



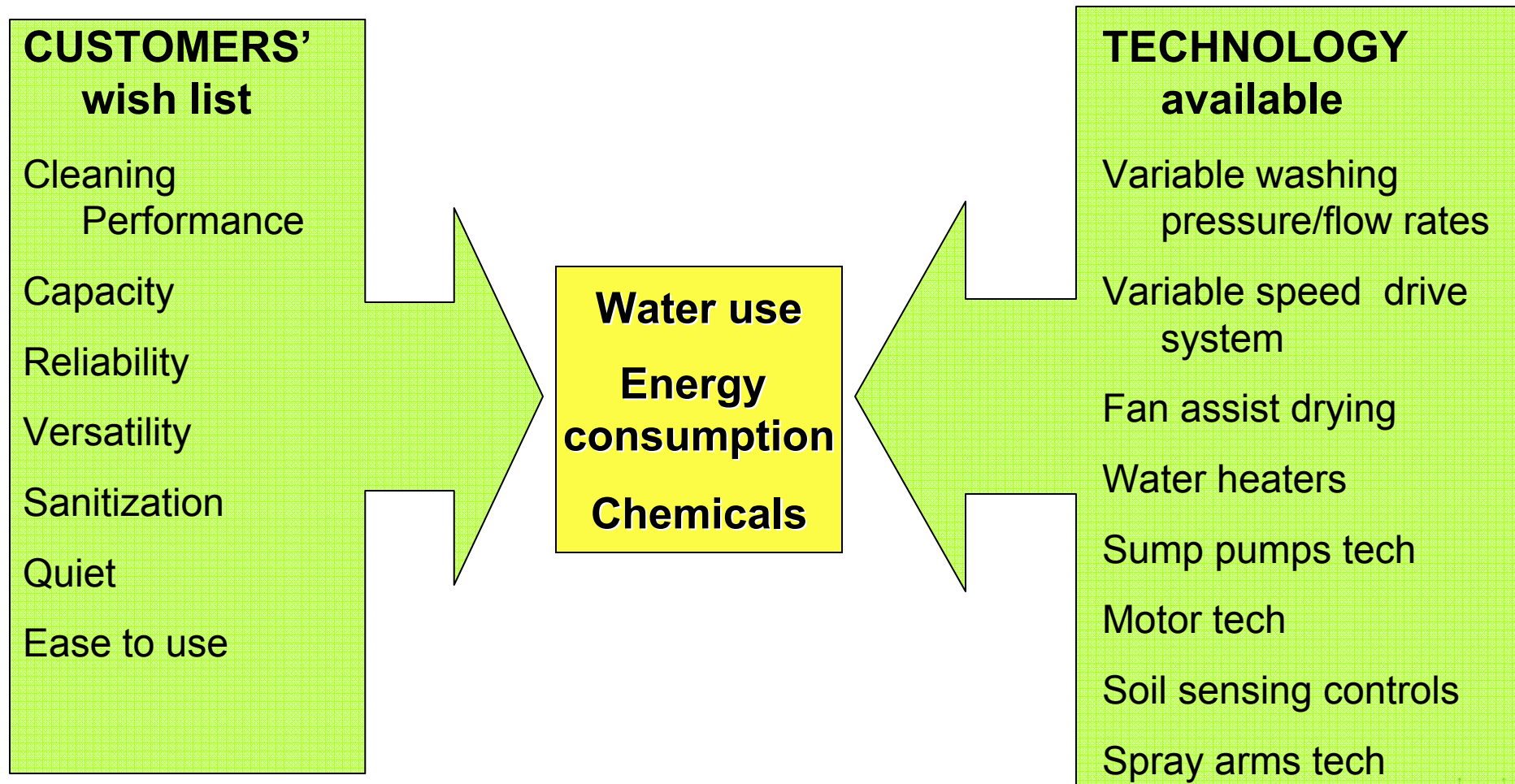
Solution for Energy Savings and Noise Reduction for Dishwashers using Polyurethanes

