



บริษัท ช้างช้าง
LIQUOR DISTILLERY
ORGANIZATION

67 หมู่ 4 ตำบลปากน้ำ อำเภอบางคล้า จังหวัดฉะเชิงเทรา 24110
67 MOO 4 PAKNAM BANGKHLA CHACHONGSAENG 24110

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COA No. : 0517/2569

Revise No. : 0

CERTIFICATE OF ANALYSIS

PRODUCT NAME : LAB L

LOT NUMBER : 4W140826

CHEMICAL NAME : Ethanol 99.9 % v/v

MFG. DATE : 14 August 2026

ETHANOL FOR : Pharmaceutical

EXP. DATE : 14 August 2031

Characteristic	Test Method	Unit	Specification	Results
Percent Alcohol at 20 °C	BP 2025	% V/V	≥ 99.9	99.92
Specific gravity at 20 °C (Identification A)	BP 2025	-	0.790 - 0.793	0.791
Appearance	BP 2025	-	Colorless, clear, volatile, flammable liquid, hygroscopic.	Conforms
Clarity of Solution	BP 2025	-	The same clarity as that of water or their opalescence is not more pronounced than that of reference suspension I.	Conforms
Solubility	BP 2025	-	Miscible with water and with methylene chloride.	Conforms
Color of solution	ASTM D1209	Hazen	≤ 10	2.6
Identification B (IR)	BP 2025	-	IR spectrum is conforms	Conforms
Identification C	BP 2025	-	An intense blue color appears on the paper and becomes paler after 10 - 15 min	Conforms
Identification D	BP 2025	-	A yellow precipitate is formed within 30 min	Conforms
Acidity (expressed as acetic acid)	BP 2025	ppm	≤ 30	7.4
Alkalinity	BP 2022	-	Shall not be alkaline to phenolphthalein	Conforms
Triable acid	ACS specification (2016)	meq/g	≤ 0.0005	< 0.0005
Triable base	ACS specification (2016)	meq/g	≤ 0.0002	< 0.0002
Absorbance At 240 nm	BP 2025	-	≤ 0.40	0.24
Absorbance Between 250 nm and 260 nm	BP 2025	-	≤ 0.30	0.09
Absorbance Between 270 nm and 340 nm	BP 2025	-	≤ 0.10	0.00
Absorbance The absorption curve is smooth	BP 2025	-	The spectrum shows a steadily descending curve with no observable peaks or shoulders.	Conforms
Water content	ASTM D6304	%w/w	≤ 0.1	0.1
Volatile impurities Acetaldehyde and Acetal expressed as Acetaldehyde	T-QAS-038 based on BP 2025, Volume I	ppm V/V	≤ 10	< 10
Volatile impurities Benzene	T-QAS-038 based on BP 2025, Volume I	ppm V/V	≤ 2	< 2
Volatile impurities Methanol	T-QAS-038 based on BP 2025, Volume I	ppm V/V	≤ 100	< 4
Volatile impurities Disregard limit	T-QAS-038 based on BP 2025, Volume I	ppm V/V	≤ 9	< 9
Volatile impurities Total of other impurities	T-QAS-038 based on BP 2025, Volume I	ppm V/V	≤ 300	< 300
1-Propanol	GC	ppm V/V	≤ 50	< 50
1-Butanol	GC	ppm V/V	≤ 50	< 50
Residue on evaporation	BP 2025	ppm m/V	≤ 10	0
Formic acid	GC	ppm	≤ 20	< 20
Acetone	GC	ppm	≤ 10	< 10



องค์การสุรา
แห่งประเทศไทย
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CERTIFICATE OF ANALYSIS

