**WHAT DID WE LEARN?**

**FACTORS IMPROVING A PACKAGE’S RECOVERY**

- **2D/3D Separation is Key to High Recovery**
- **Package Form Influences Flow**
- **Optical Sorters Can Help Identify Packaging**

**包装分离是提高回收率的关键**

- **尺寸和形状**
- **刚性**
- **常见**

**WHERE DID THE MATERIAL END UP?**

<table>
<thead>
<tr>
<th>DESTINATIONS</th>
<th>PET</th>
<th>CHDPE</th>
<th>Paper</th>
<th>Residual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small, regular weight PET beverage bottles</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small PET containers</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All CHDPE containers</td>
<td></td>
<td></td>
<td>Cartons</td>
<td></td>
</tr>
<tr>
<td>CHDPE containers (all non-bottle containers and bins, &lt;10” diameter)</td>
<td></td>
<td></td>
<td>Paper beverage cups</td>
<td></td>
</tr>
<tr>
<td>Paper beverage cups</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**METHODOLOGY**

1. Materials added to standard incoming recyclables
2. Sorters trained to sort new materials, but left to flow naturally
3. Systems run for 3 hours
4. Samples from random bales of paper, plastic, and residue streams were sorted into 104 categories

**GOALS**

- What changes to sort processes could improve recovery?
- Why do packages flow to commodities?
- Where do packages end up?

**MRFS TESTED (5)**

- **Locations**: Midwest, Northeast and Southeast
- **Type**: One dual stream and four single-stream
- **Size**: 2 lg. (35 tph), 2 med. (25-30 tph) and 1 sm. (10 tph)
- **Equipment manufacturers**: 4 different companies
- **Optical sorters**: Ranged from 0 to 5

**PACKAGING FLOW IN THE MRF**

The material mix at the MRF is constantly changing. We studied how materials flowed through the MRF to help improve recovery.

**FACTORS IMPROVING A PACKAGE’S RECOVERY**

- **Size + Shape**: Dimensions make a difference - items tend to flow with similarly sized and shaped materials across materials
- **Stiffness**: Holding the 3D shape improves likelihood of moving with containers
- **Common**: More prevalent form/ resin combination will increase ability to target with dedicated optical or manual sorters