

## Canadian Council of Ministers of the Environment (CCME) Pollution Prevention Award Winner - Update



Presentation at 2007 C2P2 Roundtable, Winnipeg, MB

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- Company Information and History
- Past Pollution Prevention information
- New/Recent Pollution Prevention projects
- Tips for Pollution Prevention projects
- Conclusion

- In business in Canada for 104 years
- Crown Holdings – 42 countries, 24000 employees
- Our customers are household names
- All kinds of cans and crowns too...



## Source Reduction

- Reduced Material used
  - Metal thickness reductions: crowns, food, beverage
  - End compound amounts reduced
  - Inside spray thickness reductions

## Substitutions and Conversions

- Less toxic materials
  - Water based inside spray - food cans
  - Conversion lead to tin soldered or glued cans
  - Aqueous Sheet lubricant – food lids
  - Conversion to NGV forklifts (Chatham, ON)
  - Plastic Packaging materials

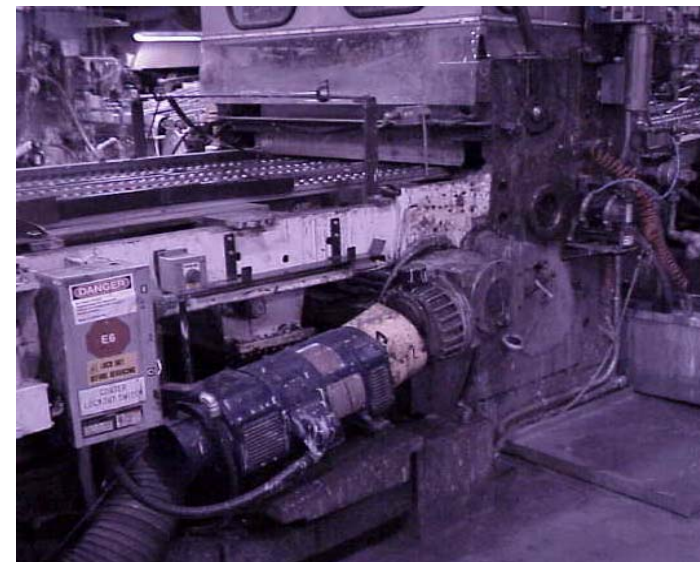


## Backwash solvent elimination

- Installed Iso-blade system
  - New system does not need solvent to keep from transferring coating to the backs of sheets
  - Elimination of the use of 200,000 kgs per year of solvent



**Before**



**After**

## MEG guns for inside spray lacquer

- Converted to a new style of spray gun to reduce the variation of coating
- Reduced the amount of coating VOC emissions by 13 tonnes (one line only)



**Before**



**After**

**Before**



**After**

## Varnish - Autoviscometer

- Montreal/Olympia Plants – automatic measure and control of varnish
  - Adds water automatically when the varnish gets thicker
  - Production improved by better application
  - Potential to increase bulk shipment viscosity



## Wash coat – Sponge Roller

- Water was being carried into the wash coat tank from the edge of the cans. This was causing excess usage and water to be treated (waste water).
- Reduced gallons of washcoat used by 64,000 litres/year (17,000 gallons) and savings of \$200,000 per year
- Removal from cut edge can be done on the Beverage side, but a different system is required. Suppliers can provide useful information.



## By-product Sales

- Skeletons from crowns sold for furnace filters
- Waste closure compound sold to make running shoe soles

