



Compliance Bulletin

Asphalt, Brick and Concrete Recycling & Beneficial Use

February 2016

Asphalt, brick and concrete material accounts for millions of tons of construction and demolition debris every year in the U.S. Recycling this material can create jobs, save valuable landfill space, and reduce the environmental impacts from mining new materials. Since asphalt, brick and concrete can often be recycled on the job site at reduced expense when compared to disposal alternatives, it can also provide significant savings during construction by avoiding new material purchase and waste disposal costs.

Applicability

This guidance is for material that contains *only* fully cured asphalt pavement, clay bricks and attached mortar, or fully cured concrete (with or without rebar). Asphalt, brick, and concrete containing paint, adhesives, mastics, sealants, or other coatings must be tested to ensure the coatings do not contain asbestos or lead paint before this guidance may be applied.

Industrial Recycling Operations Exemption

Section 8.5 of the *Regulations Pertaining to Solid Waste Sites and Facilities* (6 CCR 1007-2, Part 1) specifies the requirements for industrial recycling operations, including for the recycling of asphalt, brick, and concrete. Facilities that recycle these materials are subject to all of the requirements found in Section 8.5 unless the facility meets one or more of the exemptions in Section 8.5.3.

The first exemption includes on-site recycling operations that 1) process recyclable materials on the same site where the recyclable materials were generated and 2) recycle and store only materials generated on-site. These operations must meet certain performance criteria, including meeting established engineering, product, end user, customer, or other appropriate specifications; demonstrating a benefit associated with use of the material; and showing the material is used as a substitute for, or in conjunction with, a commercial product or raw material. Creation of ground water contamination, off-site odors, and/or speculative accumulation of waste materials voids this exemption.

The second exemption applies to concrete and asphalt operations where the material is managed like a commodity by meeting the following conditions: 1) the material is managed and separated into commodity-specific piles processed for reuse, 2) the material is managed in active piles separated by material type within one year of receipt, and 3) incoming loads have all non-concrete, non-asphalt and non-rebar material removed from the concrete and asphalt materials within thirty (30) calendar days. In addition, any material that is not asphalt, brick, concrete, or rebar cannot exceed 10% of the total material onsite by weight or volume.

If a recycling operation meets either or both of the first two exemptions, it is exempt from the requirements of Section 8.5, including facility registration, general site requirements and closure requirements. However, any use of the recycled material must meet the recyclable material performance criteria of Section 8.5.2.

Pre-Approved Beneficial Uses

The Colorado Department of Public Health and Environment (the Department) has approved beneficial uses for several types of uncontaminated materials in the Pre-Approved Beneficial Use Table 3, available on our website at www.colorado.gov/cdphe/swregs. Clean, uncontaminated asphalt, brick and concrete material may be recycled and used in a variety of ways that do not require consultation and specific approval from the department. Determining what qualifies as

“clean and uncontaminated” requires not only a thorough inspection of the material to look for obvious signs of contamination such as odor, staining, discoloration or the presence of adhered materials, but also a thorough understanding of the site history and possibly sampling and laboratory analysis if there is any reason to suspect contamination. Ideally, any contamination issues would have been found during a Phase I and/or Phase II Environmental Site Assessment or asbestos building inspection. If no such investigation has been performed, then it is very important to perform a thorough inspection prior to beginning the recycling process. Future liability issues may be avoided by taking steps to properly characterize the material as uncontaminated.

The table below, taken from the Pre-Approved Beneficial Use Table 3, shows the approved uses for uncontaminated asphalt, brick and concrete.

Reclaimed Asphalt	Road Base Component of hot or cold mix asphalt Re-compacted asphalt Roadside dressing Chip seal material Culvert cover Base stabilization
Reclaimed Concrete, Brick and Stone (non-asbestos bearing materials)	Road base Concrete aggregate Component of engineered structural fill Aggregate substitute Engineered rip rap Roadside dressing

While these uses are pre-approved by the Department, a number of other conditions do apply. Key conditions on the pre-approved beneficial use of asphalt, brick, and concrete material include: 1) when using crushed material as a component of structural fill, crush the material to six inches or less, or size according to an engineer’s backfill specification, and 2) ensure a minimum of three feet of separation between the placement of the material and the seasonally high ground water level. All of the required conditions can be found in Section 8.6.2 of Part 1 of the solid waste regulations, available on our website at www.colorado.gov/cdphe/swregs.

