

Global Automotive Finishes: Technology Trends

Hyundai Technology Fair
June 27, 2006

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Global Product Manager
DuPont Automotive Systems



The miracles of science™

DuPont / KCC Partnership



December 12, 2002 DuPont and KCC signed a technical license agreement relating to DuPont automotive OEM Coatings technology and know-how. The collaboration was extended on May 27, 2005 to a long term technical collaboration of both companies in the field of OEM coatings. DuPont and KCC are able to provide their technology and experience to Hyundai and Kia worldwide.

The conversion of Hyundai and Kia plants from solventborne to waterborne coating is a result of the successful collaboration. In addition, the partnership has produced new business awards with Mobis in the field of plastic parts.



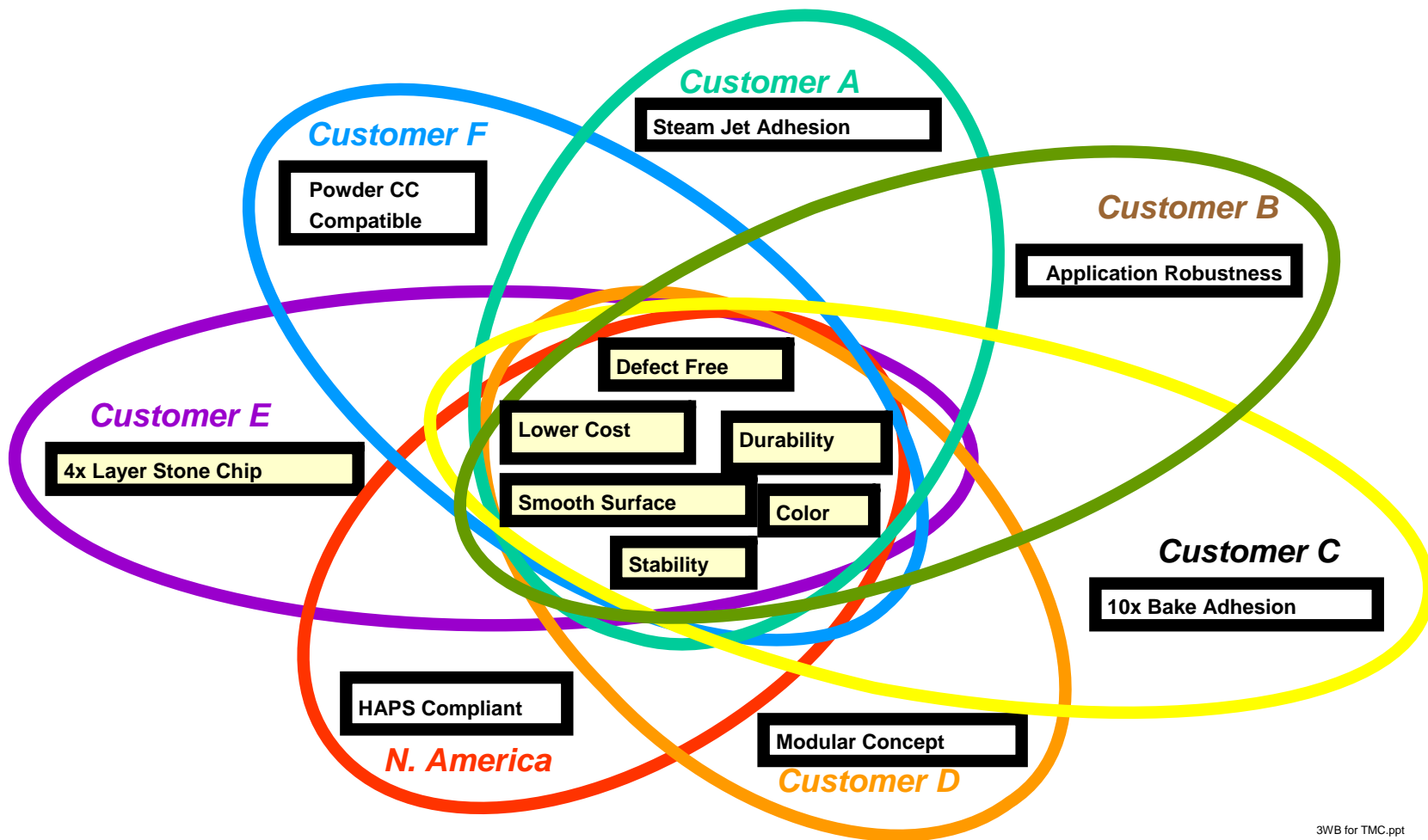
