



INFORMATIVE SPECIFICATION

PROPILENGLICOL (MPG) GRADO USP/EP.

| PROPERTIES | UNIT | TEST METHOD | VALUES |
|-----------------------------|--------|-------------|--------------------------|
| Purity | % wght | MA083040 | 99.80 - 100.00 |
| DPG content | % wght | MA083040 | 0.000 - 0.100 |
| Specific weight (25°C/25°C) | | MA083034 | 1.035 - 1.037 |
| Distillation initial point | °C | MA083036 | 186.0 - 189.0 |
| Distillation final point | °C | MA083036 | 186.0 - 189.0 |
| Acid value | ppm | MA083033 | 0 - 20 |
| Ashes | ppm | MA083039 | 0 - 50 |
| Suspended material | | MA003011 | Exempt |
| Water content | % wght | MA083037 | 0.000 - 0.100 |
| Odour | | MA083032 | Characteristic |
| Pt-Co colour | Pt-Co | MA083038 | 0 - 5 |
| Appearance | | MA003011 | Clear, colourless liquid |
| Refractive index at 20°C | UN | MA003012 | 1.431 - 1.433 |

OBSERVATIONS: The following parameters are product's characteristics and are inspected periodically.

| | | | |
|-----------------------------|-----|----------|-------------|
| Chlorides | ppm | MA083005 | 0.0 - 1.0 |
| Iron | ppm | MA083006 | 0.00 - 0.50 |
| Arsenic | ppm | MA083011 | 0.0 - 1.0 |
| Heavy metals | ppm | MA083012 | 0.0 - 5.0 |
| Sulphates | ppm | MA083013 | 0 - 60 |
| Oxidizing substances | | MA083028 | O.K. |
| Organic volatile impurities | | MA083026 | VOCS |

Repsol Química reserves the right to modify the values of the parameters that appear in the above document without prior notification.

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|--------------------------------|--------|-------------|---------------|
| Reducing substances | | MA083028 | O.K. |
| IR Spectrum | | MA003016 | Pass |
| Melting point of nitrobenzoate | °C | MA083029 | 121 - 128 |
| EG and DEG content | % | MA083031 | 0.0 - 0.1 |
| Lead content | ppm | MA083041 | 0 - 1 |
| EP Acidity | ml | MA083033 | 0.00 - 0.05 |
| MPG USP Acidity | ml | MA083033 | 0.0 - 0.2 |
| Relative density 20/ 20°C | | MA083034 | 1.035 - 1.040 |
| Residue of Ignition - USP | mg | MA083039 | 0.0 - 3.5 |
| Residue of Ignition - FCC | % wght | MA083039 | 0.000 - 0.007 |
| Sulphated Ashes | mg | MA083039 | 0 - 5 |

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