PRODUCT NAME : LAB L

LOT NUMBER : 4W140826

CHEMICAL NAME : Ethanol 99.9 % v/v

MFG. DATE : 14 August 2026

ETHANOL FOR : Pharmaceutical

EXP. DATE : 14 August 2031

Characteristic	Test Method	Unit	Specification	Results
Substances reducing potassium permanganate	ACS specification (2016)	-	Passes	Conforms
Carbonyl compounds (as CO)	GC	ppm	≤ 30	< 30
Substances darkened by sulfuric acid	ACS specification (2016)	-	Passes	Passes
Ethyl methyl ketone	GC	ppm	≤ 200	< 200
Isomyl alcohol	GC	ppm	≤ 200	< 200
2-Propanol	GC	ppm	≤ 30	< 30
Higher alcohol	GC	ppm	≤ 100	< 100
Aluminum (Al)*	ICP – method	ppm	≤ 0.5	< 0.5
Antimony (Sb)*	ICP – method	ppm	≤ 0.02	< 0.02
Arsenic (As)*	ICP – method	ppm	≤ 0.02	< 0.02
Barium (Ba)*	ICP – method	ppm	≤ 0.1	< 0.1
Beryllium (Be)*	ICP – method	ppm	≤ 0.02	< 0.02
Bismuth (Bi)*	ICP – method	ppm	≤ 0.02	< 0.02
Boron (B)*	ICP – method	ppm	≤ 0.02	< 0.02
Cadmium (Cd)*	ICP – method	ppm	≤ 0.05	< 0.05
Calcium (Ca)*	ICP – method	ppm	≤ 0.5	< 0.5
Chromium (Cr)*	ICP – method	ppm	≤ 0.02	< 0.02
Cobalt (Co)*	ICP – method	ppm	≤ 0.02	< 0.02
Copper (Cu)*	ICP – method	ppm	≤ 0.02	< 0.02
Gallium (Ga)*	ICP – method	ppm	≤ 0.02	< 0.02
Gold (Au)*	ICP – method	ppm	≤ 0.02	< 0.02
Indium (In)*	ICP – method	ppm	≤ 0.02	< 0.02
Iron (Fe)*	ICP – method	ppm	≤ 0.1	< 0.1
Lead (Pb)*	ICP – method	ppm	≤ 0.1	< 0.1
Lithium (Li)*	ICP – method	ppm	≤ 0.02	< 0.02
Magnesium (Mg)*	ICP – method	ppm	≤ 0.1	< 0.1
Manganese (Mn)*	ICP – method	ppm	≤ 0.02	< 0.02
Molybdenum (Mo)*	ICP – method	ppm	≤ 0.02	< 0.02
Nickel (Ni)*	ICP – method	ppm	≤ 0.02	< 0.02
Potassium (K)*	ICP – method	ppm	≤ 0.1	< 0.1
Platinum (Pt)*	ICP – method	ppm	≤ 0.02	< 0.02
Silver (Ag)*	ICP – method	ppm	≤ 0.02	< 0.02
Sodium (Na)*	ICP – method	ppm	≤ 0.5	< 0.5
Strontium (Sr)*	ICP – method	ppm	≤ 0.02	< 0.02



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CERTIFICATE OF ANALYSIS

PRODUCT NAME : LAB L

LOT NUMBER : 4W140826

CHEMICAL NAME : Ethanol 99.9 % v/v

MFG. DATE : 14 August 2026

ETHANOL FOR : Pharmaceutical

EXP. DATE : 14 August 2031

Characteristic	Test Method	Unit	Specification	Results
Thallium (Tl)*	ICP - method	ppm	≤ 0.02	< 0.02
Tin (Sn)*	ICP - method	ppm	≤ 0.1	< 0.1
Titanium (Ti)*	ICP - method	ppm	≤ 0.02	< 0.02
Vanadium (V)*	ICP - method	ppm	≤ 0.02	< 0.02
Zinc (Zn)*	ICP - method	ppm	≤ 0.1	< 0.1
Zirconium (Zr)*	ICP - method	ppm	≤ 0.03	< 0.03

Certified values are not applicable to packages stored after opening, even if resealed.

Mr. Teerat Raksri

Chief of QC & Development Division