



Our Signature Brands



Water Uses in Manufacture: The Dye Process

- Pre-Dyed
 - Solution Dyed
 - Yarn Dyed
 - Space Dye
 - Solid Color Dye
 - Skein
 - Stock
 - Pad
 - Jet
- Post-Dyed
 - Beck Dye
 - Printing
 - Continuous Dye

Broadloom Tufting- The midpoint of carpet manufacturing



Resources

The two most valuable commodities in the very near future?

Oil and



WATER!!!

The Low Hanging Fruit



Leaks and Drips

- Running Water
- Bad Seals

– The Easy Stuff

Design for the Environment

- Increased use of Solution Dyed Yarns
- Reengineering cooling systems to allow reuse

History / Progression

Year	1988 to 1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Estimated Capital Investment (mm\$)	6.2 Annual Average	4.5	40.1	22.8	31.7	8.3	23.2	27.1	41.7	16.2	21.2
Average Water Demand (MGD) – Total / Industrial	36.1 / 18.6	36.5 / 16.4	38.5 / 16.7	34.9 / 14.9	34.4 / 13.7	37.5 / 16.3	37.6 / 16.4	38.1 / 16.2	38.4 / 15.7	38.5 / 16.8	33.3 / 13.9
Estimated Population Served	64,975	68,300	73,522	78,190	80,942	80,015	80,646	86,757	89,360	92,262	93,212
Estimated Gallons Water per Square Yard of Carpet	15.6	9.3	9.6	9.3	9	7.7	9.3	7.1	6.9		

Know Your Equipment

- Pump seals and their cooling needs
- Dyeing and finishing
- Boiler blowdowns- can be limited with the installation of ozonation systems- saves water AND energy

Water Audits- You Need to Be Doing This!

Will be required by State
Real / Apparent Losses
Water Meters
Influent vs Effluent Flows
Measuring consumptive use
Local Utilities or P2AD assistance

Points of Significant Interest in Carpet Manufacturing

- Cooling tower management
- Reduced blowdown
- Reduced backwash
- Process cooling modulation
- Drought contingency plan
- Employee education

Water Usage Policies

- When should vehicles be washed?
- Should toilet facilities be upgraded to low or no flow apparatus?
- Landscaping?
- Should stormwater collection systems be incorporated?
- Training!

Improved Processes

- Several members are using “foam-on” applications for dyes and post production topical treatments
 - Allows use to exhaustion
 - Requires less water
 - More easily controlled process

Improved Processes

- Shaw Industries partnered with Dalton Utilities to develop new technologies that reduced water consumption in the beck dye process by over 50%

It Works!

- Mohawk Industries, realized a savings of 38,740 gallons per month by installing low/no flow fixtures at their Bartow Co. facilities.
- At another small facility, testing and experimentation resulted in a 25,000 gallon per month reduction with no loss in efficiency, quality, or output.

One Success Story

- Interface- a recognized world leader in sustainable processes, uses more water to flush toilets than to make carpet.

Partnerships

- You need friends!
 - P2AD
 - Watershed groups such as The Conasauga River Alliance and The Coosa River Alliance
 - Industry Trade Associations
 - TIP (formerly CCACTI)
 - Georgia State, UGA, and GT outreach programs
 - Your local utilities provider

You Must Measure

- You can't fix it if you don't know what's broken
- You can't manage what you don't measure

What Else is the Carpet Industry Concerned With?

- Storm Water Management
- Assimilative Capacity
- Consumptive Use

Storm Water Collection Systems





The Bottom Line?

Water Conservation and Protection Will Not Provide Economic or Environmental Benefit Without Involvement by the Top Leaders of an Organization