Energy Star
10th Annual Appliance Partner Meeting
Chicago Sep 23, 2009

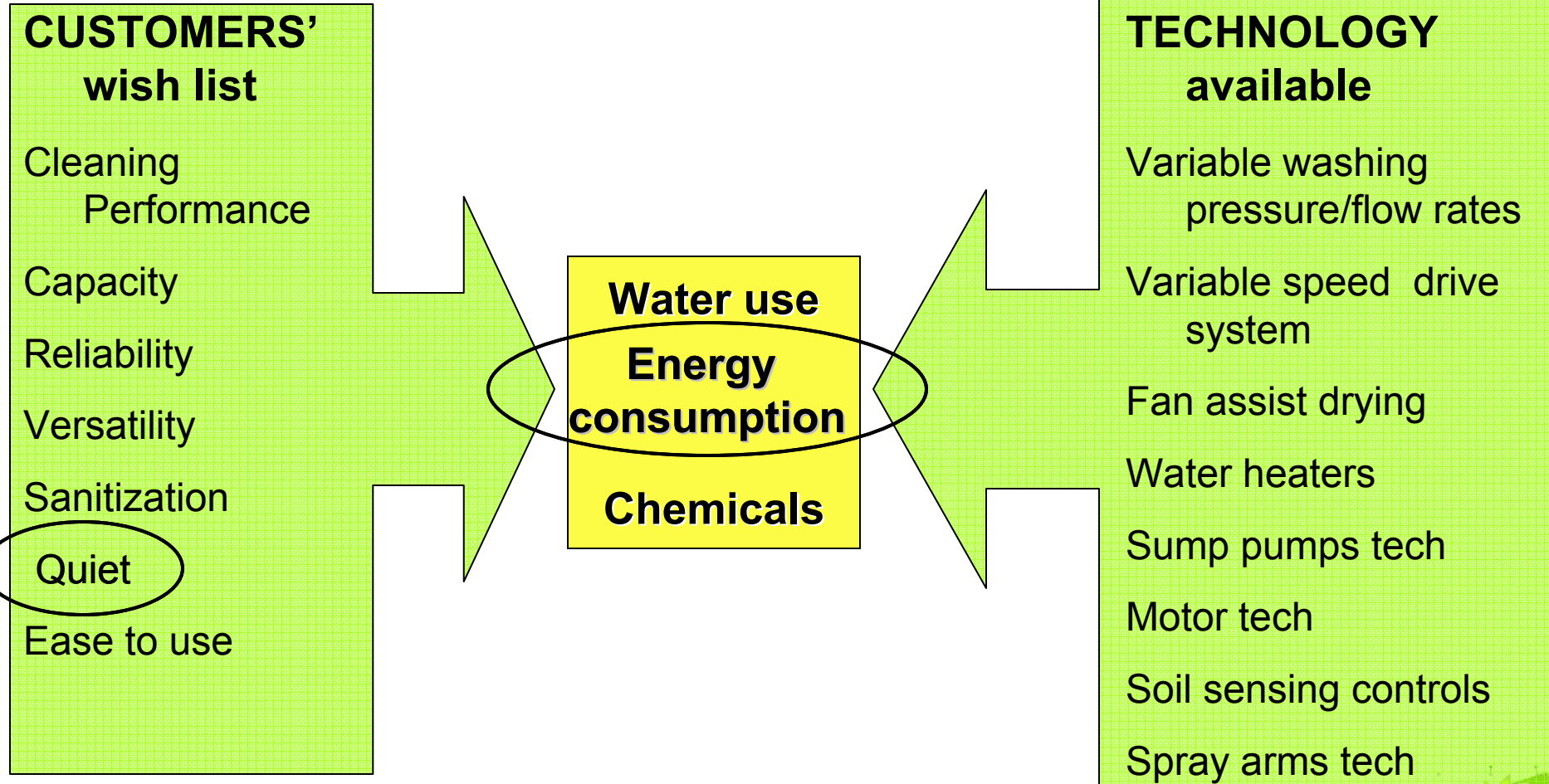
 **BASF**
The Chemical Company

Lucyanne Carmona
Market Development Specialist
Raymond Neff
Sr. Research Scientist