### Water Re-use

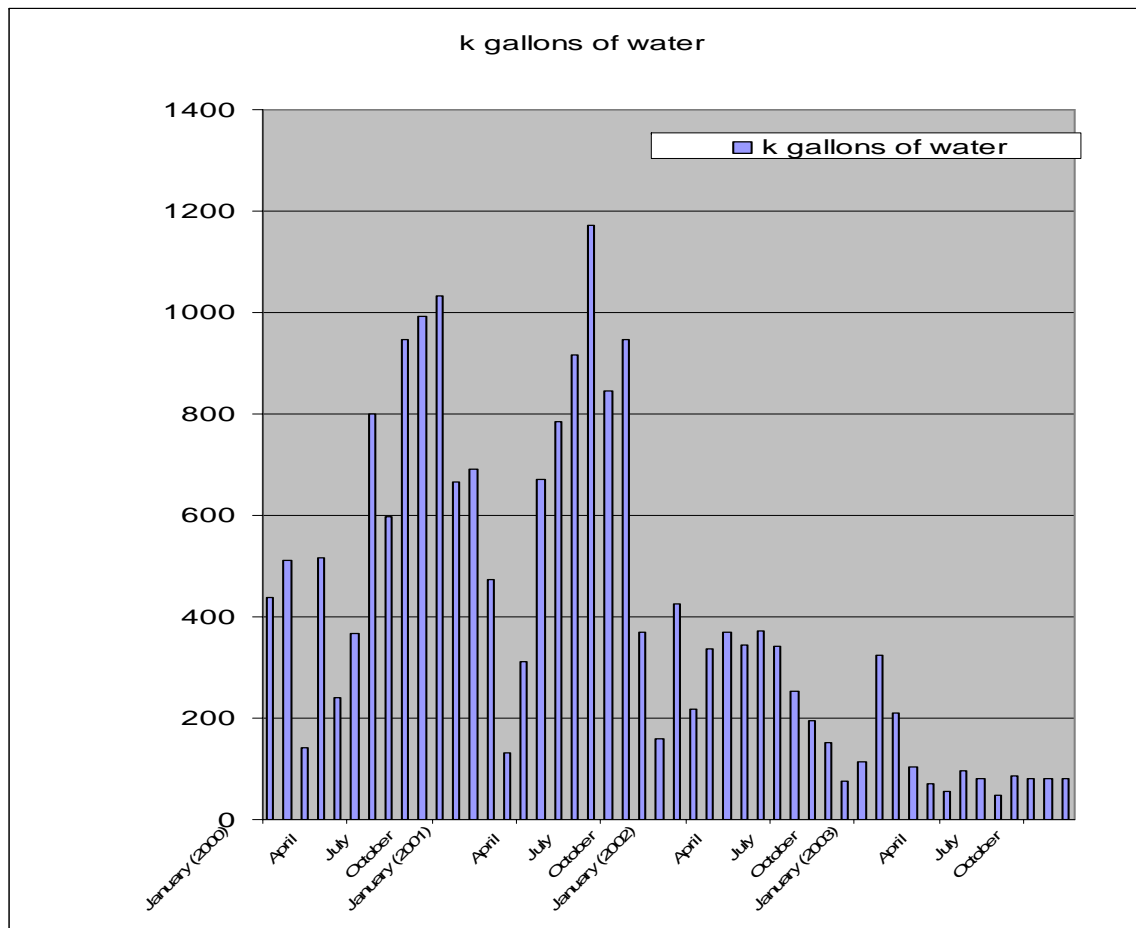
- US plant using wastewater for lime slurry make-up
- 3.5 million gallons of city water per year (typical plant)
- Savings of \$6400 per year with upfront cost of \$2500
- Same concept to be applied to polymer make-up (future)

## Oil Re-use

- Weston Plant – Waste oil shipments
  - 2001 - \$43,763 and 165,911 litres
  - 2002 - \$15,542 and 64,366 litres
  - 2004 - \$ 6,518 and 35,820 liters
  - 2005 - \$ 3,000 and 6,000 litres - projected (oil water separator installed)
  - By end of 2005 we will have saved \$500k and 300,000 litres of oil
- Truck picks up the used oil and delivers recovered oil in the same truck
- Future is to reclaim oil onsite to eliminate the transportation cost (GHG + \$)

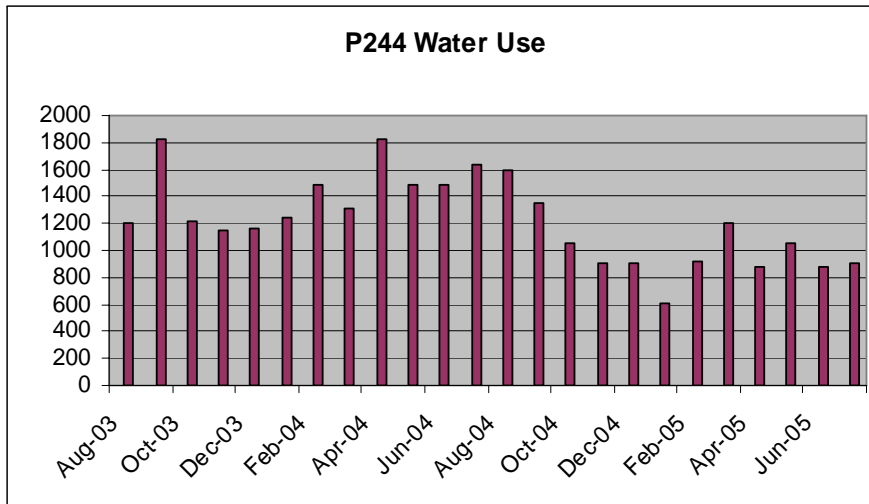
## Water Use Reductions

- Chatham water cooled compressor to air cooled



- > 6.2 Million gallons of water saved and \$12,000 projected water savings from the beginning of the project
- Air cooled compressor now also provides heat to the plant.

