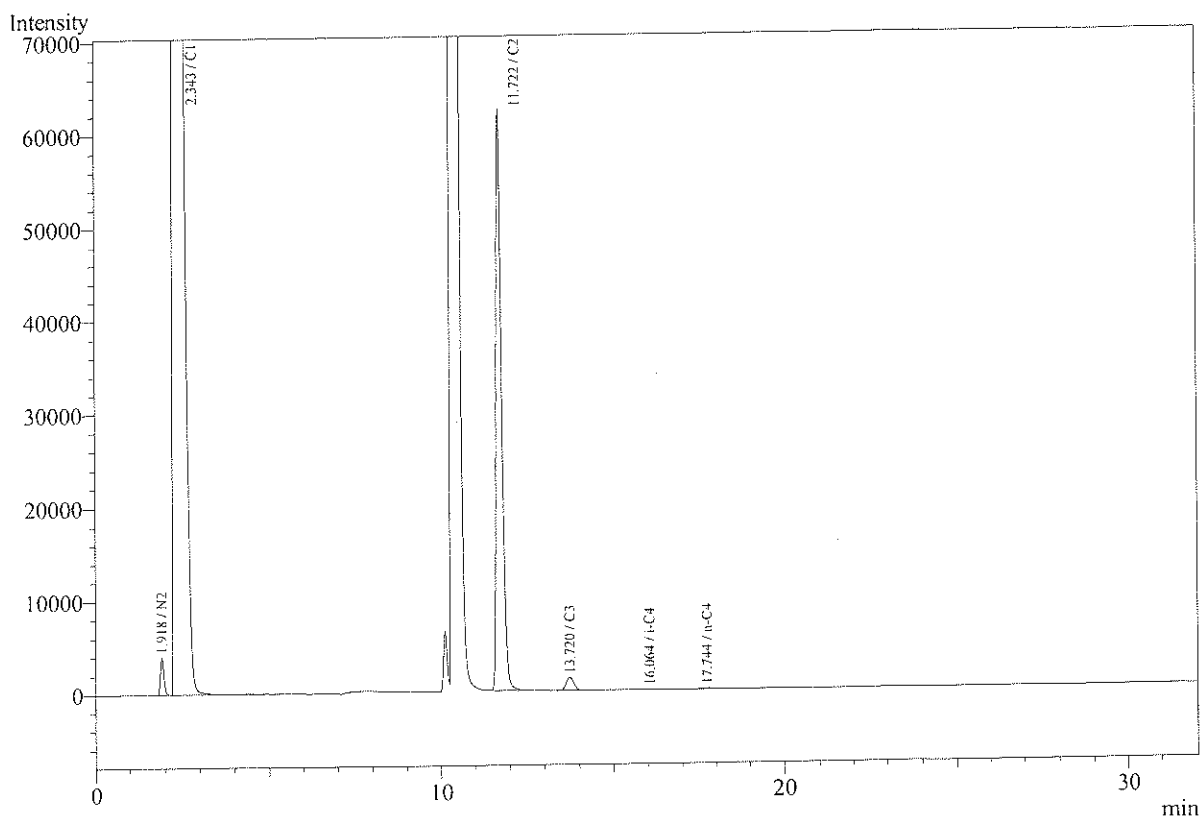


QatarEnergy LNG

Operations Support - North Lab

GC # 42

Analysis Date & Time : 28/10/2025 11:26:05 AM
 User Name : Admin
 Sample Name : CORRELATION TEST - CPC 2025
 Sample ID : CYL. NO. DL6131
 Sample Type : Unknown
 Data Name : C:\GCsolution\Data\10-2025\28102025-007.gcd
 Method Name : C:\GCsolution\Data\10-2025\LNG Loading.gcm
 Operator : FM



Peak#	Ret.Time	Area	Conc.	Unit	Cmpd Name
1	1.918	27611	0.5421	%	N2
2	2.343	3883499	92.5229	%	C1
3	11.722	713766	6.4205	%	C2
4	13.720	20947	0.1496	%	C3
5	16.064	1248	0.0078	%	i-C4
6	17.744	2002	0.0123	%	n-C4
Total		4649073	99.6552		

