Entrepreneur Meeting – 2006
CARE
Marriott Airport Hotel
Tampa, Florida
October 19, 2006
Entrepreneur Meeting Sponsors

Thank you !!!

Thank you !!!!
Opening Dialog

- Introductions
  - Guests
  - Attendees – around the room
  - Sponsors

- Purpose of Meeting

- Antitrust Guidelines

- Agenda Review

This is your meeting!
Meeting Purpose

To focus on the needs and issues of the entrepreneurial carpet collection and processing community in a collegial open atmosphere and to provide an informal networking forum.

Antitrust Guidelines
Agenda

• Welcome / Introductions / Housekeeping
• Expectations for today
• Progress on last years actions
• ID Technology Update
• CARE Update
• Entrepreneur’s Speak out
• Equipment Discussion
• Lunch
• Global Concerns / Issues
• Specific Action Items & Assignments
• Wrap-up

*Networking time!*
Session 1
Expectations for Meeting
Summary Since Last Year
2005 Summary – Action Items

- CARE catalogue of products with PCC content **ACTION** – in progress (very poor response for information, small number of products)
- We need to get the “info” out on disposal costs. **ACTION** – being complied
- Put disposal cost info and calculator on CARE website **ACTION** – costs delayed due to new web site, now in queue; calculator on-line
- Place ID information on CARE website – **ACTION** – slides from May 2006 conference posted on CARE web site including id technology
- Can we use leverage of CARE to buy ID units at a discount? **ACTION** – individual companies will be striking their own deals. CARE was not successful in playing a role here other than advisory.
- Jack Hayes talk to Phil Bailey on procurement project **ACTION** – no feedback
- Connect with Office of the FEE (Ed Pinero) Anita Snader to link **ACTION** – link sent, no contact made to date. Working thru EPA
2005 Summary – Action Items

- Can we ask mills to “suggest” customers help keep carpet out of landfill by contacting CARE? **ACTION** – OK but no requests
- Get on GSA Procurement Agenda in 2006 (Phil Bailey & Bob Peoples) **ACTION** – working on it. Procurement project going extremely slow due to lack of response by entrepreneurs with products & info
- Proposal to big boxes: add a “reclamation fee” **ACTION** – initial contacts with Home Depot and Lowes non-productive. Recently re-opened discussions with Home Depot. It will be a slow process. Also in initial dialog with CCA Global
- Plug into SE Regional Recycle Group: Randall Bowman **ACTION** – no action taken
- Q & A Forum on website – Ken Mogul to send info **ACTION** – the new website has a forum for posting questions. It is not getting much action yet.
- Get recycle into demo master spec. **ACTION** – This has been done with StarNet and by Invista.
2005 Summary - Presentations

- Brucker Optics – Dan Klevisha
- ASD – Tom Brown
- STARNET – Fred Williamson
- Armstrong – Anita Snader
Identification Technology
Update 2006
Fiber ID Units
Basic Requirements

• Currently available, running line
• Industrial quality
• Portable
• Easy to use
• Works with “real world” carpet
• Cost effective
• Vendor support
Fiber ID Units

Technical Requirements

• Fast reading time (< 1 sec)
• Accurate and repeatable
• No “false positive” readings
• Not affected by fiber color
• Not affected by carpet texture
• Not affected by moisture
• Not affected by dirt
• Not affected by topical add-ons
• Available, updatable ID library
Fiber ID Units
Companies

- Analytical Spectral Devices (opted out)
- Axsun Technologies *
- Brimrose (non-responsive)
- Bruker Optics Inc *
- Foss NIRSystems
- Infrared Fiber Systems
- LT Industries
- Polychromix – Phazir *
- Stamicarbon (CarPID) *- controlled by Shaw

* Active options today
Fiber ID Units Considerations

- Target face fibers
- Use environment
- Size & portability requirements
- Software library
- Flexibility – Fibers, backings, other plastics
- Data handling, logging & reporting
- Cost
- Battery life
Break Networking
Session 2
CARE Activity Update

- Home Depot dialog reopened
- Initial discussions with CCA Global
- StarNet partners expanding
- Shredding trials
- GreenBuild – 20 x 20 foot booth split with NYCORE
- Procurement Project – slow but moving
- States Update August 3rd
- New webpage – excellent feedback
- Publicity
  - BD&C, ED+C, Georgia Trend, C&EN, WSJ, SEJ
- Growing number of players and sites
- 5th CARE Annual Meeting, May 7-9, Charleston, SC
Reclamation Network - Expanding

