

## Certificate of Analysis

<b>Product</b>	Propan-2-ol	<b>Batch No.</b>	: 21 06 0242
<b>Grade</b>	VLSI	<b>Manufacturing date</b>	: 24/06/2021
<b>Code No.</b>	VL1162	<b>Best before</b>	: 06/2025

Items	Descriptions	Specifications	Test Results
1	Assay (by GC.)	99.9% min.	99.9%
2	Identity	Corresponds to IR spectrum	Passes test
3	Color (APHA)	10 max.	< 10
4	Water (by Coulometry)	0.05% max.	0.01%
5	Acidity ( $\mu\text{Eq./g.}$ )	0.2 max.	< 0.2
6	Alkalinity ( $\mu\text{Eq./g.}$ )	0.1 max.	< 0.1
7	Specific resistance ( $M\Omega\cdot\text{cm}$ )	10 min.	> 10
8	Residue on Evaporation	3 ppm max.	< 3 ppm
9	Aldehyde and Ketones (as propionic aldehyde)	50 ppm max.	< 50 ppm
10	Substances reducing permanganate (as O)	2.5 ppm max.	< 2.5 ppm
11	Chloride (Cl)	0.1 ppm max.	< 0.1 ppm
12	Phosphate ( $\text{PO}_4$ )	0.1 ppm max.	< 0.1 ppm
13	Sulfate ( $\text{SO}_4$ )	1.0 ppm max.	< 1.0 ppm
14	Heavy metals (as Pb)	0.1 ppm max.	< 0.1 ppm
15	Aluminium (Al)	20 ppb max.	< 20 ppb
16	Antimony (Sb)	10 ppb max.	< 10 ppb
17	Arsenic (As)	10 ppb max.	< 10 ppb
18	Barium (Ba)	10 ppb max.	< 10 ppb
19	Beryllium (Be)	10 ppb max.	< 10 ppb
20	Bismuth (Bi)	10 ppb max.	< 10 ppb
21	Boron (B)	5 ppb max.	< 5 ppb
22	Cadmium (Cd)	5 ppb max.	< 5 ppb
23	Calcium (Ca)	10 ppb max.	< 10 ppb
24	Chromium (Cr)	5 ppb max.	< 5 ppb
25	Cobalt (Co)	5 ppb max.	< 5 ppb
26	Copper (Cu)	5 ppb max.	< 5 ppb
27	Gallium (Ga)	10 ppb max.	< 10 ppb
28	Gold (Au)	10 ppb max.	< 10 ppb
29	Indium (In)	10 ppb max.	< 10 ppb
30	Iron (Fe)	10 ppb max.	< 10 ppb
31	Lead (Pb)	10 ppb max.	< 10 ppb
32	Lithium (Li)	5 ppb max.	< 5 ppb
33	Magnesium (Mg)	5 ppb max.	< 5 ppb
34	Manganese (Mn)	5 ppb max.	< 5 ppb
35	Molybdenum (Mo)	10 ppb max.	< 10 ppb
36	Nickel (Ni)	5 ppb max.	< 5 ppb

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Items	Descriptions	Specifications	Test Results
37	Platinum (Pt)	20 ppb max.	< 20 ppb
38	Potassium (K)	10 ppb max.	< 10 ppb
39	Silver (Ag)	5 ppb max.	< 5 ppb
40	Sodium (Na)	100 ppb max.	< 100 ppb
41	Strontium (Sr)	5 ppb max.	< 5 ppb
42	Thallium (Tl)	10 ppb max.	< 10 ppb
43	Tin (Sn)	10 ppb max.	< 10 ppb
44	Titanium (Ti)	10 ppb max.	< 10 ppb
45	Vanadium (V)	10 ppb max.	< 10 ppb
46	Zinc (Zn)	5 ppb max.	< 5 ppb
47	Zirconium (Zr)	10 ppb max.	< 10 ppb
48	Particle/ml :		
	0.5 µm and greater	30 max.	9
	1.0 µm and greater	8 max.	1

Product passed through 1 micron final filter.

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

Ladaphan

Chemist

Achan

Technical Manager