



CARE Storage Guidelines for Post-Consumer Carpet

Date of issue: December 1, 2012

Background:

Appropriate storage of Post-Consumer Carpet (PCC) material is significant to the quality of the finished product, personal safety of the employees, and process safety of the operation. As such, the ideal storage would maintain the PCC material in a dry, clean, well lit and ventilated space with plans covering fire and flood prevention. While all areas will not be covered in this document, the most pertinent will be addressed.

While CARE provides guidelines for storage, we in no way attempt to supersede local municipal, city or state code requirements. The guidelines listed here are to provide best case practices and support the recycling of PCC. If there are any questions, your local code authority will always take precedence over these recommendations.

Quality Concerns:

1. Indoor storage
 - a. Storage in a walled, roofed, and floored building – may be a single open area or compartmentalized
 - b. Provides best storage environment – detailed under each area below
2. Identification and storage of materials – for each case listed, adequate separation should be provided to prevent mixing or contamination of PCC materials
 - a. By fiber type (Nylon -6 (N-6), Nylon-6,6 (N-6,6), polyester (PET), polypropylene (PP), and other fiber types)
 - b. By use
 - i. Use as a filler (higher degrees of contamination may be allowed)
 - ii. Use as fiber (must be prepped for use – sheared or shredded)
 - iii. Preparation for reuse (sorting and cleaning)
 - c. Source of material (i.e., in state versus out of state)
 - d. For each of these examples, the PCC material needs to be stored in clearly marked or labeled areas (floor area lined and painted, wall separation, etc.)
 - e. Processed PCC material should also be labeled (with identification sku or name) and kept separate from the unprocessed PCC material when possible to reduce contamination



3. Ventilation

- a. For indoor storage be sure to provide ventilation such that the indoor air space can be turned over at least once every 24 hours. In areas where processing of carpet takes place, this ventilation requirement must be substantially increased. Cross ventilation or roof ventilation have both proven effective means of keeping the space properly ventilated.

4. Cleanliness of the storage areas

- a. One focus is to reduce contamination of clean PCC material with PCC material that has been contaminated with water, biologic material (soil, food, urine, feces, etc.), or other fiber content
 - i. Any material with biologics (urine and feces in particular) should be immediately separated and disposed of without processing to minimize health risks to employees.
- b. Other focus is to ensure that hazards are kept cleared. PCC material processing is generally not a glamorous business due to the dust, airborne debris and contaminants present.
 - i. As such, ventilation must be adequate and regularly checked for cleanliness to prevent dust explosions.
 - ii. PCC material should not be stored in areas where processing equipment produces large amounts of dust or fly waste (hammer mills, shearing operations, or shredders)
 - iii. Floors and drive aisles should be kept clean to prevent/eliminate slip hazards and fire hazards (around forklifts and other equipment).
- c. Use of compressed air for blow downs
 - i. All stacks of processed PCC material (i.e., boxed or packaged for shipment) should be blown down weekly (or as appropriate)
 - ii. Fire lanes, drive isles and work areas should be blown down daily

Personal Safety Concerns:

5. Height Storage issues

- a. Floor stacked PCC material (in bales, boxes, containers, etc.) should be no higher than 10' to prevent tip over injuries
- b. Stair-step end of each storage row.
- c. Do not stack material against the wall of the building for support. This often leads to wall damage and in some cases to failure of the wall by tipping.



- d. Rack storage
 - i. Rack weight limits must not be exceeded
 - ii. Racks must be well maintained
 - iii. Toe rails should be installed 18-24" from racks to prevent damage of the racks from forklifts or squeeze lifts

Process Safety Concerns:

6. Fire Protection

- a. Due to a number of recent events (2 major fires in 2012 alone), this is one of the most important issues to address. Due to the nature of PCC material (hydrocarbon based and difficult to put out once burning), a good fire protection plan is critical. The local fire authority should be consulted with when developing a fire protection plan. The fire protection plan should include (but is not limited to):
 - i. Layout of the working area to allow fire lanes (minimum 5' wide) to form natural firebreaks between PCC material storage
 - 1. Use fire doors, filled concrete walls and large open spaces to provide additional firebreaks where appropriate
 - ii. Provide sprinkler coverage with an adequate gallons per minute (gpm) flow rate to either contain or extinguish a fire. The National Fire Protection Association (NFPA) standard for cotton bales is used as the basis for fire standards in the textiles industry (NFPA-231E). While NFPA-231E is an excellent reference point, local authorities may have guidelines which take precedence. ESFR (Early Suppression Fast-Response) sprinklers should be used when possible.
 - iii. Fire hoses must be able to provide full coverage in storage areas (i.e., a 50' fire hose would not be adequate for coverage in a 200' wide building)
 - iv. Employee Fire Response Plan covering:
 - 1. Detection systems – smoke/fire alarms
 - 2. How to report a fire – telephone numbers and local notifications
 - 3. Evacuation routes
 - 4. Gathering areas outside of the building
 - 5. Other issues as appropriate

7. Outdoor Storage

- a. All of the same issues of indoor storage also apply to outdoor storage. Ideally, the material would be stored in outdoor storage containers to eliminate issues of storm-water runoff, fire hazards and mold. If stored outdoors the storage time should be



limited to avoid the material being exposed to the elements, include heat, precipitation and wind to avoid product degradation and to reduce problems from potential fires, and surface and ground water contamination and public health issues associated with odors and potentiation mold spore formation. The following are additional issues that must be considered:

- i. Storm Water Run-off
 1. Run-off should be captured (where feasible and required) to allow separation of the loose fiber and other material in the PCC material
 2. All material stored outdoors should be 100% tarped to minimize contaminated storm water run-off
 3. Additional local, state, and/or federal codes must be complied with when required
 4. Ideally, no contaminated storm water run-off will be permitted to leave the site
- ii. Fire Protection for outdoor storage – since these areas are rarely fitted with sprinkler systems, additional emphasis must be placed on separation of PCC materials (fire lanes) and access to water for fire-fighting
- iii. Limit size of outdoor storage piles
 1. Stacked bales should be no higher than 10'
 2. Bales must be 100% covered in tarps to prevent damage and contaminated storm water run-off
 3. Piles of loose material should be maintained at the minimum height possible (and be 100% tarped)
 4. Maximum pile size dimensions 5,000 sq. ft by 10 ft high
 5. Minimum separation distance between piles should be 40 feet and the storage yard should be free from combustible ground vegetation by a distance of 40 feet.
 6. Should an outdoor storage area exceed 150,000 cubic feet, the individual piles should not exceed the recommendations above for the group of piles and the adjacent groups should be at least 75 feet apart.

Notice: These guidelines are meant to provide general guidance for the processing and storage of post-consumer carpet. It is the responsibility of the owner/operator to ensure compliance with all local, state and federal guidelines, regulations, rules and statutes. CARE makes no warranty and assumes no liability for decisions and actions taken by individual owners/operators with respect to these guidelines or the reliance thereon.