Trends For Global Automotive Painting

- Substrate
 - **Steel will remain key material**
- ED
 - **Environmentally friendly & New Processes**
- Primers
 - **3 forms (Solvent, Water, Powder) will continue**
- Basecoats
 - **Solvent (SB) will continue to convert to Water (WB)**
 - **More Colors to Differentiate Models**
- Clearcoats
 - **Solventbased will remain major form**
- Processes
 - **Topcoat Consolidation (3C1B) will increase**

Automakers included in Technical Trends Discussions



Voices of the Customer



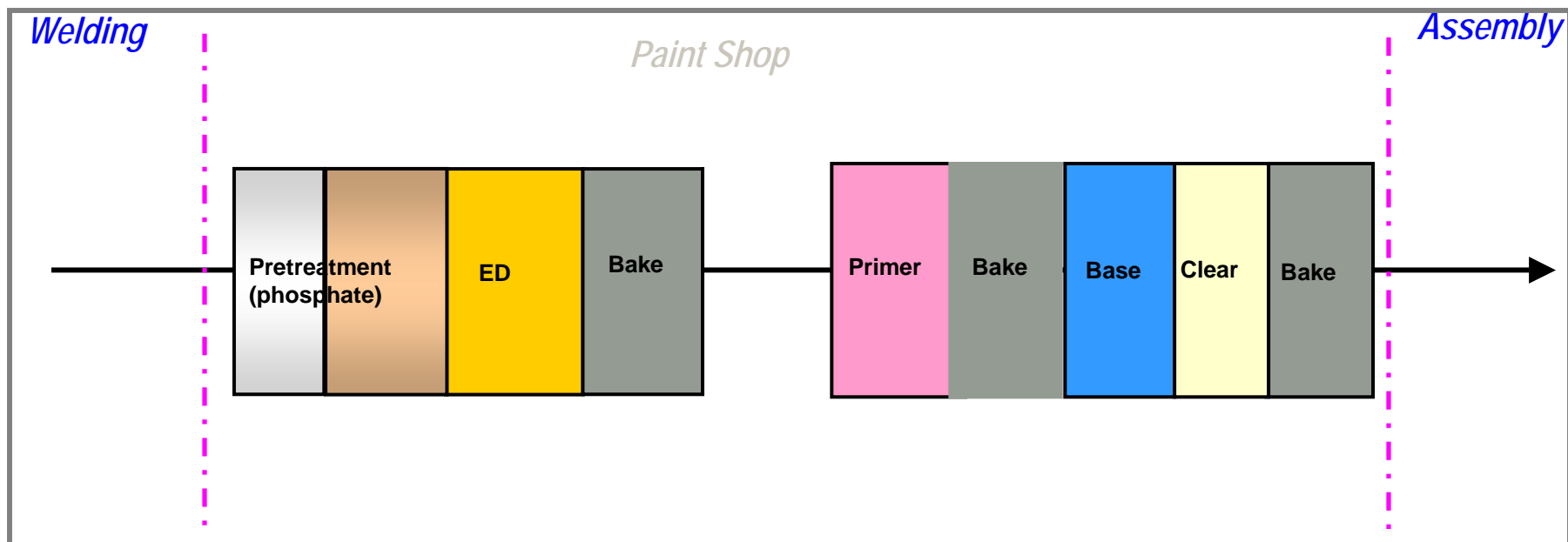
3WB for TMC.ppt



Global Automotive Paint Driving Forces

- Higher Quality
 - **Appearance**, Durability, Color
- Lower Cost
 - **Process Consolidation**
 - **Reduce Manpower**
 - **Increase First Run Rates**
- Environmental Compliance
- Shorter Development Times
- Product Differentiation by Vehicle Models, Colors

