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## Antiblock Additives

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**Antiblocks prevent the adhesion or “blocking” of two adjacent film layers.**

## Summary

Blocking most commonly occurs when two pieces of film are pressed together such as on a take-up roll or after stacking finished converted films. Antiblock additives are widely used in the industry to minimize or eliminate blocking, thereby improving the handling and converting of film. An antiblock additive present in the resin protrudes from the film surface. This creates asperities (i.e. little bumps) which help to minimize the film-to-film contact; and hence, blocking.



## Product Overview

Ampacet offers a multitude of different antiblock masterbatches which are all designed to meet specific performance criteria such as cost, blocking performance (ASTM D3354), and/or optical properties (ASTM D1003). Traditional inorganics antiblocks are mostly based on siliceous minerals which includes diatomaceous earth as well as talc. Calcium carbonate is also used to a lesser extent due to its inexpensive nature. The design of these masterbatch products is based on the understanding of the commercial availability, chemical properties, and physical properties of potential antiblocks as summarized below.

| Chemical and Physical Properties |                  |      |                   |
|----------------------------------|------------------|------|-------------------|
| Property                         | SiO <sub>2</sub> | Talc | CaCO <sub>3</sub> |
| Acid Resistance                  | Good             | Good | Poor              |
| Alkali Resistance                | Good             | Good | Fair              |
| Mohs Hardness                    | 7-8              | 1    | 3                 |
| Refractive Index                 | 1.48             | 1.59 | 1.66              |
| Spec Gravity                     | 2.3              | 2.8  | 2.7               |

| Inorganic Antiblocks |                              |
|----------------------|------------------------------|
| Production Code      | Chemistry                    |
| Diatomaceous Earth   | Silicon Dioxide              |
| Talc                 | Magnesium Silicate           |
| Synthetic Silica     | Silicon Dioxide              |
| Calcium Carbonate    | Calcium Carbonate            |
| Ceramic Spheres      | Alumina-silicate ceramic     |
| Kaolin Clay          | Aluminium Silicate           |
| Mica                 | Aluminium Potassium Silicate |

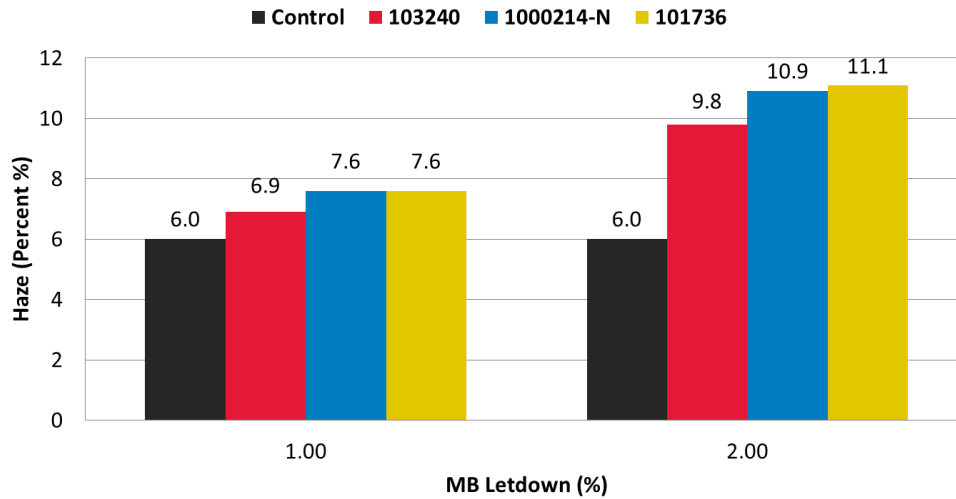


## Products/Codes

| Production Code | Resin | Chemistry                                    | FDA |
|-----------------|-------|--|-----|
| 10998           | LLDPE | 35% DE, 15% CaCO <sub>3</sub>                | YES |
| 101736          | LDPE  | 50% DE                                       | YES |
| 100165-C        | LLDPE | 50% Talc                                     | YES |
| 10477-F         | LDPE  | 20% DE, 10% CaCO <sub>3</sub>                | YES |
| 103240          | LLDPE | 50% Nepheline Syenite                        | YES |
| 10063           | LDPE  | 20% DE                                       | YES |
| 101798          | LLDPE | 20% SiO <sub>2</sub> , 15% CaCO <sub>3</sub> | YES |
| 1000214-N       | LLDPE | 70% Proprietary Mineral                      | YES |

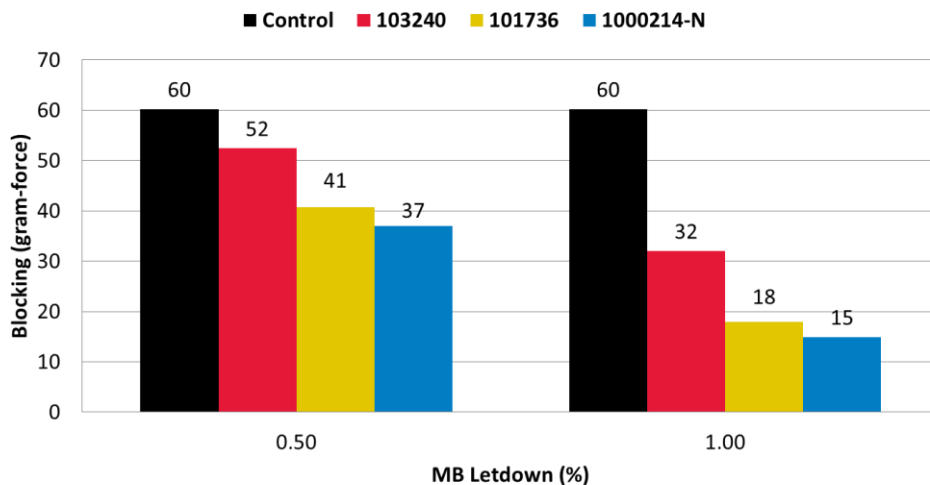
## Haze, ASTM D1003

LDPE; 2.0 M.I. 0.918 Density; 1.0 mil film thickness.



## Induced Blocking, ASTM D3354

LDPE; 2.0 M.I. 0.918 Density; 1.0 mil film thickness.



## Performance Data Details

- Blocking performance is measured utilizing a Block-Reblock Tester according to ASTM D3354.
- Haze performance and clarity (wide angle and narrow angle scattering respectively) are the primary optical properties of consideration when selecting an antiblock. Both tests are measured according to ASTM D1003.
- It is important to optimize the level of antiblock needed for the application as there is often a significant trade-off between optical properties and blocking performance (i.e. an increase in haze as you increase antiblock).
- Typical antiblock levels for film range from 0.2 - 1.0% (2,000-10,000 ppm) antiblock in the final film. This is generally achieved through the use of a 0.5 - 4.0% letdown of masterbatch.
- Ampacet provides the industry standard in antiblocks including talc (Ampacet 100165-C AB PE MB) and diatomaceous earth (Ampacet 101736 AB PE MB) which have historically proven to be the most efficient antiblocks available.
- Ampacet also provides a unique, proprietary chemistry to the film market in the form of 1000214-N.
  - This exciting new product was developed by Ampacet for maximum efficiency at a 70% loading while maintaining excellent haze and blocking performance at competitive prices.



For more information on **Antiblock Additives**, their uses and complete Regulatory Status, contact your Ampacet Account Executive or visit [www.ampacet.com](http://www.ampacet.com).

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