ACS
ALCOHOL COUNTERMEASURE SYSTEMS

Alcohol Countermeasure Systems Corp
60 International Boulevard
Toronto, Ontario M9W 6J2
CANADA
acs-corp.com

CERTIFICATE OF ANALYSIS

Alcohol Countermeasure Systems
Alcohol Reference Solution
Lot No: 201502G

Expiry Date: February 24, 2017

This solution was analyzed using the direct injection gas-chromatographic procedure coupled with the internal standard technique commensurate with forensic alcohol methodology.

A screening (pre-mix) analysis of the distilled water used in the preparation of this solution indicated that there were no volatile impurities present.

The target analytical concentration was 0.0968 – 0.0992 gram/dL (wt/vol) ethyl alcohol in aqueous solution with an equivalent vapour alcohol concentration of 0.080 - 0.081 g/210L when used in a breath alcohol simulator heated to 34 ± 0.2°C.

The solution was found to have an analytical concentration of 0.0974 gram/dL (wt/vol) ethyl alcohol in aqueous solution with an equivalent vapour alcohol concentration of 0.081 g/210L when used in a breath alcohol simulator heated to 34 ± 0.2°C.

The solution is manufactured from distilled/de-ionized water and absolute ethyl alcohol (USP Grade). This lot contains 1640 bottles (of 500 mL each) of Alcohol Reference Solution.

Date of Analysis: February 24, 2015

G.J. Kupferschmidt, B.Sc., M.Sc., MCIC, C.Chem
G. Kupferschmidt Consulting Services Ltd.

FORCON

Forensic Consulting Services
A Division of G. Kupferschmidt Consulting Services Ltd.
2046 Oxford Ave., Oakville, Ontario, L6H 4K7
Telephone (905) 844-4410; Fax: (905) 844-6959; Email: kcs@forcon.ca

STANDARD ALCOHOL SPECIFICATION SHEET(HP5890)

Lot #: 201502 G Concentration: 80 mg/dl

Date of Analysis: Feb 24/15 Calibration Mix: 100.64 mg/dl

NIST: SRM 2894 Expiry Date: 30 April 2023 ISTD: n-PrOH

Source: Fisher Lot 134 IJ Stock ISTD Concentration: 40.1 mg/dl

Stock ISTD Preparation Date: Jan 6/15

ISTD Dilution: 10 -> 1000 ISTD Concentration 40.1 mg/dl

Liquid Analysis

HP5890 GC; FID; 4'x1/8" OD; 5% Carbowax 1500 on Porapak Q 80/100 mesh;

Temperatures

Column 110 °C Injector 200 °C Detector 250 °C

0.1 mL calibrator/sample plus 1.0 mL ISTD

2 microlitre injections

SAMPLE RESULTS

#1	#2	#3
97.31	97.21	
97.53	97.33	

Average Value: 97.35

Predicted Simulator Value: 80.4

NOTES

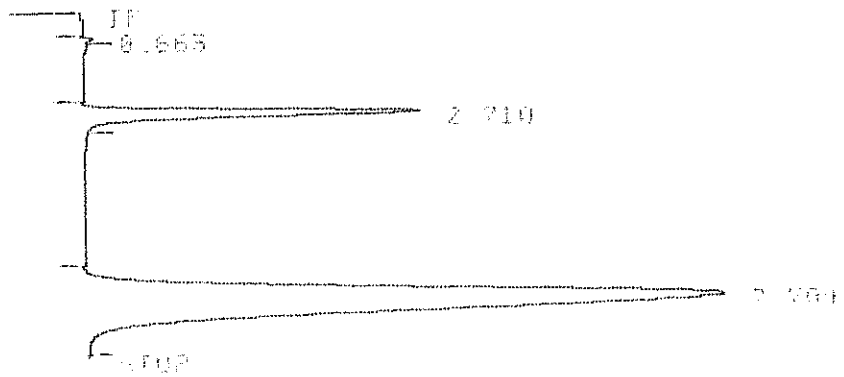
Date: Feb 24/15 Certified: G.P. Kupferschmidt

