**TEST PROTOCOL**

**Objective**
Measure and evaluate the temperature protection performance of each cover when exposed to identical conditions and without the influence of thermal mass (empty box test).

**Pallet Configuration**
- Three pallet loads, 48” x 40” x 48”
- Sixteen empty boxes (24” x 20” x 12”) per pallet
- Four boxes per row

**Products Tested**
- Metallized spunbonded cover with approximate basis weight of 175 g/m² (MSB175)
- Metallized bubble wrap cover with approximate basis weight of 470 g/m² (MBW470)
- Metallized Tyvek™ air cargo cover for pharmaceuticals with bottom (Tyvek™ WS)

**Exposure Time**
Test period from November 11 at 13:00 to November 13 at 11:00.

**Weather Conditions**
Full sun all day on November 12 with daytime temperatures in the low to mid 80°F range (26°C to 29°C).

**Data Capture**
Data logging conducted at known hot spot locations:
- Air temperature at top southeast corner, under cover
- Air temperature at south face center load, under cover
- Air temperature at top southwest corner, inside of box
### Observations

1. Graphs of temperature data demonstrate that Tyvek™ air cargo covers for pharmaceuticals offer better protection from elevated ambient temperature and upward thermal excursions caused by solar energy.

2. Graphs for Tyvek™ air cargo covers for pharmaceuticals demonstrate faster cool down of undercover air temperature than MSB175 and MBW470 when solar energy and ambient air temperature decrease.

### Conclusion

When exposed to high solar radiation and ambient temperature, Tyvek™ air cargo covers for pharmaceuticals mitigate upward temperature excursions, which facilitate cooler load temperatures.

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**For more information, call us at 1-800-44-TYVEK or visit www.aircargocovers.dupont.com**

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**TEST RESULTS**

<table>
<thead>
<tr>
<th>Elapsed Time (Hours)</th>
<th>Temperature (°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Tyvek™ WS</td>
</tr>
<tr>
<td>2</td>
<td>MSB175</td>
</tr>
<tr>
<td>4</td>
<td>MBW470</td>
</tr>
<tr>
<td>6</td>
<td>Ambient</td>
</tr>
</tbody>
</table>

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