

## Certificate of Analysis

<b>Product</b>	Ethanol	<b>Batch No.</b>	: 21 06 0361
<b>Grade</b>	AR.	<b>Manufacturing date</b>	: 30/06/2021
<b>Code No.</b>	AR1069	<b>Best before</b>	: 06/2025

Items	Descriptions	Specifications	Test Results
1	Assay (by GC.)	99.9% min.	99.9%
2	Color (APHA)	10 max.	< 10
3	Water (by Coulometry)	0.2% max.	0.046%
4	Acidity (mEq./g.)	0.0005 max.	< 0.0005
5	Alkalinity (mEq./g.)	0.0002 max.	< 0.0002
6	Residue on Evaporation	0.001% max.	< 0.001%
7	Acetone (GC.)	0.001% max.	< 0.001%
8	Methanol (GC.)	0.05% max.	< 0.05%
9	Propan-2-ol (GC.)	0.003% max.	< 0.003%
10	Fusel oil	Passes test	Passes test
11	Solubility in water	Passes test	Passes test
12	Substances darkened by sulfuric acid	Passes test	Passes test
13	Substances reducing permanganate	Passes test	Passes test
14	Aluminium (Al)	0.1 ppm max.	< 0.1 ppm
15	Barium (Ba)	0.02 ppm max.	< 0.02 ppm
16	Boron (B)	0.02 ppm max.	< 0.02 ppm
17	Cadmium (Cd)	0.05 ppm max.	< 0.05 ppm
18	Calcium (Ca)	0.5 ppm max.	< 0.5 ppm
19	Chromium (Cr)	0.02 ppm max.	< 0.02 ppm
20	Cobalt (Co)	0.02 ppm max.	< 0.02 ppm
21	Copper (Cu)	0.02 ppm max.	< 0.02 ppm
22	Iron (Fe)	0.1 ppm max.	< 0.1 ppm
23	Lead (Pb)	0.05 ppm max.	< 0.05 ppm
24	Magnesium (Mg)	0.05 ppm max.	< 0.05 ppm
25	Manganese (Mn)	0.02 ppm max.	< 0.02 ppm
26	Nickel (Ni)	0.02 ppm max.	< 0.02 ppm
27	Potassium (K)	0.1 ppm max.	< 0.1 ppm
28	Sodium (Na)	0.5 ppm max.	< 0.5 ppm
29	Strontium (Sr)	0.02 ppm max.	< 0.02 ppm
30	Tin (Sn)	0.1 ppm max.	< 0.1 ppm
31	Zinc (Zn)	0.1 ppm max.	< 0.1 ppm

Denatured with 8-12 ppm Denatonium benzoate.  
Meet A.C.S. Specifications.

This is to certify the above batch has been tested and complies with this specification.

Ladaphan

Chemist

Achan

Technical Manager