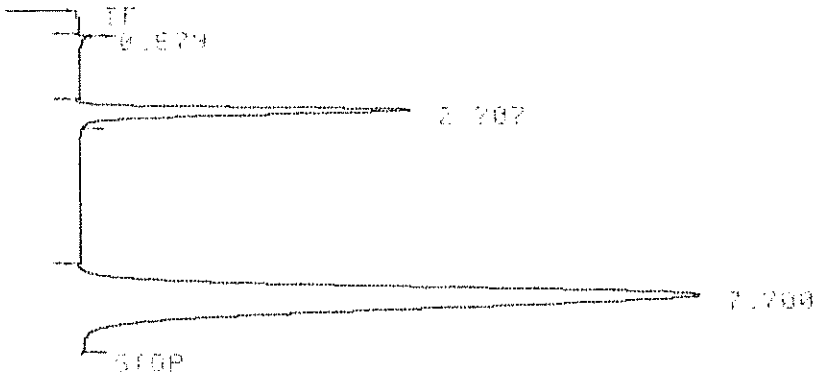
Feb 24/15 Jan6/15 40.1 Fisher Lot 134155

S1	Cal 17	100.64	12.9041
	Cal 18	100.86	12.904
S2	Cal19	100.5	12.9062
	Cal20	100.68	12.9073
S3	Cal21	100.41	12.9099
	Cal22	101.06	12.9084
S4	Cal23	100.53	12.9104
	Cal 24	100.79	12.9105

Column1	
Mean	100.68375
Standard Error	0.075378509
Median	100.66
Mode	#N/A
Standard Deviation	0.21320262
Sample Variance	0.045455357
Kurtosis	-0.17890402
Skewness	0.579828239
Range	0.65
Minimum	100.41
Maximum	101.06
Sum	805.47
Count	8
Confidence Level(95.0%)	0.178241851

```
  EDIT  MENU

1 = RUN PARAMETERS
2 = TIMETABLE EVENTS
3 = REPLACE CALIBRATION
4 = INTEGRATION PLOT TYPE
5 = RUN DATA STORAGE OPTIONS
6 = REPORT OPTIONS
7 = PRINT & POST-RUN LIST OPTIONS
8 = REMOTE DEVICE ACCESS
9 = RANGE SETPOINTS

SECTION TO BE EDITED: 6    @

REPORT OPTIONS
Suppress local report [Y/N*]:
HEIGHTX report [Y/N*]:
Replace report title [Y/N*]: Y
Report title:  LOT 20150202 SJ
Replace amount label [Y/N*]:
Report uncalibrated peaks [Y/N*]:
Extended report [Y/N*]:

SECTION TO BE EDITED:

*  RUN # 5484      FEB 24, 2015  14:47:01
START
```





