# Eastar™ CN015 Natural

## Copolyester

#### Eastman Chemical Company

#### Message:

Eastar™ CN015 copolyester is a high flow product that contains a mold release. It is the first copolyester resin from Eastman that has been designed and engineered specifically for cosmetics packaging applications. With its unsurpassed color and clarity and an unmatched ability to mold thick parts with improved gate aesthetics, Eastar™ CN is clearly the most suited copolyester for premium cosmetics packaging. Other oustanding features of Eastar™ CN are excellent chemical resistance, high gloss, and improvements in processing such as faster drying times, faster cycle times, and lower scrap rates. Eastar™ CN is also ideally suited for two-shot molding techniques due to its lower processing temperatures, very slow crystallization rate, and flow characteristics.

This product has been GREENGUARD INDOOR AIR QUALITY CERTIFIED®.

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This product has been CRADLE TO CRADLE CERTIFIED(cm)

The CRADLE TO CRADLE CERTIFIED(cm) Mark is a registered certification mark used under license through McDonough Braungart Design Chemistry (MBDC). MBDC is a global sustainability consulting and product certification firm. The CRADLE TO CRADLE® framework moves beyond the traditional goal of reducing the negative impacts of commerce ( 'eco-efficiency'), to a new paradigm of increasing its positive impacts ( 'eco-effectiveness'). At its core, Cradle design perceives the safe and productive processes of nature's 'biological metabolism' as a model for developing a 'technical metabolism' flow of industrial materials. Product components can be designed for continuous recovery and reutilization as biological and technical nutrients within these metabolisms. For more information about MBDC and to obtain printable certificates for Eastman Copolyesters, visit http://www.mbdc.com.

| General Information      |                          |       |             |  |  |
|--------------------------|--------------------------|-------|-------------|--|--|
| Additive                 | Mold Release             |       |             |  |  |
| Features                 | Fast Molding Cycle       |       |             |  |  |
|                          | Good Chemical Resistance |       |             |  |  |
|                          | Good Colorability        |       |             |  |  |
|                          | Good Impact Resistance   |       |             |  |  |
|                          | Good Processability      |       |             |  |  |
|                          | Good Stiffness           |       |             |  |  |
|                          | Good Toughness           |       |             |  |  |
|                          | High Clarity             |       |             |  |  |
|                          | High Gloss               |       |             |  |  |
| Uses                     | Caps                     |       |             |  |  |
|                          | Containers               |       |             |  |  |
|                          | Cosmetic Packaging       |       |             |  |  |
|                          | Packaging                |       |             |  |  |
|                          | 3 3                      |       |             |  |  |
| Appearance               | Natural Color            |       |             |  |  |
| Physical                 | Nominal Value            | Unit  | Test Method |  |  |
| Specific Gravity         | 1.20                     | g/cm³ | ASTM D792   |  |  |
| Molding Shrinkage - Flow | 0.30                     | %     | ASTM D955   |  |  |

| Hardness                                            | Nominal Value | Unit | Test Method |
|-----------------------------------------------------|---------------|------|-------------|
| Rockwell Hardness (R-Scale, 23°C)                   | 105           |      | ASTM D785   |
| Mechanical                                          | Nominal Value | Unit | Test Method |
| Tensile Strength                                    |               |      | ASTM D638   |
| Yield, 23°C                                         | 50.0          | MPa  |             |
| Break, 23°C                                         | 35.0          | MPa  |             |
| Tensile Elongation                                  |               |      | ASTM D638   |
| Yield, 23°C                                         | 4.5           | %    |             |
| Break, 23°C                                         | 190           | %    |             |
| Flexural Modulus (23°C)                             | 1800          | MPa  | ASTM D790   |
| Flexural Strength (23°C)                            | 67.0          | MPa  | ASTM D790   |
| Impact                                              | Nominal Value | Unit | Test Method |
| Notched Izod Impact                                 |               |      | ASTM D256   |
| -40°C                                               | 38            | J/m  |             |
| 23°C                                                | 70            | J/m  |             |
| Unnotched Izod Impact                               |               |      | ASTM D4812  |
| -40°C                                               | No Break      |      |             |
| 23°C                                                | No Break      |      |             |
| Instrumented Dart Impact (23°C, Energy at Max Load) | 40.0          | J    | ASTM D3763  |
| Thermal                                             | Nominal Value | Unit | Test Method |
| Deflection Temperature Under Load                   |               |      | ASTM D648   |
| 0.45 MPa, Unannealed                                | 71.0          | °C   |             |
| 1.8 MPa, Unannealed                                 | 63.0          | °C   |             |
| Optical                                             | Nominal Value | Unit | Test Method |
| Transmittance (Total)                               | 90.0          | %    | ASTM D1003  |
| Haze                                                | < 0.60        | %    | ASTM D1003  |
| Injection                                           | Nominal Value | Unit |             |
| Drying Temperature                                  | 60.0          | °C   |             |
| Drying Time                                         | 2.0 to 4.0    | hr   |             |
| Processing (Melt) Temp                              | 225 to 245    | °C   |             |
| Mold Temperature                                    | 16.0 to 50.0  | °C   |             |
|                                                     |               |      |             |

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