Array® EBM
polyethylene terephthalate resin

Product Description
Array® EBM polyethylene terephthalate (PET) resin is designed to have the melt strength and slow crystallization rate required to produce large handle ware containers by extrusion blow molding. It performs exceptionally well in the manufacture of thick walled containers where maintaining clarity and neutral color are important. The higher intrinsic viscosity of this product gives the melt strength required to maintain parison shape in continuous extrusion.

This product can be used with up to 50% in-plant regrind provided that the regrind has been dried.

In addition, DAK has designed Array® EBM to be recyclable with other PET products and this product has met the APR Critical Guidance Document guidelines for PET.

Food Contact
Array® EBM is ideally suited for food packaging applications and may be used in contact with food as described on Food Contact Notification (FCN) 635 in full compliance with the Federal Food, Drug and Cosmetic Act.

Sales Specifications (5860)

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
<th>Unit</th>
<th>Test Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intrinsic Viscosity</td>
<td>1.10 +/- 0.03</td>
<td>dL/g</td>
<td>DAK-QAR-SOP-0012</td>
</tr>
<tr>
<td>Color L*</td>
<td>81 +/- 4</td>
<td>Hunter</td>
<td>LP-100</td>
</tr>
<tr>
<td>Color b*</td>
<td>-0.5 +/- 2.5</td>
<td>Hunter</td>
<td>LP-100</td>
</tr>
<tr>
<td>Acetaldehyde</td>
<td>2 max</td>
<td>ppm</td>
<td>DAK-QAR-SOP-0010</td>
</tr>
<tr>
<td>Moisture Content (as packaged)</td>
<td>0.25 max</td>
<td>Weight %</td>
<td>DAK-QAR-SOP-0013</td>
</tr>
<tr>
<td>Fines (as packaged, +24 Mesh Size)</td>
<td>0.10 max</td>
<td>Weight %</td>
<td>DAK-QAR-SOP-0014</td>
</tr>
<tr>
<td>Chip Size</td>
<td>49 to 59</td>
<td>Chips/g</td>
<td>DAK-QAR-SOP-0015</td>
</tr>
<tr>
<td>Melt Point</td>
<td>235 to 245</td>
<td>°C</td>
<td>DAK-QAR-SOP-0016</td>
</tr>
</tbody>
</table>

*This a development product. The specifications have not been finalized and are subject to change.

This product is spherical PET resin pellets made by the DAK Americas Melt-Tek® process.

These values represent the anticipated performance data for these polyester resins and intermediates; they are not intended to be used as design data. We believe this information is the best currently available on the subject. It is offered as a possible helpful suggestion in the experimentation you may care to undertake along these lines. It is subject to revision as additional knowledge and experience is gained. DAK Resins makes no guarantee of results and assumes no obligation or liability whatsoever in connection with this information. This publication is not a license to operate under, or intended to suggest infringement of, any existing patents.

CAUTION: Do not use in medical applications involving permanent implantation in the human body. For other medical applications, see “DAK Medical Caution Statement”.

DAK Americas LLC
Gateway Corporate Center, Suite 210
223 Wilmington W Chester Pike• Chadds Ford, PA  19317
1-888-738-2002 • fax: 610-558-7385 • www.dakamericas.com

PDS-B95A Rev 04/10
Material Drying
Proper drying of polyethylene terephthalate (PET) is essential to produce a high quality part (container, film, etc.) with optimum physical properties. PET is hygroscopic, meaning that when it is exposed to humid atmospheres, it will absorb moisture. In PET the moisture is not only on the surface but diffuses slowly through the whole pellet and is firmly held by molecular attraction. Before processing the PET, this moisture must be removed. Carefully controlled drying of all PET is an essential requirement for optimum processing performance and final product properties. If drying is not carried out properly, to the known requirements of the type of PET in use, then deficiencies in process and product will result. The deficiencies will be impossible to remedy by later process changes. These defects arise in the injection molding or extrusion processes because at PET melt temperature (250°-280° C) any water present causes hydrolytic degradation of the PET, almost instantaneously, with the resultant loss in intrinsic viscosity (IV). Significant drops in IV cause loss of process control and reductions in end product properties.

Drying of PET polymer involves the diffusion of absorbed moisture from the interior of the polymer chip to its surroundings and, subsequently the removal of moisture from the bulk of polymer chips. The final moisture of the PET polymer should be less than 30ppm and preferably 10 to 20ppm. Moisture removal can be achieved by heating the polymer chip under dry air or vacuum. In an air drying system, heated dehumidified air flows up through a chip bed and returns to the dehumidifier. The key requirements for a reliable drying process are:

Drying temperature: The ACTUAL chip temperature should achieve between 300° and 340° F measured at the dryer exit.

Dehumidified air temperature: Correctly designed equipment should operate at temperatures up to 340° F measured on entry to the dryer hopper, with an absolute maximum of 370° F to prevent possible discoloration.

Dehumidified air dew point: This should not be allowed to rise above –34° F and should preferably be –40° F or lower, measure after the desiccant bed. Always check the correct regeneration temperatures are being used.

Dehumidified air flow through the chip bed: Most dryers operate at around 1 cfm of airflow per 1lb/hr of PET chip as a minimum requirement, with the airflow at the correct temperature and dew point.

Chip residence time (drying time): DAK recommends a chip residence time for Array® EBM PET of not less than five hours and preferably six hours. This is the theoretical drying time, which is calculated by dividing dryer capacity in lbs. by throughput in lb./hr. Extended periods of high temperature can adversely affect the polymer processing conditions. In the event of a stoppage for an extended period,
Array® EBM

dry polymer can be stored in the dryer-hopper by reducing the air temperature to 240° F (or even lower).