As of 10-11-06

27 sites

www.carpetrecovery.org
Carpet Industry – Materials Recovery, Reuse, Biobased

- Evergreen Nylon Recycling – Shaw
- Earth Square – Milliken
- ER3 Modular Tile – Tandus
- Antron® Reclamation Center – Invista
- ReCover – Mohawk
- PC Content in Carpet Cores – Mohawk

- Sorona® or Corterra® & PLA fibers - Biobased
Carpet Industry – Innovation
New Products & Technology

- EcoWorx® & Eco Solution Q® – Shaw
- ReEntry & Cool Blue™ - Interface
- Tactiles® - Interface
- 100% recyclable Thermoplastic Modular Tiles – Mohawk
- Sustainable Carpet Assessment Standard
Carpet Industry – Energy Renewable and Recovery

- Carpet Gasification – Shaw
- Landfill Gas – *Milliken & Interface*
- Photovoltaics – *Interface (Bentley Prince Street)*
- Purchase of Green-tags
ANSI Draft Standard for Trial Use

5 Sustainable Attribute Categories

- Safe for Public Health and Environment (PHE)
- Renewable Energy & Energy Efficiency (RE)
- Biobased or Recycled (MATLS)
- Facility or Company Based (MFG)
- Reclamation, Sustainable Reuse, & End of Life Mgmt

Credits explicitly related to recycle content and end of life management

NSF 140-2005
Part B

Entrepreneur’s speak out
Equipment dialog
How can CARE help?
Equipment dialog
Carpet Shredders
Purpose & Scope

• Evaluate commercially available shredders for their ability to process loop pile, glue-down, post-consumer recycled carpet - PROJECT

• Single pass processing rate of 3,000 to 5,000 pounds per hour (3K/hr = 6M PPY/shift)

• Carpet will be shredded to a size such that no intact backing/face fiber pieces are present, and no long pieces of yarn are present. Typical yarn/fiber length will range from $\frac{1}{4}$ to $\frac{3}{4}$ inches.
Carpet Shredders
Selection Requirements

- Source of carpet – PI, PC, other
- Type of carpet – cut pile, loop pile
- Installation method – stretch, glue
- Face fiber type (N66, N6, PP, PET, other)
- Backing type (latex, PU, PE, other)
Carpet Shredders
Selection Requirements

• Condition of carpet
• Size of carpet pieces
• Trash and debris
• Feed method - whole bales, pieces
• Processing rate
• Shredded size requirements
• Impact of metal
Carpet Shredders
Selection Requirements

- Utilities requirements
- Operating cost
- Ease of operation
- Maintenance costs
- Ease of maintenance
- Technical support
- Availability of parts
- Warranty of service
Carpet Shredders
Companies

• Cumberland
• Granutech-Saturn Systems
• Pallmann
• Republic Machine
• ShredTech
• Veccoplan
• Zeno
Carpet Balers
Requirements

• Source and type of carpet
• Condition of carpet
• Size of carpet pieces
• Trash and debris
• Final bale size, weight
• Banding type
Carpet Balers
Companies

- American Baler
- Load King Mfg. Co., Inc.
- Consolidated Baling Machine Co.
- Marathon Equipment Co.
- International Baler Corp
- Shred-Tech
- Harris Waste Management Group
- C&M Baling Systems
- IPS (BSE Balers)
- Olympic Wire & Equipment, Inc.
- Bale Press Corporation of America
- Maren Engineering Corp
- Gensco America, Inc.
- Harmony Ent.
- Zampogna, Inc.
- HSM of America
General Carpet Recycling Equipment

• Includes conveyors, dust collection, storage systems, transport systems, etc.
• Integrate with major equipment
• General industrial equipment sources
• Metal detection (ferrous, non-ferrous)
• Bobcats, trailers, containers, etc.
Lunch Networking
Session 3