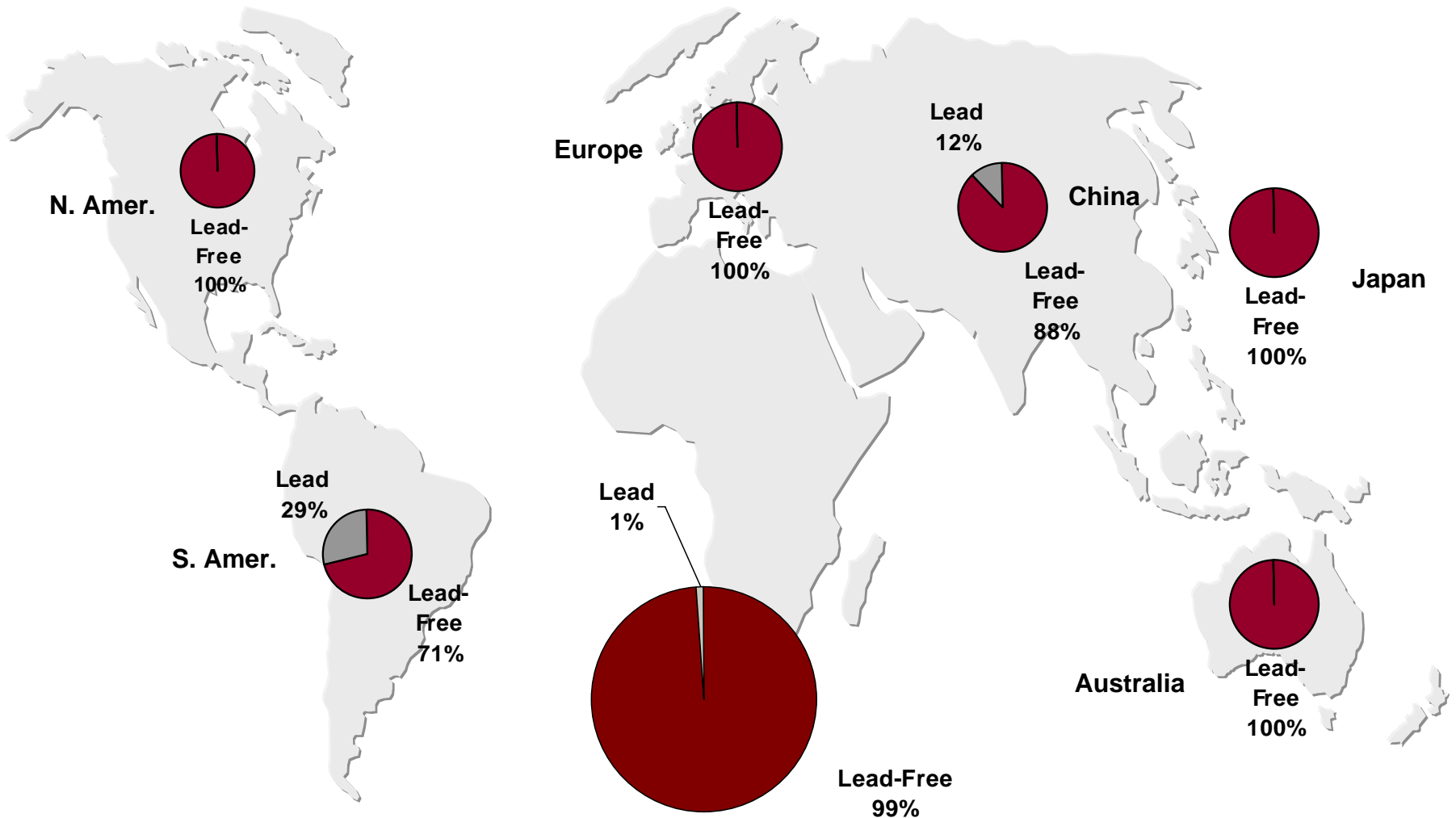
Standard Automotive Painting Process



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%Conversion to Lead-Free Electrocoat