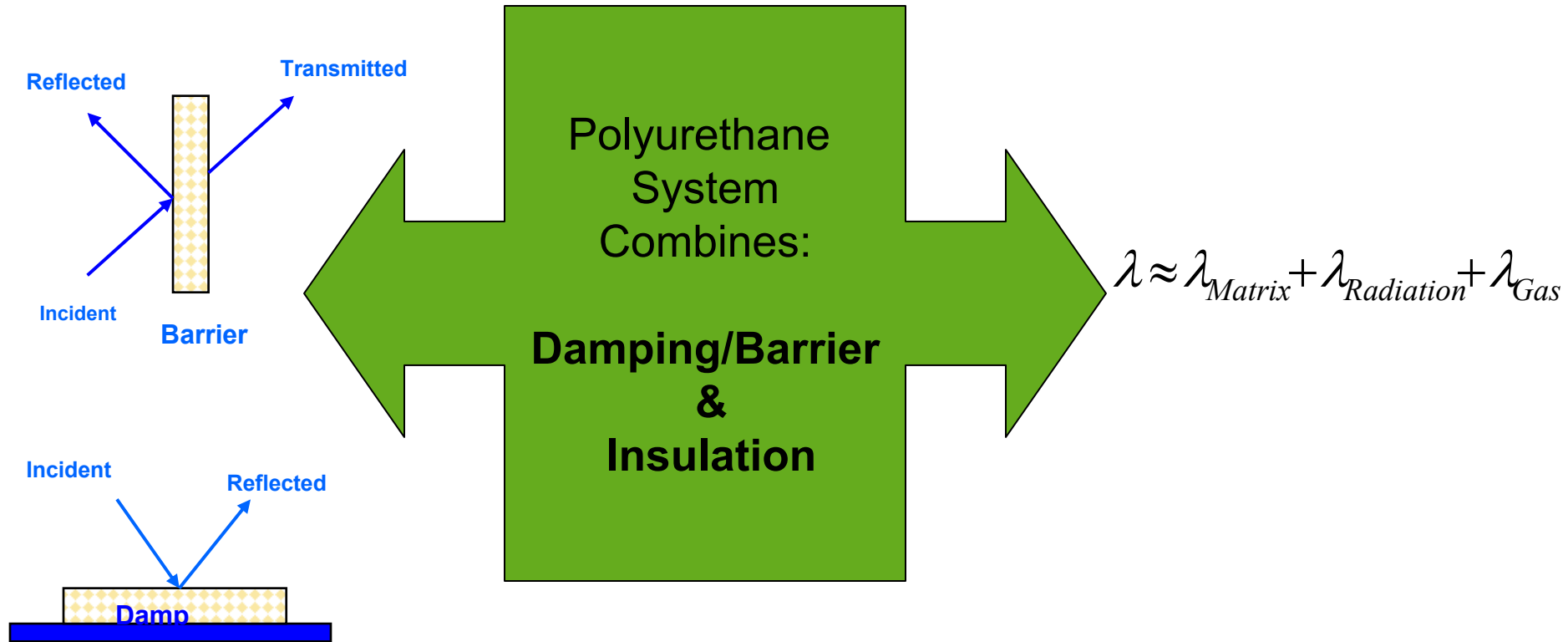
Designing a Dishwasher:



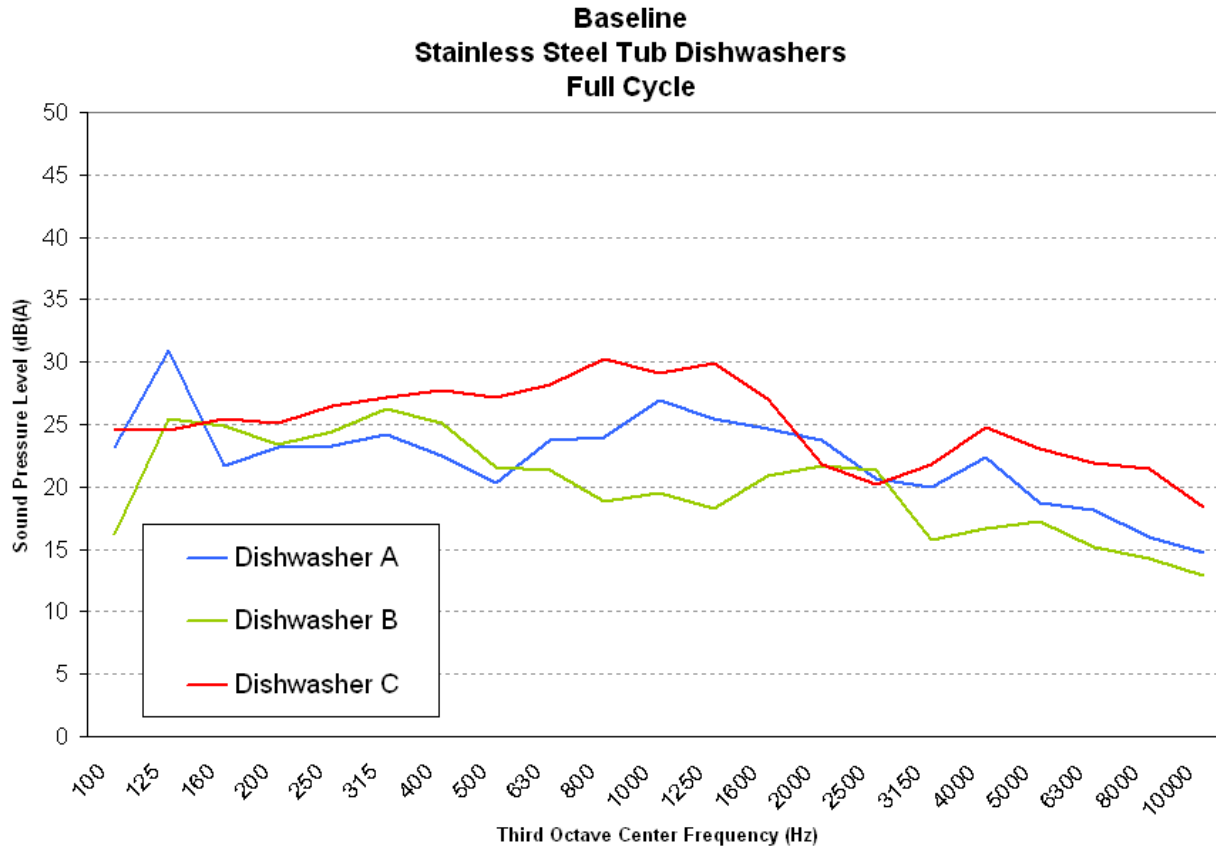
Designing a Dishwasher:



