

## CERTIFICATE OF ANALYSIS

### HIGH-GRADE RECTIFIED MOLASSES ETHANOL 96%

(Product code: TTC-E2)

**Date Analysis: 01<sup>st</sup> August 2017 No: 00150817 Warehouse: Tank 02-BH-E2-96**

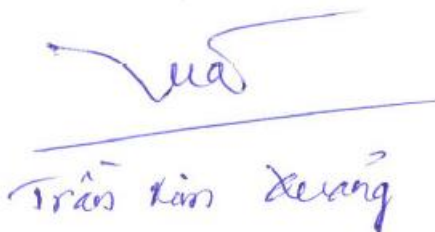
This grade of undenatured ethyl alcohol is used in applications where water content is not critical and a low odor required. It is also suitable in applications for foodstuff and human consumption.

NO	ITEM	UNIT	SPECIFICATION	RESULT	TEST METHOL
1	Appearance	Clear and bright		Pass	Visual test
2	Alcohol strenght 20 deg C	%vol	≥ 96	71.12	ASTM D4052-11/OIML TABLE
3	Acidity as acetic acid	ppm	≤ 9	6.95	ASTM D1613-06(2012)
4	Aldehyde as acetaldehyde	ppm	≤ 2	Not detected (*)	GC-AOAC 968.09-12/AOAC 972.11-12
5	Ester Ethyl acetate	ppm	Not detected (*)	Not detected (*)	
6	Methanol content	ppm	≤ 30	03	
7	Fusel oil as 2 Methyl 2-propanol	ppm	Not detected (*)	Not detected (*)	
8	Furural	ppm	Not detected(*)	Not detected(*)	
9	Higher alcohols	ppm	≤ 30	25	
10	Isobutanol	ppm	Not detected (*)	Not detected (*)	
11	Isoamyl Alcohol	ppm	Not detected (*)	Not detected (*)	
11	Acetone	ppm	Not detected (*)	Not detected (*)	
12	Dry extract matter	ppm	≤ 3.0	1.87	AOAC 920.47(2012)
13	Volatile matter calculated as Nitrogen	ppm	Not detected (*)	Not detected (*)	Ref. TCVN 6638-00
14	Permanganate time at 20 deg C	Minute	≥ 20	28	ASTM 1363 – 06(2011)

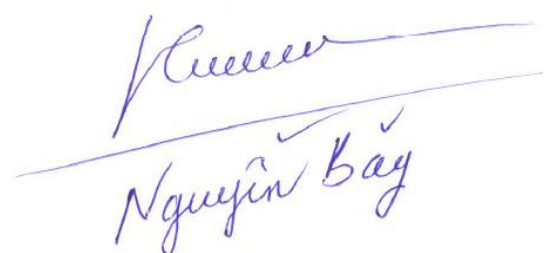
Note : ppm (V)=mg/l ; (\*): LOD = 0.1ppm

Manager of Q.A Dept.

Lab. Representative



Tran Kim Xuan



Nguyen Bay