QATARENERGY LNG - LABORATORY DIVISION

LNG CARGO CALCULATION SHEET

EQUIPMENT: GC-48

LNG vessel	CORRELATION TEST
Destination	0.00
Consignee	

Cargo # :	CPC - 2025
Loading ex Tank	CYL. NO. DL6131
Berth No.	3

Component	Sampling Date: 28-10-25		Sampling Time: 1100H		
	LNG SHIPMENT SAMPLE				
	Run 1		Run 2		Mean
	ESTD	%N	ESTD	%N	%N
N ₂	0.542	0.545	0.542	0.545	0.545
C ₁	92.318	92.835	92.263	92.830	92.832
C ₂	6.411	6.447	6.413	6.452	6.450
C ₃	0.151	0.152	0.151	0.152	0.152
i-C ₄	0.008	0.008	0.008	0.008	0.008
n-C ₄	0.013	0.013	0.013	0.013	0.013
i-C ₅	0.000	0.000	0.000	0.000	0.000
n-C ₅	0.000	0.000	0.000	0.000	0.000
C ₆ +	0.000	0.000	0.000	0.000	0.000
CO ₂	0.000	0.000	0.000	0.000	0.000
Total	99.443	100.000	99.390	100.000	100.000
Analyzed by:			FM 28-10-25		

Component	FINAL RESULT
	MOL %
N ₂	0.55
C ₁	92.83
C ₂	6.45
C ₃	0.15
i-C ₄	0.01
n-C ₄	0.01
i-C ₅	0.00
n-C ₅	0.00
C ₆ +	0.00
CO ₂	0.00
Total	100.00

Remark:

ESTD means concentration in external standard mode

% N means concentration in normalized mode to 100%

C1 is balance which is calculated from 100 subtracted by other components

C6+ and CO2 are calibrated separately (if required)

Total Sulfur	0.00 mg/M ³
H ₂ S	0.00 ppm mole

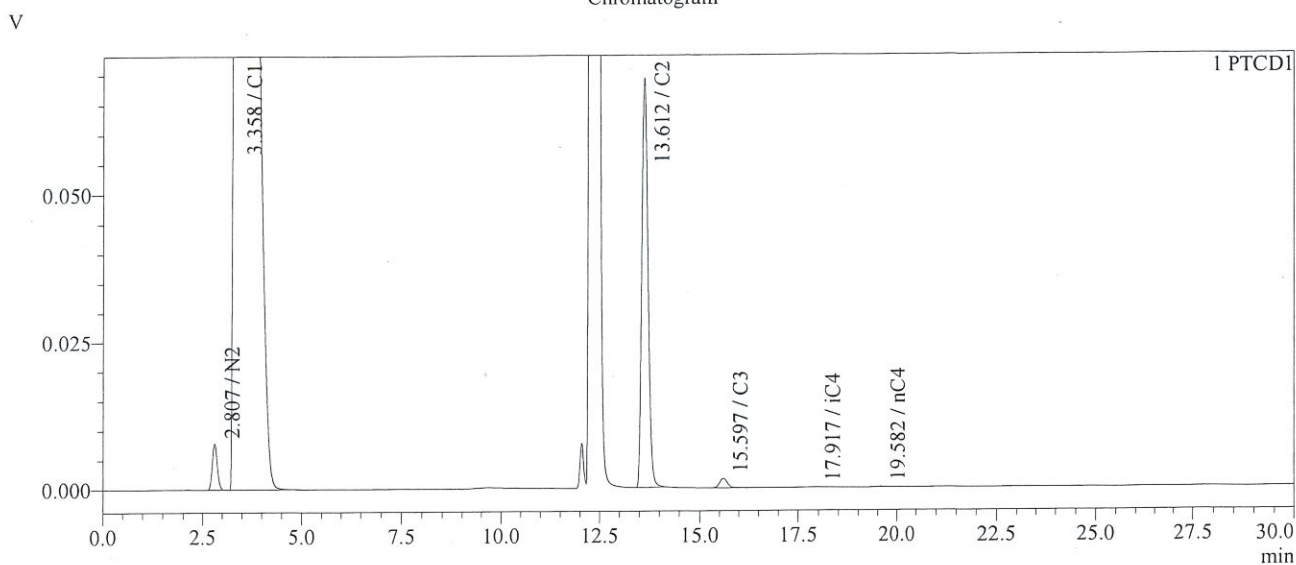
Approved by (Shift Chemist):