If uncontaminated asphalt, brick or concrete will not be directly reused, there are many facilities that will accept these materials for recycling.

Other Beneficial Uses

If the intended recycling and reuse of the asphalt, brick and concrete material is not found on the pre-approved list above, it may still qualify for beneficial use with our approval. In order for the Department to approve your beneficial use project, you must submit an “Application for a Solid Waste Beneficial Use Determination.” The application form includes a list of performance criteria that must be met and a checklist of attachments that must be included in order for the Department to evaluate the project. The application form may be found on our website at www.colorado.gov/cdphe/swforms.

Recycling and Beneficial Use Best Management Practices

The ability to recycle asphalt, brick and concrete material safely and in a manner protective of public health and the environment requires not only meeting the requirements of the solid waste and asbestos regulations, but also following established best management practices.

- Ensure that only uncontaminated material is crushed and processed.
 - Know the results of the Phase I or II Environmental Site assessment (ESA).
 - If no environmental site assessment was performed:



- Perform a thorough visual inspection of the materials.
 - Learn the site history and whether prior contamination may have occurred.
 - Perform sampling and laboratory testing if there are any doubts whether the material may be contaminated.
- If the material came from a structure, ensure that a state demolition permit was issued and that all suspect asbestos-containing materials (including all nonfriable materials) were tested and do not contain asbestos.
 - Do not crush material that has paint, finishes, adhesives, mastics, sealants, coatings or any other potential contaminants until the material is tested for lead and asbestos.
 - Properly size and engineer the material for the intended use in accordance with the recommendations of a professional engineer.
 - Manage and separate the material into commodity-specific piles for processing and reuse.
 - Remove and recycle any rebar from the concrete.
 - Notify the relevant local authorities of the intended activity to gain any necessary permits and approvals before crushing or material processing begins.
 - Do not allow any unpermitted discharges to air, water, or other environmental resources.
 - Avoid creating nuisance conditions such as fugitive dust, excessive noise, or allowing exhaust or fumes to drift off-site.

Waste Disposal

If there is obvious staining and discoloration, or if the site was previously home to a type of facility frequently found to be contaminated such as a dry cleaner, a gas station, or an industrial facility, then sampling and analysis should be performed on the material. Also, be aware that certain types of brick (e.g., refractory brick) and concrete may be associated with asbestos and should be tested even if there may be no obvious evidence such as remnants of floor tile or mastic.

If the condition of the material is not suitable for reuse or recycling, then it will have to be disposed of as solid or hazardous waste. Knowledge of the site history along with analytical results will help determine what type of disposal is required. Contact the Department if additional information regarding sampling and analysis requirements or assistance with determining the type of disposal is needed.

Other Applicable Regulations

Crushing of asphalt, brick or concrete materials at a facility or on the work site may be subject to air permitting requirements. For more information, please contact the Air Pollution Control Division at 303-692-3100 or cdphe.commentsapcd@state.co.us.

Stormwater permitting may be required for facilities or work sites that are recycling asphalt, brick or concrete materials. For more information, please contact the Water Quality Control Division at 303-692-3500 or cdphe.commentswqcd@state.co.us.

If there are surface waters or wetlands near the processing site that may potentially be impacted by site activities, please contact the US Army Corps of Engineers at 202-761-7690 or via their website www.usace.army.mil/contact.aspx.

For more information on industrial recycling and beneficial use, refer to Sections 8.5 and 8.6 of the Colorado solid waste regulations (6 CCR 1007-2, Part 1), available on our website at www.colorado.gov/cdphe/swregs.

For more information

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