

# DuPont™ Entira™ Antistats

POLYMER MODIFIERS

## HANDLING AND PROCESSING DUPONT™ ENTIRA™ ANTISTATS

*DuPont™ Entira™ Antistats are modified potassium ionomers. Like other ionomers sold by DuPont, the Entira™ antistats are free flowing pellets, with low odor and are supplied in hermetically sealed foil lined bags to prevent moisture pick-up.*

*When added to Polyethylene or Polypropylene they provide instant, permanent antistatic properties even in very dry (low relative humidity) conditions. To maximize the ease of processing of these materials there are two important process issues to manage.*

*First prevent moisture pick-up of the Entira™ Antistat pellets prior to and during extrusion and secondly control or minimize the melt temperature during melt processing. Always consult the MSDS before using these materials.*

### Handling of Entira™ Antistats

Entira™ Antistats are very sensitive to moisture. If they are left open to the air they will pick-up excessive water, which can give problems such as bubbling and die build-up during processing. The rate of moisture absorption will depend on factors such as relative humidity, temperature, and air flow around pellets. Defects will appear on the surface of an extrudate when moisture content is marginal, and at very high moisture defects will appear as bubbles in the extrudate or at the die lip.

The foil lined bags should be opened just before using the product. If all the contents of the bag are not used at once the bag should be taped up with an impervious tape or ideally sealed with a heat sealing device. As an extra protection, if available, purge the bag with nitrogen or dry air before sealing.

If blends are prepared prior to processing, ideally the container in which the blend is to be prepared should be flushed with nitrogen or dry air, and so should the headspace above the finished pellet blend prior to further processing. If there is an extended gap (more than 10 minutes) between preparing the preblend and the processing of the mixture, the preblend should be stored in a moisture proof foil lined bag or in a hermetically sealed impervious container. Material in hoppers should ideally be blanketed with nitrogen or dry air or at the very least covered, and not left in the hopper for an extended time.

Any material left in open or damaged containers should be assumed to be high in moisture and may require drying. Typically the drying temperatures are relatively low (<55°C, to avoid caking of pellets), using dry air or nitrogen, and require long hold-up times (24 hours). Drying ovens without dehumidifier or vacuum features should never be used. Hot air ovens will typically add rather than remove moisture.

## Processing Entira™ Antistats

Entira™ Antistats naturally contain a certain amount of water. Blends containing them can give problems such as bubbling or die build-up if not processed under correct conditions.

This will be a more serious problem if the polymer has not been handled properly and it has picked up extra moisture. Some specific grade by grade melt temperature guidelines follow.

- When processing Entira™ AS SD100 adjust barrel temperature profiles and extruder speeds to maintain melt temperatures below 200°C. Some processing and product requirements may require temperatures to be kept below 185°C. Always avoid melt temperatures above 220°C.
- Entira™ AS MK400 will be most dependent on processing conditions and equipment. Below 230°C will normally work well and temperatures as high as 250°C are sometimes satisfactory. If problems arise, one should reduce the processing temperature if possible. If they persist one can try a dried master batch approach.

If advice is required about a particular situation please consult your DuPont sales and technical service representatives.

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