## Water Use Reductions



- Capital cost assistance from York Region including water audit.
- 5.3 Million litres of water. Savings of \$5,000 and 10 month payback
- Urinal retrofit project.
- Toronto (7900 Keele) smaller project



## Source Reduction

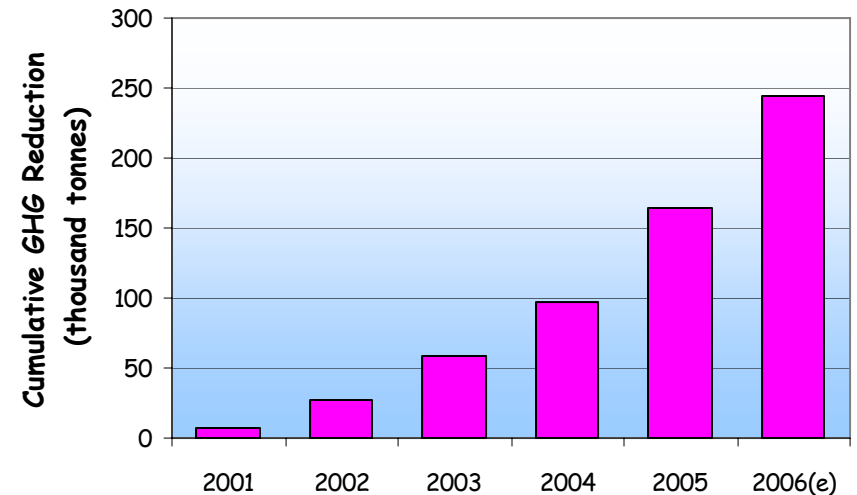
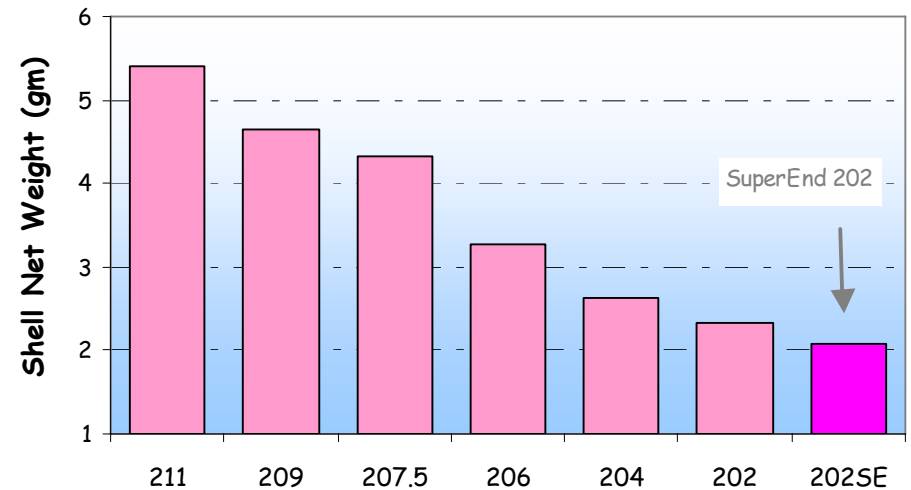
- Gauge reduction
  - Beverage – non-round tooling
  - Superend – 5 years experience



# SuperEnd - Case Study in Material Reduction



- Smaller end diameters have contributed to the significant weight reduction by reducing the area and thickness of the end
- Changing end diameter is very expensive for the supply chain, particularly can makers and fillers
- SuperEnd has taken light-weighting a further 10% without disrupting the supply chain.
- Crown and its licensees will have produced over 100 billion SuperEnds by YE 2006
- Cumulative savings from 2001-2006:
  - Over 25,000 tons of aluminum
  - Over 400 tons of coatings
  - Over 200,000 tons of GHGs avoided
  - Over 250,000 barrels of oil equivalent



Source – GHG model based on IFEU model for EAA and GDA

- Energy Efficiency projects reduce pollution and can reduce emissions at your location and/or at the generating plant.
- Heat recovery from a Regenerative Thermal Oxidizer:
  - 500,000m<sup>3</sup> of natural gas savings per year
  - > \$150,000 per year
  - Received incentive from gas utility ( Enbridge Gas ) - \$28,000
- Weston Lighting upgrade project – Metal Halide to T8 – 6 month payback
  - Project completed without incentive (available now)
  - 35 kw in demand reduction
  - Two other plants have completed similar projects



# Future Projects



- Recovery of water from beverage can cut edge – saves chemicals and energy
- Ink use reduction with new printing plates
- IPA use reduction with water replacement
- Past projects applied elsewhere in the Crown family
- Drum filter media – reduction in density



## Things to remember for P2 projects:

- Get help – are there any government projects to help with your project?
- Start small – get one project completed and use that for future projects
- Measurement is key! “Show me the money”
- Go to Roundtables and Conferences for new ideas – like this one
- What is your competitor doing?
- Consider leasing if capital is a problem or at least during trial stages
- Make P2 a full time job
- Remember your biggest competition – DO NOTHING!

## P2 and Continuous Improvement:

- There are always new opportunities to be discovered and implemented.
- The “concept” is the key to apply from one industry to another
- Keep an open mind to new ways of doing things
- Don’t get discouraged some projects take a long time to be implemented