

## Certificate of Analysis

**Product:** Methanol  
**Grade:** LC-MS  
**Part No:** 1935-5

|                   |                                |
|-------------------|--------------------------------|
| <b>Lot:</b>       | <b>M89203</b>                  |
| <b>Mfg. Date:</b> | <b>2022-08-09</b>              |
| <b>Exp. Date:</b> | <b>3 years after Mfg. Date</b> |

Manufactured by Duksan Pure Chemicals

## LC-MS Suitability

| Test                          | Unit  | Specification         | Results |
|-------------------------------|-------|-----------------------|---------|
| ESI+ mode (as Reserpine)      | ppb   | Max. 50               | <50     |
| ESI- mode (as 4-Nitrophenol)  | ppb   | Max. 50               | <50     |
| Assay (by GC)                 | %     | Min. 99.9             | 99.9    |
| Color (APHA)                  |       | Max. 10               | 2       |
| Water                         | %     | Max. 0.03             | 0.004   |
| Residue After Evaporation     | ppm   | Max. 1                | <1      |
| Titration Acid                | mEq/g | Max. 0.0003           | 0.0001  |
| Titration Base                | mEq/g | Max. 0.0002           | 0.00003 |
| Ultraviolet Spectrophotometry |       |                       |         |
| Wavelength                    | Unit  | Maximum UV Absorbance |         |
| 220                           | nm    | 0.25                  | 0.18    |
| 230                           | nm    | 0.15                  | 0.08    |
| 254                           | nm    | 0.02                  | 0.01    |
| 280                           | nm    | 0.01                  | 0.001   |

## Metal Impurities

| Metal         | Unit | Specification (Max) | Results |
|---------------|------|---------------------|---------|
| Aluminum (Al) | ppb  | 25                  | <1      |
| Barium (Ba)   | ppb  | 5                   | <1      |
| Cadmium (Cd)  | ppb  | 5                   | <1      |
| Calcium (Ca)  | ppb  | 25                  | <1      |
| Chromium (Cr) | ppb  | 5                   | <1      |
| Cobalt (Co)   | ppb  | 5                   | <1      |
| Copper (Cu)   | ppb  | 5                   | <1      |
| Iron (Fe)     | ppb  | 5                   | <1      |

|                |     |    |    |
|----------------|-----|----|----|
| Magnesium (Mg) | ppb | 25 | <1 |
| Manganese (Mn) | ppb | 5  | <1 |
| Lithium (Li)   | ppb | 5  | <1 |
| Nickel (Ni)    | ppb | 5  | <1 |
| Potassium (K)  | ppb | 25 | <1 |
| Silver (Ag)    | ppb | 5  | <1 |
| Sodium (Na)*   | ppb | 50 | <1 |
| Tin (Sn)       | ppb | 5  | <1 |

\* May change over time

Created By:  
James Osborn  
Quality Associate