2009



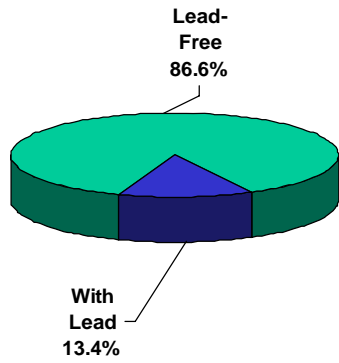
Global Electrocoat Trends

Final Conversion to Lead-free will continue in small plants. All Major plants have been converted.

Global CED, lead and heavy metal free, edge coverage, high throwing power

New ED Processes to minimize Investment & Space

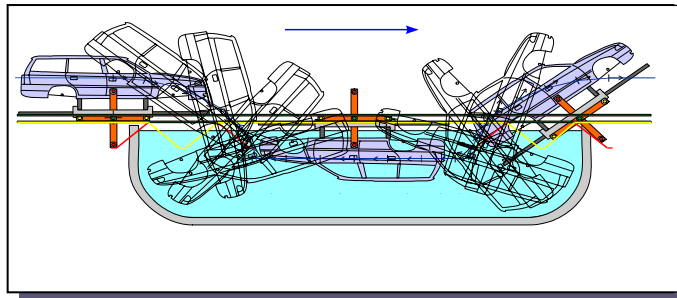
2009 ELECTROCOAT



2000

2005

2010