 28/10/25

Sample Information

Sample Name : CORRELATION TEST - CPC 2025
 Sample ID : CYL. NO. DL6131
 Data Filename : 28102025-003.gcd
 Method Filename : LNG Loading.gcm
 Analysis Date : 28/10/2025 12:59:52 PM
 Operator : FM

Chromatogram



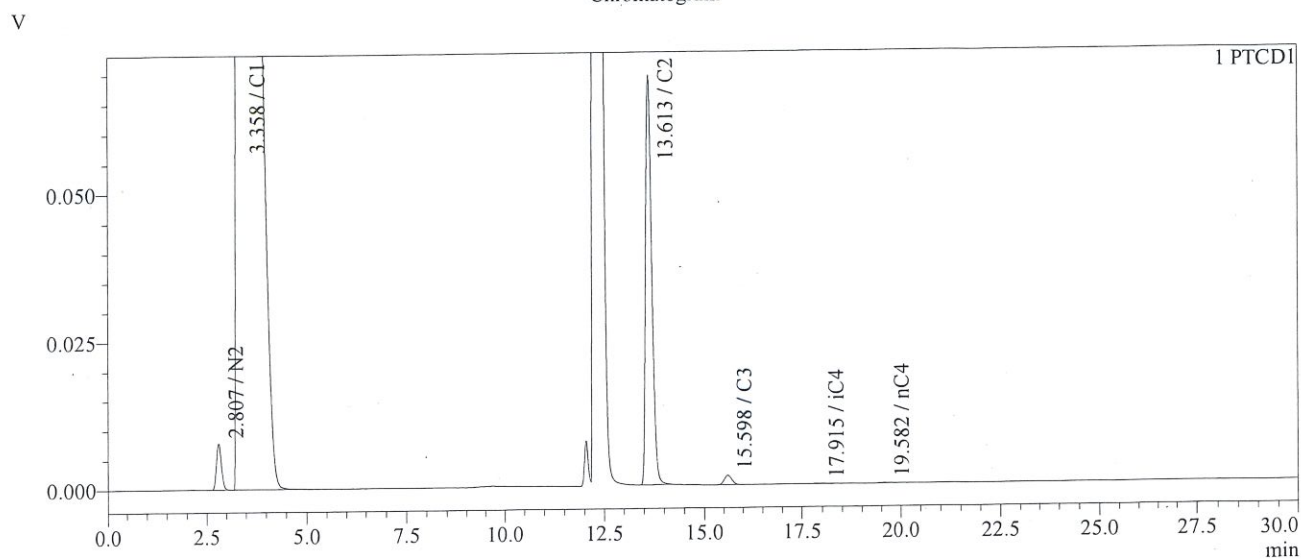
Peak Table

Peak#	Ret. Time	Name	Area	Conc.	Unit
1	2.807	N2	70098	0.5419	%
2	3.358	C1	9318519	92.2632	%
3	13.612	C2	742255	6.4133	%
4	15.597	C3	22059	0.1508	%
5	17.917	iC4	1381	0.0083	%
6	19.582	nC4	2208	0.0129	%
Total			10156521	99.3905	

Sample Information

Sample Name : CORRELATION TEST - CPC 2025
 Sample ID : CYL. NO. DL6131
 Data Filename : 28102025-002.gcd
 Method Filename : LNG Loading.gcm
 Analysis Date : 28/10/2025 12:26:57 PM
 Operator : FM

Chromatogram



Peak Table

Peak#	Ret. Time	Name	Area	Conc.	Unit
1	2.807	N2	70141	0.5423	%
2	3.358	C1	9324002	92.3175	%
3	13.613	C2	742021	6.4113	%
4	15.598	C3	22075	0.1509	%
5	17.915	iC4	1364	0.0082	%
6	19.582	nC4	2153	0.0126	%
Total			10161757	99.4428	

