

**Scharlab S.L.**

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CERTIFICATE OF ANALYSIS

Product 1-Butanol, reagent grade, ACS, ISO, Reag. Ph Eur

Batch 18417802

AL0173

Quality release date 20/10/2017

Expiry date 10/2022

Analysis	Batch value	Specifications
Assay (G.C.)	99,81 %	≥ 99,5
Identity (IR-Spectrum)	passes test	passes test
Density (20°/4°)	0,8098 g/mL	0,809 - 0,810
Density (20°/20°)	0,8113 g/mL	0,810 - 0,812
Appearance	clear	clear
Colour (Hazen)	< 10	≤ 10
Boiling point	116 - 119 ° C	116 - 119
Acidity	0,00006 meq/g	≤ 0,0008
Aluminium (Al)	< 0,00005 %	≤ 0,00005
Barium (Ba)	< 0,00001 %	≤ 0,00001
Boron (B)	< 0,000002 %	≤ 0,000002
Cadmium (Cd)	< 0,000005 %	≤ 0,000005
Calcium (Ca)	< 0,00005 %	≤ 0,00005
Chromium (Cr)	< 0,000002 %	≤ 0,000002
Cobalt (Co)	< 0,000002 %	≤ 0,000002
Copper (Cu)	< 0,000002 %	≤ 0,000002
Iron (Fe)	< 0,00001 %	≤ 0,00001
Lead (Pb)	< 0,00001 %	≤ 0,00001
Magnesium (Mg)	< 0,00001 %	≤ 0,00001
Manganese (Mn)	< 0,000002 %	≤ 0,000002
Nickel (Ni)	< 0,000002 %	≤ 0,000002
Tin (Sn)	< 0,00001 %	≤ 0,00001
Zinc (Zn)	< 0,00001 %	≤ 0,00001
Aldehydes	passes test	passes test
Carbonyl compounds (as CO)	< 0,01 %	≤ 0,01
2-Butanol (G.C.)	0,0029 %	≤ 0,05
Butyraldehyde (G.C.)	< 0,01 %	≤ 0,01
Dibutyl ether (G.C.)	< 0,01 %	≤ 0,1
Isobutanol (G.C.)	0,12 %	≤ 0,15
Substances darkened by H2SO4	passes test	passes test
Residue on evaporation	0,0008 %	≤ 0,001
Water (K.F.)	0,0341 %	≤ 0,1