RUN# 5485   FEB 24, 2015 14:57:00

METHOD NAME: 1>QUANT TEST

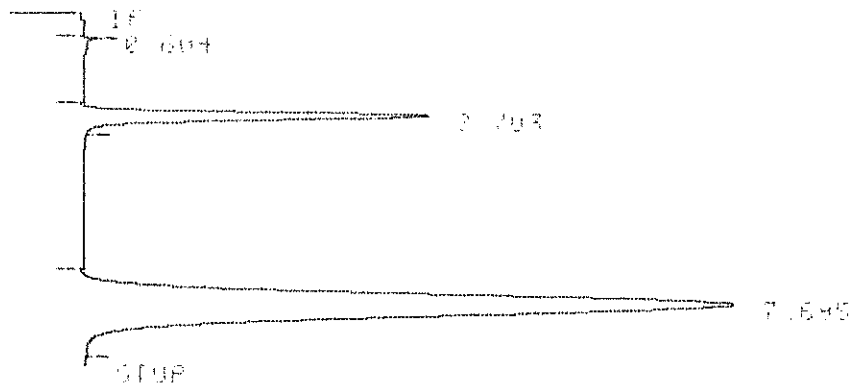
LOT 20150262 S1

STD-AREA

RT	AREA	TYPE	CAL #	MG/100
2.207	5233206	PB	1	97.532
3.700	25772410	BB	28	

TOTAL AREA=33005.99
MUL FACTOR=1.0000E+00
STD AMT=9.0100E+01

* RUN # 5486 FEB 24, 2015 15:07:07
START



RUN# 5486 FEB 24, 2015 15:07:07

METHOD NAME: M*QUANT.MET

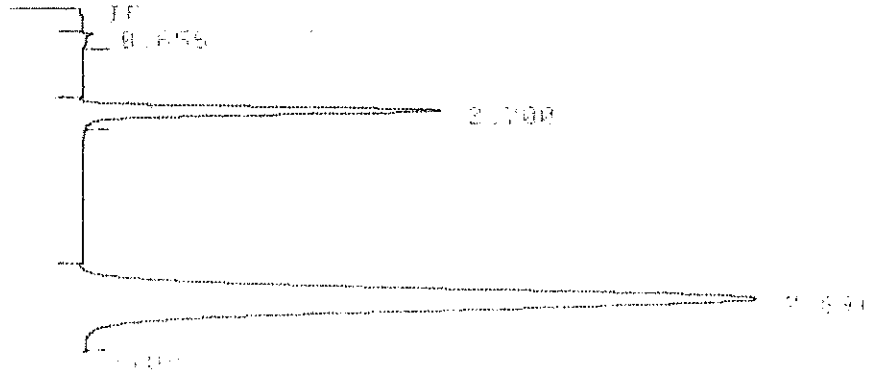
ISTD SC

ISTD-AREA

RT	AREA	TYPE	CAL#	MG/100
2.705	546802	PB	1	37.214
7.695	2911[illegible]	PB	20	

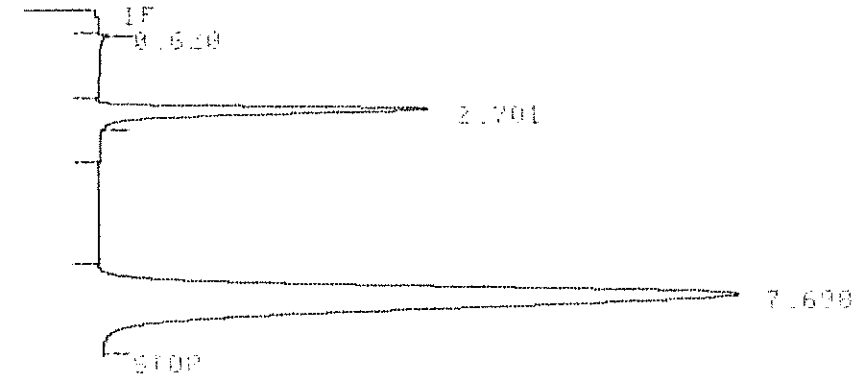
TOTAL AREA=3459890
MUL FACTOR=1.0000E+00
ISTD AMT=4.0100E+01