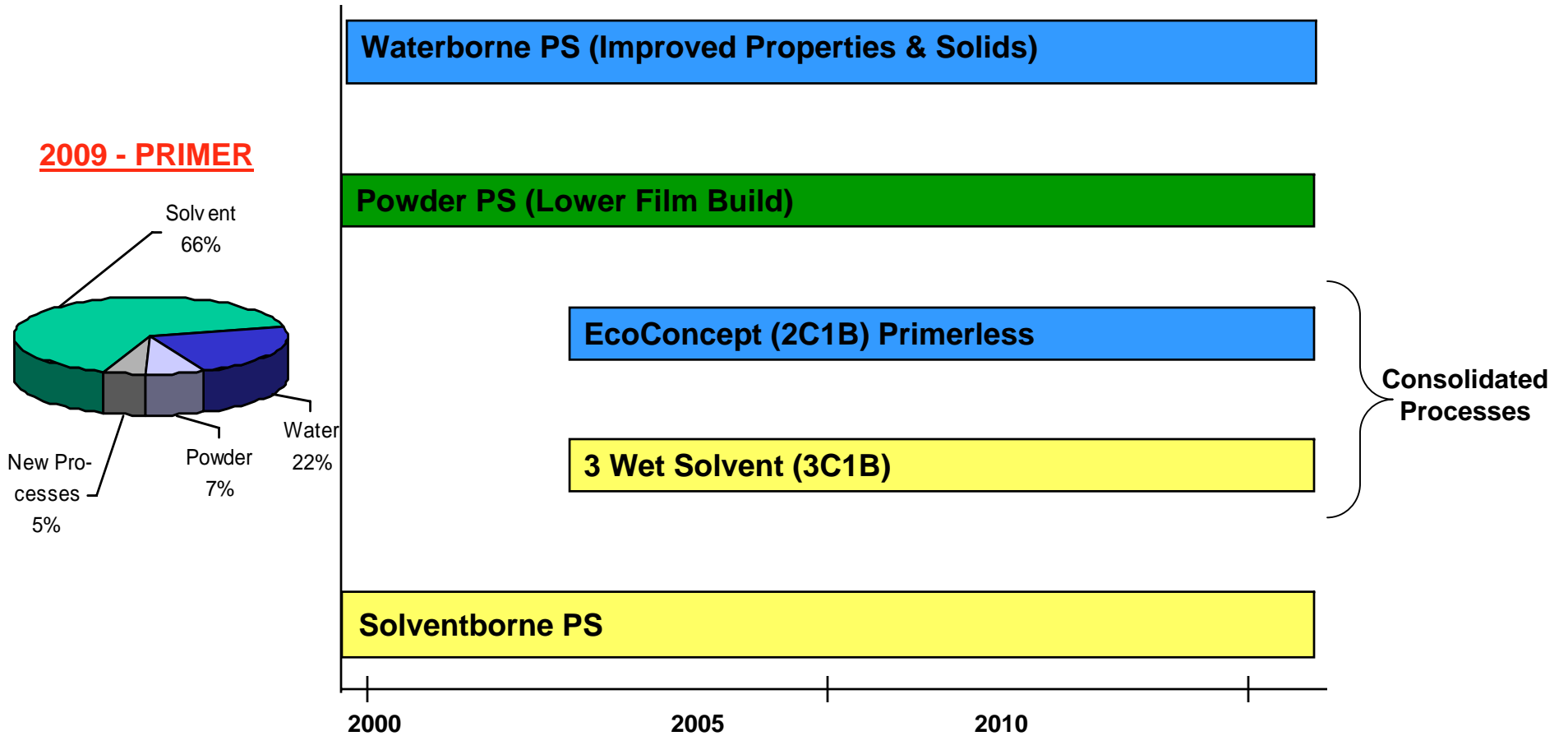
Desire New Anti-corrosion Processes



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Global Primer Surfacer Trends

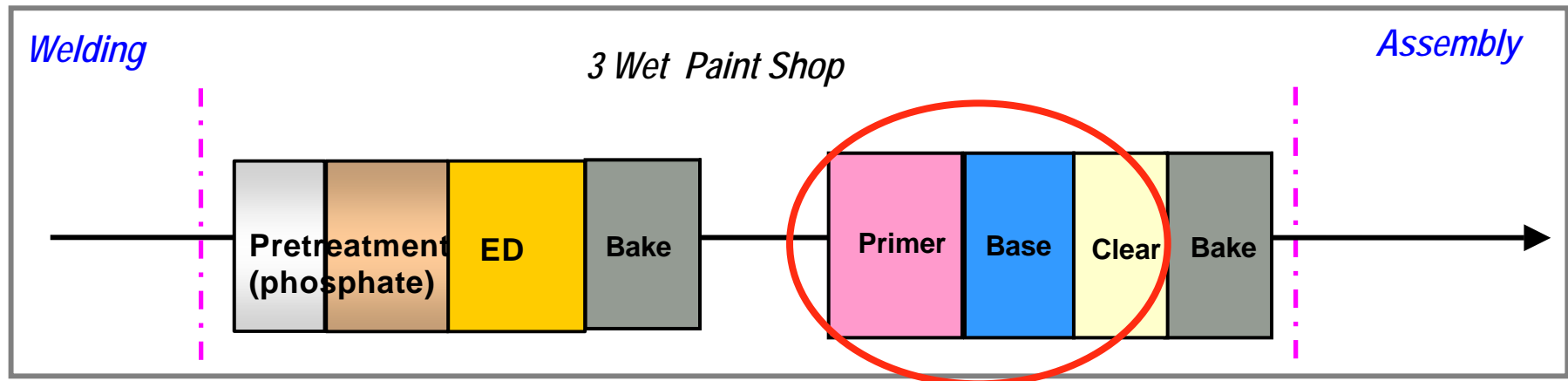


Consolidated Process

EcoConcept (Waterborne) or 3 Wet Process (Solventborne)

Application of waterborne or solventborne primer, basecoat and clearcoat all without a baking process between coats.

