# CERTENE™ LLMF-118D

### Metallocene Linear Low Density Polyethylene

#### Muehlstein

#### Message:

LLMF-118D is a certified prime resin designed for production of Blown films needing excellent optics, superior film strength and excellent heat seal performance. LLMF-118D applications include heavy duty packaging, ice bags and sealant layer in coextrusions. LLMF-118D contains medium slip, high antiblock and process aid. LLMF-118D complies with FDA regulation 21CFR 177.1520(c)3.2a, conditions of use B-H.

| General Information                          |                               |                   |             |  |
|----------------------------------------------|-------------------------------|-------------------|-------------|--|
| Additive                                     | High caking resistance        |                   |             |  |
|                                              | Processing aid                |                   |             |  |
|                                              | Moderate smoothness           |                   |             |  |
|                                              |                               |                   |             |  |
| Features                                     | High caking resistance        |                   |             |  |
|                                              | Optical                       |                   |             |  |
|                                              | Good strength                 |                   |             |  |
|                                              | Good heat sealability         |                   |             |  |
|                                              | Compliance of Food Exposure   |                   |             |  |
|                                              | Moderate smoothness           |                   |             |  |
| Uses                                         | Packaging                     |                   |             |  |
|                                              | Films                         |                   |             |  |
|                                              | Bags                          |                   |             |  |
|                                              | Optical applications          |                   |             |  |
|                                              |                               |                   |             |  |
| Agency Ratings                               | FDA 21 CFR 177.1520(c) 3.2a 1 |                   |             |  |
| Forms                                        | Particle                      |                   |             |  |
| Processing Method                            | Blow film                     |                   |             |  |
|                                              | Co-extrusion molding          |                   |             |  |
|                                              |                               |                   |             |  |
| Physical                                     | Nominal Value                 | Unit              | Test Method |  |
| Density                                      | 0.918                         | g/cm <sup>3</sup> | ASTM D1505  |  |
| Melt Mass-Flow Rate (MFR) (190°C/2.16<br>kg) | 1.0                           | g/10 min          | ASTM D1238  |  |
| Films                                        | Nominal Value                 | Unit              | Test Method |  |
| Film Thickness - Tested                      | 25                            | μm                |             |  |
| secant modulus                               |                               | •                 | ASTM D882   |  |
| 1% secant, MD: 25 μm                         | 175                           | MPa               | ASTM D882   |  |
| 1% secant, TD: 25 μm                         | 191                           | MPa               | ASTM D882   |  |
| Tensile Strength                             |                               |                   | ASTM D882   |  |
| MD: Yield, 25 µm                             | 10.7                          | МРа               | ASTM D882   |  |
| · ·                                          |                               |                   |             |  |

| TD: Yield, 25 µm                        | 9.65                              | MPa       | ASTM D882   |
|-----------------------------------------|-----------------------------------|-----------|-------------|
| MD: Break, 25 µm                        | 58.6                              | MPa       | ASTM D882   |
| TD: Break, 25 μm                        | 51.7                              | MPa       | ASTM D882   |
| Tensile Elongation                      |                                   |           | ASTM D882   |
| MD: Break, 25 µm                        | 450                               | %         | ASTM D882   |
| TD: Break, 25 μm                        | 600                               | %         | ASTM D882   |
| Dart Drop Impact <sup>1</sup> (25 µm)   | 760                               | g         | ASTM D1709  |
| Elmendorf Tear Strength                 |                                   |           | ASTM D1922  |
| MD : 25 µm                              | 230                               | g         | ASTM D1922  |
| TD : 25 μm                              | 500                               | g         | ASTM D1922  |
| Optical                                 | Nominal Value                     | Unit      | Test Method |
| Gloss (60°, 25.4 µm, Blown Film)        | 93                                |           | ASTM D2457  |
| Haze (25.4 µm, Blown Film)              | 11                                | %         | ASTM D1003  |
| Additional Information                  |                                   |           |             |
| Film Specimen: 1.0 mils (25 µm) film; b | ow-up-ratio 2.5 :1; Melt temperat | ure 400°F |             |
| Extrusion                               | Nominal Value                     | Unit      |             |
| Melt Temperature                        | 204                               | °C        |             |
| NOTE                                    |                                   |           |             |
| 1.                                      | F50                               |           |             |
|                                         |                                   |           |             |

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