Empfehlung zur Materialauswahl und Produktion optimaler Automobilkarosserien!

Bundesministerium für Wirtschaft

TPP 123
9/3/98
Statement of Objectives

- Improve employment in Germany

- Spur development of applications of advanced material technologies

- Spur production of cars that are both domestically affordable and internationally competitive

- Protect the environment
Factors Considered

- Steel - Germany has excellent, though expensive, steel industry

- SMC - Germany's world-class plastics industry can meet the challenge of producing new compounds for automotive uses
Aluminum Was Rejected as an Option

- Germany has no native aluminum industry, and it is not feasible to develop one
- Using aluminum means worsening the balance of trade, and exporting high-quality, value-adding jobs
- Using aluminum would increase manufacturing costs, and decrease the competitiveness of the auto industry

Therefore, aluminum threatens the viability of the automotive and steel industries, and threatens national economic stability
## Comparison of Options

<table>
<thead>
<tr>
<th>Option</th>
<th>All Steel</th>
<th>SMC Outer</th>
<th>SMC Floor</th>
<th>SMC Outer and Floor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total cost</td>
<td>$1,215</td>
<td>$1,206</td>
<td>$1,423</td>
<td>$1,217</td>
</tr>
<tr>
<td>Total weight</td>
<td>608</td>
<td>576</td>
<td>593</td>
<td>560</td>
</tr>
<tr>
<td>Weight steel</td>
<td>608</td>
<td>532</td>
<td>477</td>
<td>400</td>
</tr>
<tr>
<td>Weight SMC</td>
<td>0</td>
<td>44</td>
<td>116</td>
<td>160</td>
</tr>
</tbody>
</table>

- SMC Roof rejected because of high cost
We Chose SMC Outer and Floor

- Trivial cost increase over all-steel body with 8% decrease in BIW weight
- Increase in fuel economy from 21 to 22 mpg
- Better fuel economy will save consumers $260 over the life of the car, based on 12,000 miles/year, $4/gallon
- Increased end-of-life cost of $3.59 per vehicle swamped by fuel savings
- Recommend working with auto manufacturers and plastics manufacturers to spur end-of-life SMC recycling