* RUN # 5487 FEB 24, 2015 15:10:59
START



FITTING APER=4600.0 L
MOL FACTOR=1.000000E+00
EXIT AMT=4.010000E+01

RUN # 5479 FEB 24, 2015 13:55:40



RUN# 5479 FEB 24, 2015 13:55:40

METHOD NAME: M:QUANT.MLT

LOT 201502051 S1

ISTD-AREA

RT	AREA	TYPE	CAL#	NG/L00
2.701	520008	PB	1	44.669
7.690	2867474	PB	28	

TOTAL AREA=3417095
DIL FACTOR=1.0000E+00
ISTD AMT=4.0100E+01

*

* EDIT METH

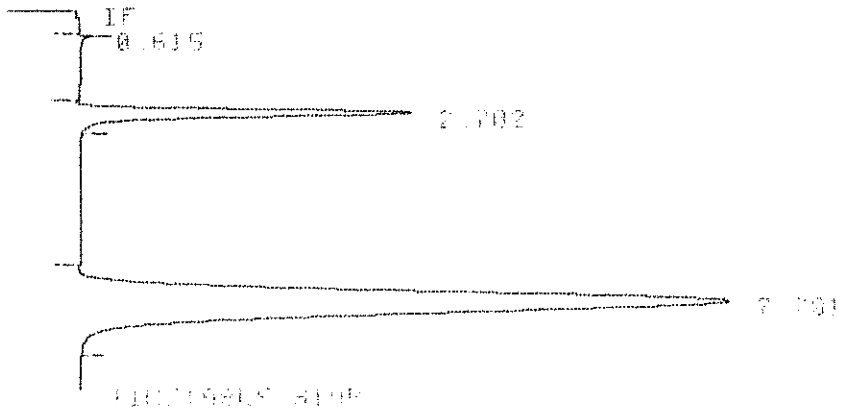
1 = RUN PARAMETERS
2 = TIMETABLE EVENTS
3 = REPLACE CALIBRATION
4 = INTEGRATION PLOT TYPE
5 = RUN DATA STORAGE OPTIONS
6 = REPORT OPTIONS
7 = PRINT & POST-RUN LIST OPTIONS
8 = REMOTE DEVICE ACCESS
9 = RANGE SETPOINTS

SECTION TO BE EDITED: 6   0

REPORT OPTIONS
Suppress local report [Y/N*]:
HEIGHT report [Y/N*]:
Replace report title [Y/N*]: Y
Report title: LOT 20150201 S1
Replace amount label [Y/N*]:
Report uncalibrated peaks [Y/N*]:
Extended report [Y/N*]:

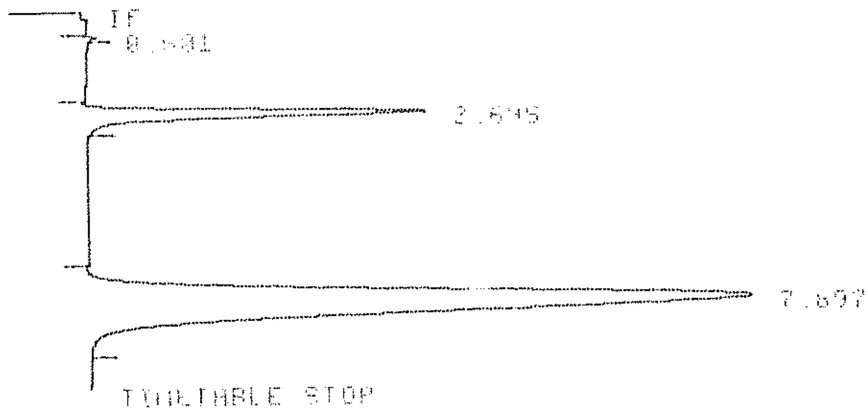
SECTION TO BE EDITED:

* RUN # 5477   FEB 24, 2015 12:39:40
START



TOTAL AREA=[illegible]
MUL FACTOR=1.0000E+00
ISTD AMT=4.0100E+01

* RUN # 5470 FEB 24, 2015 13:02:40
START



RUN# 5470 FEB 24, 2015 13:02:40

METHOD NAME: M*QUANT.MET

LOT 20150201 S1

ISTD-AREA

RT	AREA	TYPE	CAL#	MG/100
2.598	553666	PB	1	95.096
7.697	3018510	PB	1R	

TOTAL AREA=3572010
MUL FACTOR=1.0000E+00
ISTD AMT=4.0100E+01

```
*  EDIT  METH

1 = RUN PARAMETERS
2 = TIMETABLE EVENTS
3 = REPLACE CALIBRATION
4 = INTEGRATION PLOT TYPE
5 = RUN DATA STORAGE OPTIONS
6 = REPORT OPTIONS
7 = PRINT & POST-RUN LIST OPTIONS
8 = REMOTE DEVICE ACCESS
9 = RANGE SETPOINTS

SECTION TO BE EDITED: 6   @

REPORT OPTIONS
Suppress local report [Y/N*]:
HEIGHT% report [Y/N*]:
Replace report title [Y/N*]: Y
Report title:  LOT 20150206 WATER BLANK
Replace amount label [Y/N*]:
Report uncalibrated peaks [Y/N*]:
Extended report [Y/N*]:

SECTION TO BE EDITED:

*  RUN # 5472      FEB 24, 2015  11:00:41
START
      IF
      @ 620
```