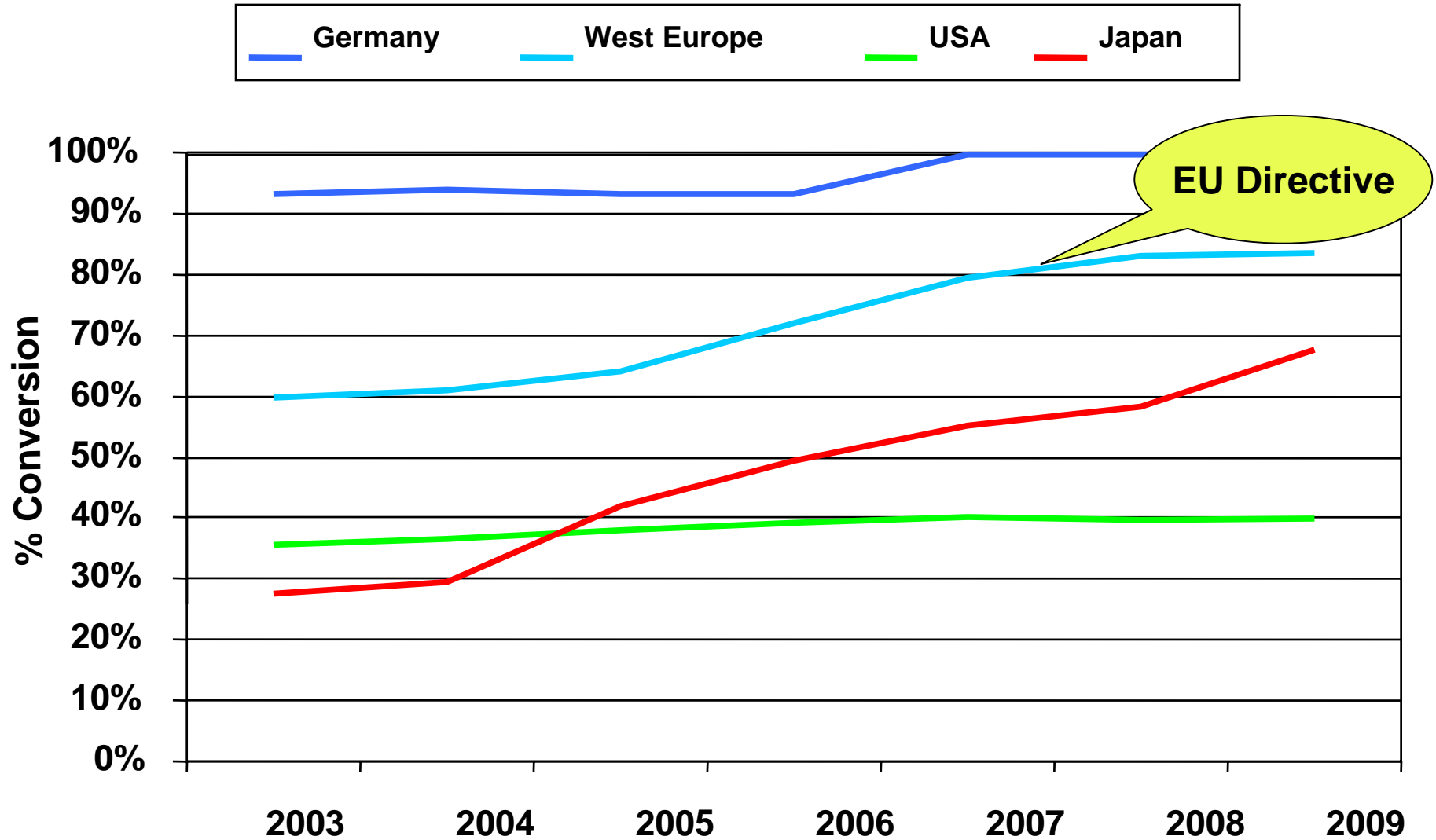
- Reduced foot print of OEM paint shop by removing primer spray booth and primer oven
- 15% reduction in energy consumption/CO2 discharge and up to 45% reduction in VOC content depending on baseline products
- OEM saves manpower & energy