- Volume issues
- Carpet construction
### Top 20 Metro Areas

<table>
<thead>
<tr>
<th>Metropolitan Areas</th>
<th>Population</th>
<th>2000</th>
<th>12 lb/capita</th>
<th>17 lb/capita</th>
</tr>
</thead>
<tbody>
<tr>
<td>New York-Newark-Bridgeport, NY-NJ-CT-PA</td>
<td>24,193,452</td>
<td>290,321,424</td>
<td>411,288,684</td>
<td></td>
</tr>
<tr>
<td>Los Angeles-Long Beach-Riverside, CA</td>
<td>21,816,927</td>
<td>261,803,124</td>
<td>370,887,759</td>
<td></td>
</tr>
<tr>
<td>San Jose-San Francisco-Oakland, CA</td>
<td>11,051,647</td>
<td>132,619,764</td>
<td>187,877,999</td>
<td></td>
</tr>
<tr>
<td>Chicago-Naperville-Michigan City, IL-IN-WI</td>
<td>10,311,951</td>
<td>123,743,412</td>
<td>175,303,167</td>
<td></td>
</tr>
<tr>
<td>Washington-Baltimore-Northern Virginia, DC-MD-VA-WV</td>
<td>8,793,857</td>
<td>105,526,284</td>
<td>149,495,569</td>
<td></td>
</tr>
<tr>
<td>Philadelphia-Camden-Vineland, PA-NJ-DE-MD</td>
<td>8,741,475</td>
<td>104,897,700</td>
<td>148,605,075</td>
<td></td>
</tr>
<tr>
<td>Boston-Worcester-Manchester, MA-NH</td>
<td>8,331,828</td>
<td>99,981,936</td>
<td>141,641,076</td>
<td></td>
</tr>
<tr>
<td>Detroit-Warren-Flint, MI</td>
<td>6,523,724</td>
<td>78,284,688</td>
<td>110,903,308</td>
<td></td>
</tr>
<tr>
<td>Dallas-Fort Worth, TX</td>
<td>6,007,561</td>
<td>72,090,732</td>
<td>102,128,537</td>
<td></td>
</tr>
<tr>
<td>Houston-Baytown-Huntsville, TX</td>
<td>5,312,992</td>
<td>63,755,904</td>
<td>90,320,864</td>
<td></td>
</tr>
<tr>
<td>Atlanta-Sandy Springs-Gainesville, GA-AL</td>
<td>5,106,944</td>
<td>61,283,328</td>
<td>86,818,048</td>
<td></td>
</tr>
<tr>
<td>Seattle-Tacoma-Olympia, WA</td>
<td>4,088,471</td>
<td>49,061,652</td>
<td>69,504,007</td>
<td></td>
</tr>
<tr>
<td>Cleveland-Akron-Elyria, OH</td>
<td>4,030,174</td>
<td>48,362,088</td>
<td>68,512,958</td>
<td></td>
</tr>
<tr>
<td>Hartford-West Hartford-Willimantic, CT</td>
<td>3,730,189</td>
<td>44,762,268</td>
<td>63,413,213</td>
<td></td>
</tr>
<tr>
<td>Orlando-The Villages, FL</td>
<td>3,722,153</td>
<td>44,665,836</td>
<td>63,276,601</td>
<td></td>
</tr>
<tr>
<td>Denver-Aurora-Boulder, CO</td>
<td>3,531,763</td>
<td>42,381,156</td>
<td>60,039,971</td>
<td></td>
</tr>
<tr>
<td>Minneapolis-St. Paul-St. Cloud, MN-WI</td>
<td>3,503,242</td>
<td>42,038,904</td>
<td>59,555,114</td>
<td></td>
</tr>
<tr>
<td>Sacramento--Arden-Arcade--Truckee, CA-NV</td>
<td>3,355,651</td>
<td>40,267,812</td>
<td>57,046,067</td>
<td></td>
</tr>
<tr>
<td>Las Vegas-Paradise-Pahrump, NV</td>
<td>3,282,868</td>
<td>39,394,166</td>
<td>55,808,756</td>
<td></td>
</tr>
<tr>
<td>Pittsburgh-New Castle, PA</td>
<td>3,183,517</td>
<td>38,202,204</td>
<td>54,119,789</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>148,620,386</strong></td>
<td><strong>1,783,444,632</strong></td>
<td><strong>2,526,546,562</strong></td>
<td></td>
</tr>
</tbody>
</table>

- 70% residential
- 70% replacement
- 30% new const.
- 17 lb/person/year
Broadloom Carpet Composition

- PET <5%
- Other <1%
- PP 20%
- N6 30%
- N66 45%
- Broadloom 4 lb/yd²
- PVC Tile 9 lb/yd²

Types of Pile:
- Cut Pile
- Level Loop or Loop Pile
- Cut + Loop Pile
Broadloom Carpet Composition

**FACE FIBER**
- Nylon 6,6
- Nylon 6
- Polypropylene
- Polyester
- Blends
- PLA

**POLYPROPYLENE BACKING**
- 12%

**LATEX + CaCO₃ (calcium carbonate)**
- 38%

Attached cushion, blends, glue down
Capture Global Issues and Concerns
Capture Specific Action Items

• Carpet Industry
• States and EPA
• Entrepreneurs
Session 4

- Action Items
- Future Plans
- Wrap-up

Thank you!
Entrepreneur Meeting Sponsors

Thank you !!!