QATARENERGY LNG - LABORATORY DIVISION

LNG CARGO CALCULATION SHEET

EQUIPMENT: GC-49

LNG vessel	CORRELATION TEST
Destination	0.00
Consignee	

Cargo # :	CPC - 2025
Loading ex Tank	CYL. NO. DL6131
Berth No.	3

Component	Sampling Date: 28-10-25		Sampling Time: 1300H		
	LNG SHIPMENT SAMPLE				
	Run 1		Run 2		Mean %N
	ESTD	%N	ESTD	%N	
N ₂	0.541	0.545	0.541	0.545	0.545
C ₁	92.218	92.838	92.227	92.845	92.841
C ₂	6.402	6.445	6.396	6.439	6.442
C ₃	0.150	0.151	0.149	0.150	0.151
i-C ₄	0.008	0.008	0.008	0.008	0.008
n-C ₄	0.013	0.013	0.013	0.013	0.013
i-C ₅	0.000	0.000	0.000	0.000	0.000
n-C ₅	0.000	0.000	0.000	0.000	0.000
C ₆ +	0.000	0.000	0.000	0.000	0.000
CO ₂	0.000	0.000	0.000	0.000	0.000
Total	99.332	100.000	99.334	100.000	100.000
Analyzed by:			FM of 28-10-25		

Component	FINAL RESULT
	MOL %
N ₂	0.55
C ₁	92.84
C ₂	6.44
C ₃	0.15
i-C ₄	0.01
n-C ₄	0.01
i-C ₅	0.00
n-C ₅	0.00
C ₆₊	0.00
CO ₂	0.00
Total	100.00

Remark:

ESTD means concentration in external standard mode

% N means concentration in normalized mode to 100%

C1 is balance which is calculated from 100 subtracted by other components

C6+ and CO2 are calibrated separately (if required)

Total Sulfur	0.00 mg/M ³
H ₂ S	0.00 ppm mole

Approved by (Shift Chemist):