Trends For Global Automotive Painting

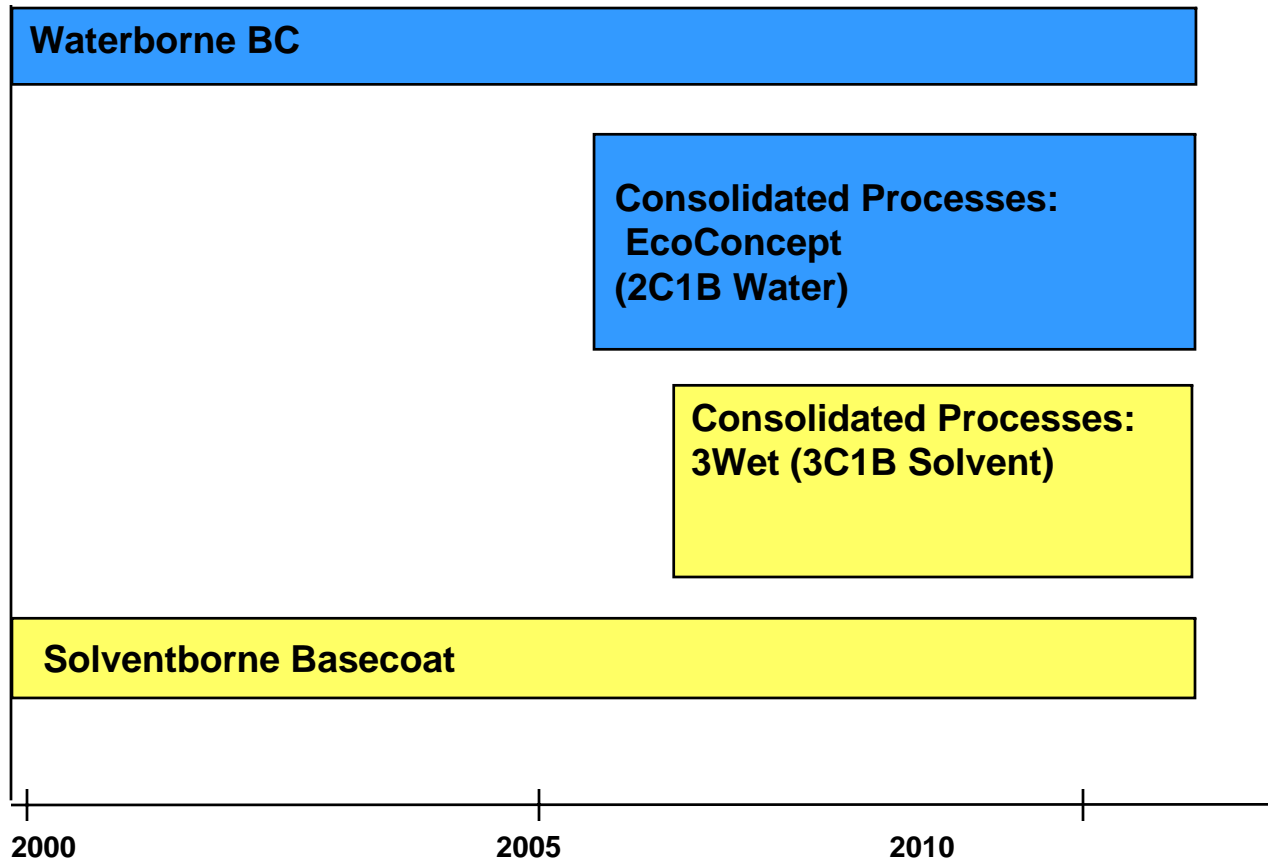
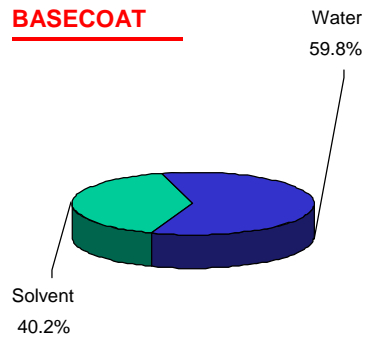
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Conversion to Waterborne Basecoat



