



OFFICE (337) 269-1217
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CERTIFICATE OF ANALYSIS

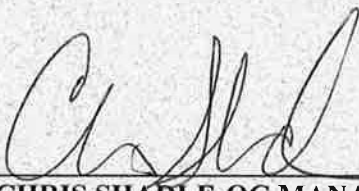
ALLIANCE SOURCE TESTING
 5530 MARSHALL ST.
 ATTN: MIKE PEARSON
 ARVADA, CO 80002

DATE: 8/14/18
 INVOICE NO: 11075
 PO NUMBER: OGLab-AGP-CG2
 QC NUMBER: 081418-1
 SHIP VIA: FEDEX

CYL. NO	COMPONENT	REQUESTED MOLE %	ACTUAL MOLE %
RRD003757	NITROGEN	0.50%	0.500%
	OXYGEN	0.10%	0.100%
	METHANE	BALANCE	75.999%
	CARBON DIOXIDE	2.40%	2.400%
	ETHANE	9.70%	9.700%
	PROPANE	6.80%	6.801%
	ISOBUTANE	0.70%	0.700%
	N-BUTANE	2.30%	2.300%
	ISOPENTANE	0.40%	0.400%
N-PENTANE	0.60%	0.600%	
	HEXANES+AGPSVI	0.50%	0.500%

74 PSIA CGA-510
 1 YEAR SHELF LIFE


 ERICH HOFMEISTER-ANALYST


 CHRIS SHADLE-QC MANAGER

THE ABOVE CERTIFIED STANDARD WAS MANUFACTURED USING BALANCES TESTED AND ADJUSTED FOR ACCURACY, PRECISION, AND SENSITIVITY WITH N.I.S.T. TRACEABLE WEIGHTS. THE CALIBRATION PROCEDURE FOLLOWED IS OUTLINED IN PBS REVISION 1 ACCORDING TO MLD STD 5-662A, NIST TEST NUMBER 822/278785-10. TESTED 5/18. THIS STANDARD IS CERTIFIED TO BE WITHIN +/-2 MOLE% OF THE NUMBER REPORTED RELATIVE TO THE COMPONENT, AND WITH A GRAVIMETRIC UNCERTAINTY OF +/- 1%



SPL

8820 Interchange Drive
 Houston, TX 77054
 Office: 713-660-0901
 Fax: 713-660-6035

GRAVIMETRIC CONCENTRATION CERTIFICATE

Date:	January 18, 2016	APT LABORATORY SERVICES
		DANIEL E. WILLIAMS
CUSTOMER CODE	APT	5530 MARSHALL ST
LIMS NUMBER	APT RR RUN	ARVADA, CO. 80002
QC NO:	011216-R2-5	APT LABORATORY SERVICES
CYL NO:	40050	NGA_CRM_NBE
Expiration Date:	NOT APPLICABLE	

CUSTOM LIQUID BLEND **PSIG: 1100** **HELIUM PAD**

COMPONENT	REQUESTED	ACTUAL	ACTUAL	ACTUAL
	MOLE %	MOLE%	WT. %	L. V. %
HEXANES + NOBLE I	61.833	61.157	79.173	73.382
N-PENTANE	8.427	8.607	6.292	7.006
ISOPENTANE	5.776	5.899	4.313	4.844
N-BUTANE	6.408	6.543	3.853	4.632
ISOBUTANE	2.190	2.245	1.322	1.650
PROPANE	5.614	5.736	2.563	3.549
ETHANE	5.358	5.470	1.667	3.285
CARBON DIOXIDE	0.380	0.387	0.173	0.148
NITROGEN	0.014	0.013	0.004	0.003
METHANE	4.000	3.943	0.641	1.501
TOTAL	100.000	100.000	100.000	100.000
AS PART OF CYLINDER #	101263			
N-HEXANE		8.049	6.959	7.454
HEPTANES		11.917	11.980	11.748
OCTANES		7.127	8.167	7.758
NONANES		3.607	4.641	4.303
DECANES PLUS		14.408	32.806	28.216
BENZENE		1.000	0.784	0.630
TOLUENE		2.558	2.364	1.929
ETHYLBENZENE		0.242	0.257	0.210
XYLENES		3.015	3.211	2.616
2,2,4-TRIMETHYLPENTANE		0.064	0.074	0.073
I-HEXANES		9.171	7.929	8.446

PHYSICAL PROPERTIES

KiloGrams:	0.8
MOLECULAR WEIGHT :	98.6909
Relative Density	0.7037
LB. / GAL.	5.8673

Certified Standards are manufactured gravimetrically using balances tested and calibrated using weights traceable to NIST. NIST Cert. 799220-1 Calculations are performed per GPA Technical Standards GPA 2198, GPA 2172, GPA 2145 and TP 17.
 (Most recent revision of standards) Gravimetric values reported are +/- 2 % relative to the number reported. Certified Standards meet or exceed ISO 6142 requirement.

Richard Rayon, Standards Manager



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GRAVIMETRIC CONCENTRATION CERTIFICATE

Date:	November 4, 2018	Alliance Source Testing
Customer Code:	WALK-IN	Michael Pearson
LIMS Number:	18101438	5530 Marshall Street
QC No:	18101438-GM	Arvada, CO 80002
Cylinder No:	38698	
Expiration Date:	NOT APPLICABLE	

AST HEAVY BLEND **PSIG: 1200**

COMPONENT	REQUESTED MOLE %	ACTUAL MOLE %	ACTUAL WT. %	ACTUAL L.V. %
HEXANES + AST I	62.000	60.600	80.629	75.866
n-Pentane	8.500	8.744	5.759	6.302
Iso-Pentane	5.750	5.923	3.901	4.307
n-Butane	6.500	6.813	3.615	4.271
Iso-Butane	3.000	3.090	1.639	2.010
Propane	5.500	5.708	2.297	3.126
Ethane	5.250	5.457	1.498	2.902
Carbon Dioxide	0.400	0.413	0.166	0.140
Nitrogen	0.100	0.175	0.045	0.038
Methane	3.000	3.077	0.451	1.038
TOTAL	100.000	100.000	100.000	100.000

PHYSICAL PROPERTIES

	Total Standard	HEXANES + AST I
Kilograms:	0.7	
Molecular Weight:	109.55	145.76
Specific Gravity:	0.6901	0.7786
Pounds Per Gallon (in Air):	5.7535	6.4913

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Richard Rayon, Standards Manager