

LOTTE CHEMICAL

Certificate of Analysis

▶ Product : MEG_MONO_ETHYLENE_GLYCOL ▶ Date Issued : 2016/10/05
 ▶ Port Sampled : B5431-FA
 ▶ Date Sampled : 2016/09/28 15:06:03
 ▶ Destination :
 ▶ Quantity : 2000.000 MT
 ▶ Date Shipped : 2016/10/05
 ▶ Decision :

| Test Item | Test Method | Unit | Spec. (Min) | Spec. (Max) | Result |
|------------------------------|--------------|-------|-------------|-------------|--------|
| Monoethylene Glycol | SD E0-594B | wt% | 99.80 | | 99.96 |
| Diethylene Glycol | SD E0-498CB | wt% | | 0.05 | 0.02 |
| Water | ASTM E-203 | wtppm | | 500 | 80 |
| Aldehyde | AS No. S-63A | wtppm | | 10 | 5 |
| Fe | ASTM E-202 | wtppm | | 0.1 | 0.0 |
| Chloride | SD E0-635 | wtppm | | 0.2 | 0.0 |
| Acidity(as CH3COOH) | ASTM D-1613 | wtppm | | 20 | 10 |
| UV Transmittance, 220nm | SD E0-577A | % | 70 | | 85 |
| UV Transmittance, 275nm | SD E0-577A | % | 90 | | 96 |
| UV Transmittance, 350nm | SD E0-577A | % | 98 | | 100 |
| Specific Gravity(20/20℃) | ASTM D-891 | - | 1.1151 | 1.1156 | 1.1154 |
| Color(APHA) | ASTM D-1209 | - | | 5 | 2 |
| Appearance | VISUAL | | | | Clear |
| Distillation Range, 5 Vol.% | ASTM E-202 | ℃ | 196 | | 197 |
| Distillation Range, 95 Vol.% | ASTM E-202 | ℃ | | 199 | 198 |
| Ash | ASTM D-482 | wtppm | | 10 | 3 |
| | | | | | |
| | | | | | |

I Certify the Above Statement of Quality to be True and Correct.

Park Sung Hwa
 Leader of Process Analysis Lab