Global Basecoat Trends

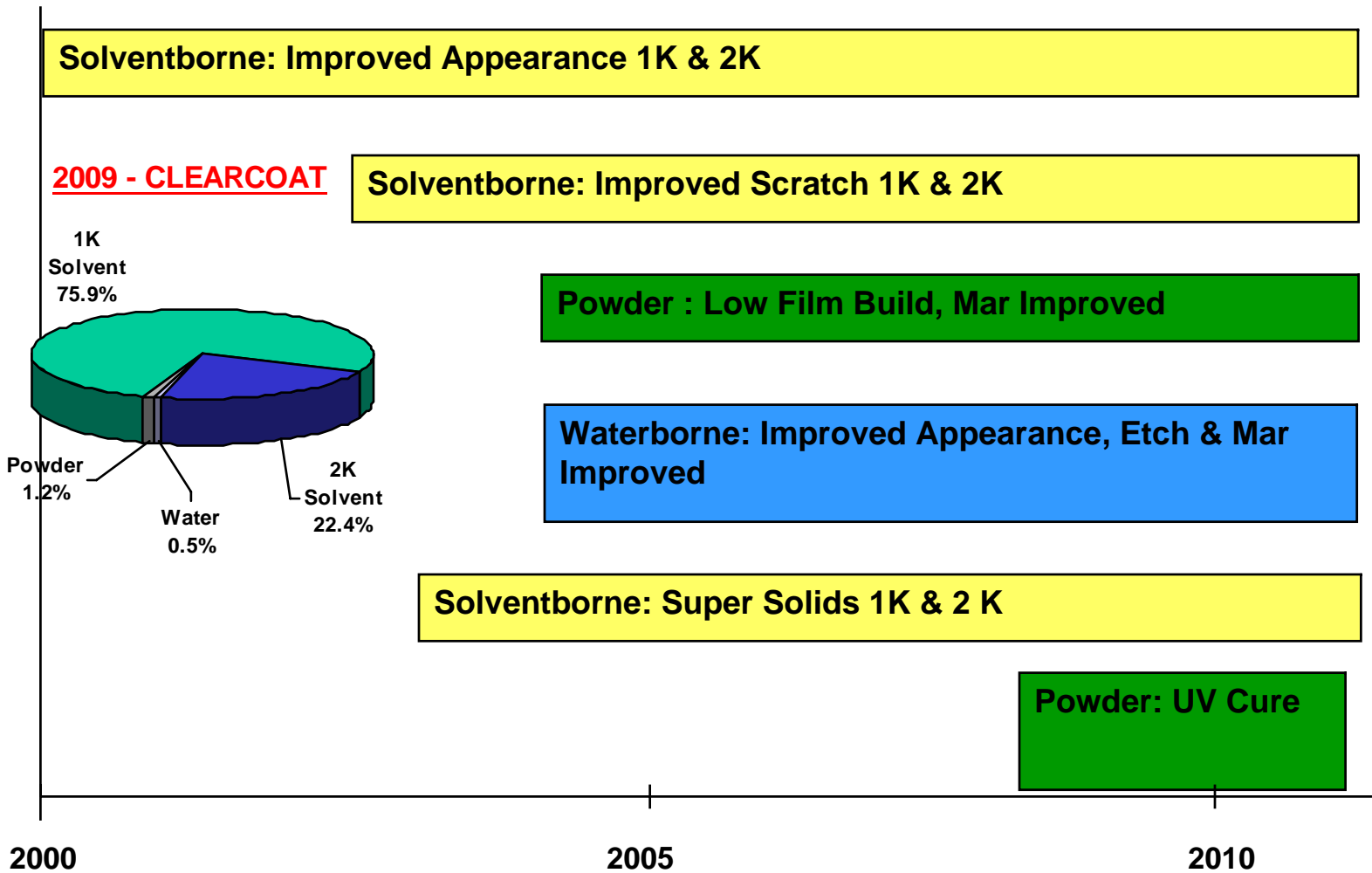
2009
BASECOAT



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Global Clearcoat Trends



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Thank you

