OECD PBMR-400
BENCHMARK

TINTE Transient Cases 2,5 and 6
Preliminary Results
TINTE Transient Results

- Case 2 (DLOFC with scram), Case 5a (CRW over 200 sec), Case 5b (CRW over 0.1 sec) and Case 6 (RIT ramps of 50°C) were calculated with two XS libraries:
  - The Microx generated XS dataset, with no thermal or fast buckling feedback ('3D')
  - The Microx generated XS dataset, with buckling feedback ('5D')
  - (The full TINTE SAR model were not used, since the Benchmark definition introduced constant conductivities and other simplifying assumptions that would make model comparisons not feasible).
<table>
<thead>
<tr>
<th>Case</th>
<th>Description</th>
<th>Max Fuel Temp (Celcius)</th>
<th>Max Total Power (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>3D library</td>
<td>5D library</td>
</tr>
<tr>
<td>2</td>
<td>DLOFC with scram</td>
<td>1686</td>
<td>1684</td>
</tr>
<tr>
<td>5a</td>
<td>CRW over 200 sec</td>
<td>1336</td>
<td>1424</td>
</tr>
<tr>
<td>5b</td>
<td>CRW over 0.1 sec</td>
<td>1830</td>
<td>2063</td>
</tr>
<tr>
<td>6</td>
<td>RIT ramps</td>
<td>1099</td>
<td>1113</td>
</tr>
</tbody>
</table>

OECD PBMR400, January 2006
TINTE Transient Results: Case 2 (2)

![Graph showing transient results for Case 2 with various power curves over time.](image-url)
TINTE Transient Results: Case 5a (1)
TINTE Transient Results: Case 5a (2)
TINTE Transient Results: Case 5b (2)
TINTE Transient Results: Case 5b (3)
TINTE Transient Results: Case 6 (1)
TINTE Transient Results: Case 6 (2)
TINTE Transient Results: Summary

• Case 2 (DLOFC with scram): This case produced no real differences between the two libraries (only decay heat is important here). The same conclusion can be made about Case 6, where only slight differences were obtained (less than 10°C temperature and 1% power variations).

• Case 5a (slow CRW): Maximum fuel temperature differences of 50-80°C observed. Power production is also ~15% higher for the 5D library. Buckling feedback already here of importance.

• Case 5b (CRW): Very large variations observed (5D library values are much higher than 3D library). Further investigations into use and definitions of MICROX libraries definitely needed.