Designing a Dual Solution for a Dishwasher:



Solving Noise with Polyutheranes



➔ Different Stainless Steel Tub dishwasher brands have been analyzed

NVH Solution for Dishwashers



- ISO 3744 (1994 -05-01): Acoustics - Determination of sound power levels of noise sources using sound pressure - Engineering method in an essentially free field over a reflecting plane.
- IEC 60704-2-10 (2004-04): Household and similar electrical appliances - Test code for the determination of airborne acoustical noise.
- ANSI/AHAM DW-1-2005 Household Electric Dishwashers

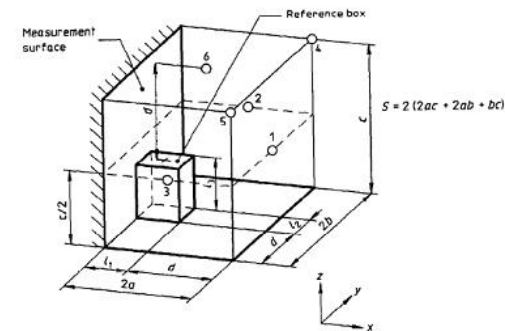
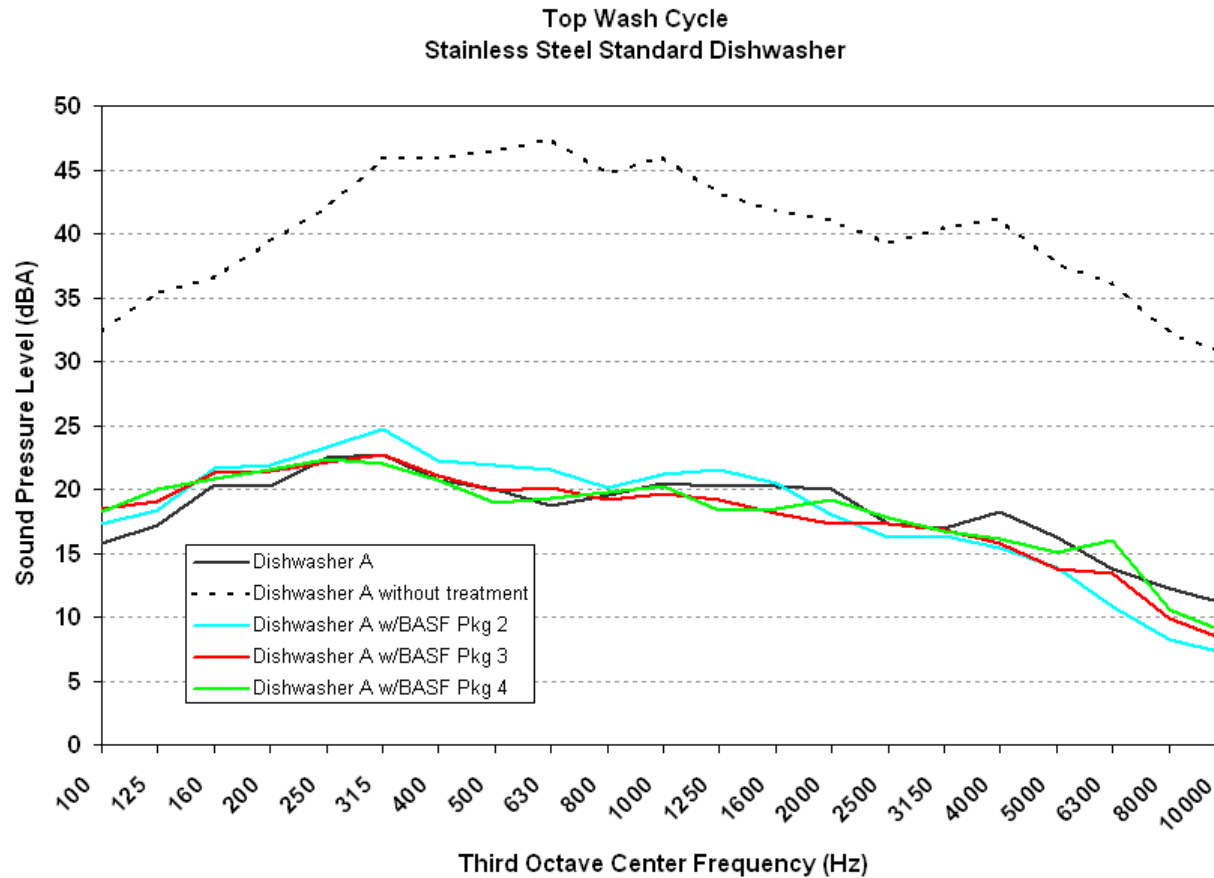