Sample Information

Sample Name : CORRELATION TEST - CPC 2025

 Sample ID : CYL. NO. DL6131

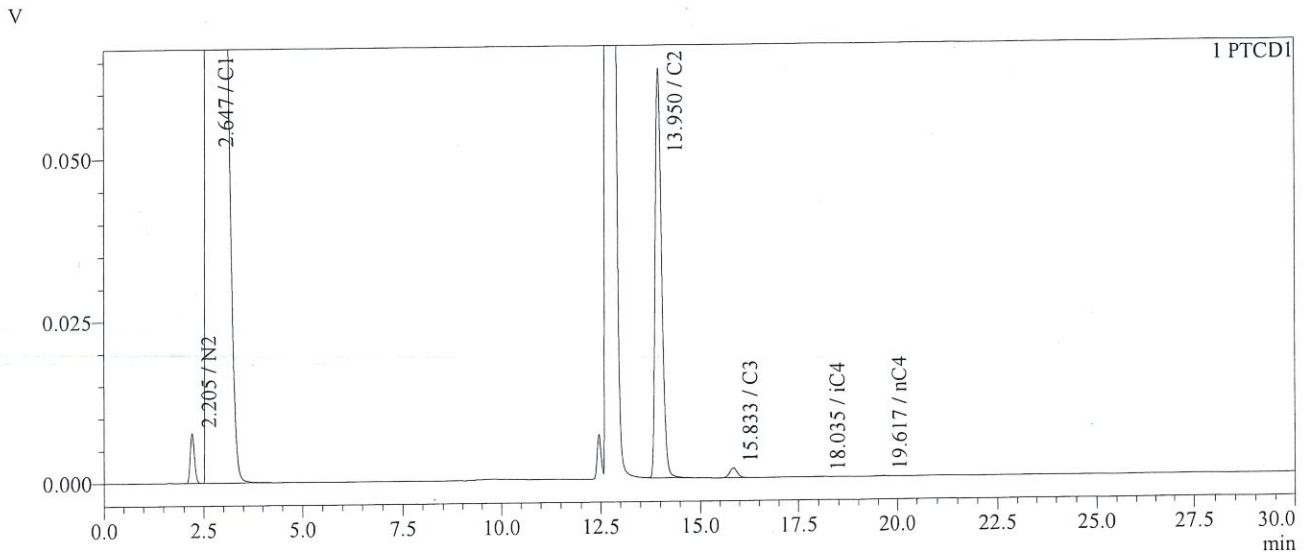
 Data Filename : 28102025-001.gcd

 Method Filename : LNG Loading.gcm

 Analysis Date : 28/10/2025 1:13:22 PM

 Operator : FM

Chromatogram



Peak Table

Peak#	Ret. Time	Name	Area	Conc.	Unit
1	2.205	N2	57456	0.5414	%
2	2.647	C1	8038820	92.2180	%
3	13.950	C2	720565	6.4024	%
4	15.833	C3	21290	0.1495	%
5	18.035	iC4	1326	0.0081	%
6	19.617	nC4	2069	0.0125	%
Total			8841527	99.3319	

Sample Information

Sample Name : CORRELATION TEST - CPC 2025

 Sample ID : CYL. NO. DL6131

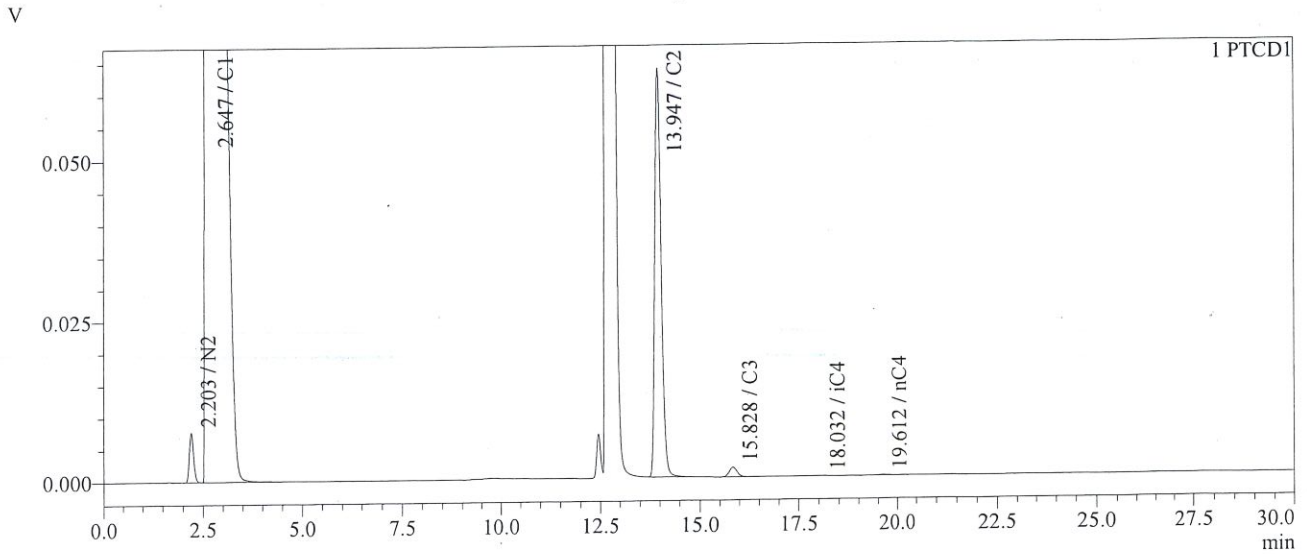
 Data Filename : 28102025-002.gcd

 Method Filename : LNG Loading.gcm

 Analysis Date : 28/10/2025 1:45:19 PM

 Operator : FM

Chromatogram



Peak Table

Peak#	Ret. Time	Name	Area	Conc.	Unit
1	2.203	N2	57428	0.5411	%
2	2.647	C1	8039556	92.2265	%
3	13.947	C2	719869	6.3962	%
4	15.828	C3	21248	0.1492	%
5	18.032	iC4	1318	0.0081	%
6	19.612	nC4	2078	0.0125	%
Total			8841496	99.3336	



Scott
specialty gases

833812



CALIBRATION
RVA K 064

ISO/IEC 17025 - Calibration Certificate

Calibrated gas mixture

Certificate Number: 20-37279-002-5711606 Rev-00

Page 1 of 2

Customer: Name: QATARGAS OPERATING COMPANY LTD.
ATTN: (FOR QATAR LIQ. GAS. CO. LTD)
Address: QG - NORTH MAIN WAREHOUSE
RAS LAFFAN IND. CITY
STATE OF QATAR

Product: Calibrated gas mixture intended as calibration standard.

Cylinder number: 5711606
Cylinder pressure: 15,0 MPa

Cylinder size: 10 Liter
Valve connection: DIN-1

Calibration method: The composition is determined in accordance with ISO 6143.

Traceability: The measurements have been executed using standards for which the traceability to (inter)national standards has been demonstrated towards the RVA.

Calibration result:

Component	Mole fraction mol/mol	Expanded uncertainty (k=2) mol/mol	Calibration date
Methane	92,41 x 10 ⁻²	0,09 x 10 ⁻²	9 October 2023
Ethane	6,25 x 10 ⁻²	0,06 x 10 ⁻²	9 October 2023
Propane	0,501 x 10 ⁻²	0,010 x 10 ⁻²	9 October 2023
Isobutane	517 x 10 ⁻⁶	5 x 10 ⁻⁶	9 October 2023
Butane	505 x 10 ⁻⁶	5 x 10 ⁻⁶	9 October 2023
Isopentane	200,5 x 10 ⁻⁶	4,0 x 10 ⁻⁶	9 October 2023
Pentane	200,1 x 10 ⁻⁶	4,0 x 10 ⁻⁶	9 October 2023
Nitrogen	0,701 x 10 ⁻²	0,007 x 10 ⁻²	9 October 2023

Uncertainty: The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k = 2, which for a normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty of measurement has been determined in accordance with Publication EA-4/02.

Product handling: Consult ISO 16664 for product handling guidelines.
Minimum utilisation pressure is 0,5 MPa.
Use and store the gas cylinder between 0°C and 40°C.

Stability: Scott Specialty Gases Netherlands B.V. stability studies of similar products have demonstrated stability for 36 months.

Customer information: QATARGAS MATERIAL NO.: 833812
QATARGASPO ITEM NO.: 00001
TYPE: CALIBRATION MIXTURE (GAS CRM)
DESCRIPTION: GAS,CALIBRTN MIX,10L,150BAR,SCOTT
QATARGAS CONTRACT REF. 4600013555 ITEM 00077

RvA is member of the European Co-operation for Accreditation (EA) and is one of the signatories to the EA Multilateral Agreement (MLA) and to the ILAC Mutual Recognition Arrangement (MRA) for the mutual recognition of calibration certificates.

Scott Specialty Gases Netherlands B.V. Calibration Laboratory Takkebijsters 48 4817 BL Breda, The Netherlands ExpertiseCenter.North-West@airliquide.com Chamber of Commerce Number: 20134663	This certificate is issued provided that both Scott Specialty Gases Netherlands B.V. and the Dutch Accreditation Council (RvA) do not assume any liability.	Reproduction of the complete certificate is allowed. Parts of the certificate may only be reproduced with written approval of the Calibration Laboratory. Revision 17
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Scott
specialty gases

ISO/IEC 17025 - Calibration Certificate

Calibrated gas mixture



CALIBRATION
RvA K 064

Certificate Number: 20-37279-002-5711606 Rev-00

Page 2 of 2

Issued:

Breda, 18 October 2023

Name: H.A.D. Van Vliet
Function: Lab Analyst

RvA is member of the European Co-operation for Accreditation (EA) and is one of the signatories to the EA Multilateral Agreement (MLA) and to the ILAC Mutual Recognition Arrangement (MRA) for the mutual recognition of calibration certificates.

Scott Specialty Gases Netherlands B.V.
Calibration Laboratory
Takkebijsters 48
4817 BL Breda, The Netherlands
ExpertiseCenter.North-West@airliquide.com
Chamber of Commerce Number: 20134663

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Revision 17