Figure C.7 — Measurement surface (parallelepiped) with six microphone positions for floor-standing appliances placed against a wall

Case Study

NVH Solution with Polyurethanes

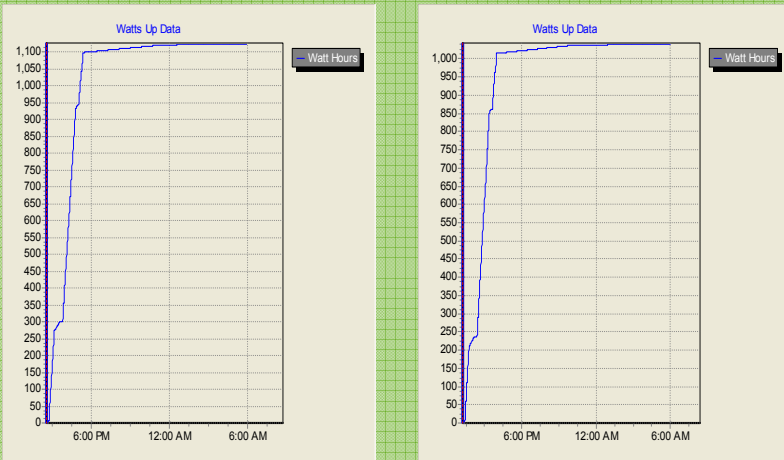


→ PU Systems is designed to damp noise at low and high frequencies

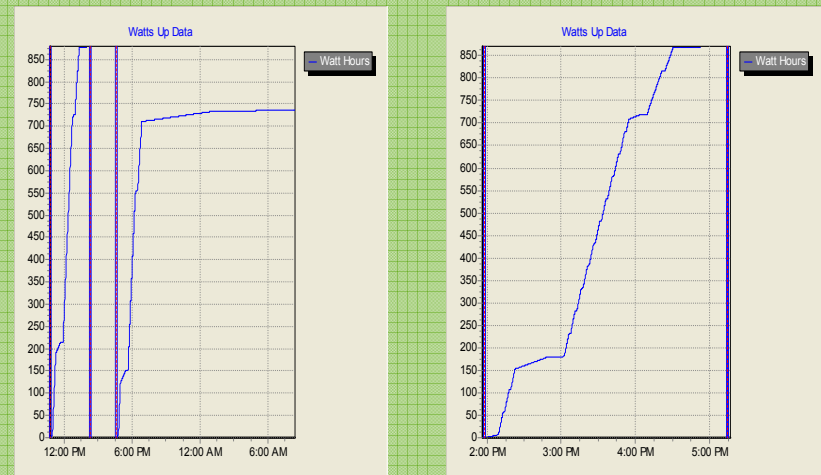
Case Study

Improving Energy Efficiency

Dishwasher A Normal Wash



Dishwasher A w/ BASF Pkg a Normal Wash



➔ PU Systems is designed to reduce thermal conductivity

Solution for Energy Savings and Noise Reduction for Dishwashers using Polyurethanes



Next steps?

Questions?

Thanks!

