

other crops, and can sometimes be derived from reclaimed waste streams. Recent developments have also allowed for the development of non-rigid wrap materials and other food packaging innovations in addition to the sandwich "clamshells" made from starch and agricultural fibers.

Woven fiber products represent important uses of biobased fibers. A variety of biobased fibers can be spun or woven into items such as ropes, textiles, and yarns. For example, flax is a traditional textile fiber used to make linen, while other fibers, such as jute, are woven to make burlap for bags and coverings.

Packaging materials can be made from waste fibers described above that, if not used in the paper making process, might be sent to a landfill.

Paperboard and packaging products, strong lightweight honeycomb panels made from recycled and agricultural fibers, illustrate another use of biobased fibers. Panel items can also be made almost entirely from cereal straw residue and used in nonstructural applications such as furniture, cabinets, store displays, door panels, moldings, and other fixtures.

Items such as pillows and comforters are made from milkweed fibers mixed with goose down to create bedding materials.

Proposed Minimum Content—Fibers, Paper, and Packaging Category

Like the construction category above, this item application is very large and each application may have separate content requirements. The category may require additional subcategories, or the creation of new categories; for instance tree-free paper versus tree-derived paper. In this guideline, USDA has listed a few of the more common uses and encourages comment on content requirements for a wide range of uses. To be included in the biobased fiber, paper, and packaging category, the minimum biobased content of each item must be:

Items	Minimum biobased content (%)
Fibers	90
Fibers composites	30
Composite packaging materials	30
Woven fiber products	75
Packaging materials	80
Uncoated printing and writing papers	20
Coated printing and writing papers	20
Bristols	50
Newsprint	20
Sanitary tissues	30

Items	Minimum biobased content (%)
Paperboard and packaging products	30
Other paper products	50

Fuel Additives Category

A variety of fuel additives can be made from agricultural and forest materials and can be used to help power vehicles, heat buildings, provide heat for steam for industrial process, and other applications. Fuel additives can be mixed or diluted with other materials or used as an additive to enhance certain properties of a fuel.

Raw material sources for these biobased liquid fuel additive items include processed products from agricultural crops such as corn; soy bean; rapeseed; canola; animal fat; wood; and crop and processing residues such as stalks, manure, used cooking oils, used wood, nonrecyclable paper and paper sludge, and hulls.

Raw material sources for solid fuel additive items include agricultural and forest materials such as wood and wood processing residues, formed wood residue; nonrecyclable papers, paper sludge, and other paper processing residues; grains, grain processing byproducts and residues; byproducts or residues from soy, cotton, and sugar processing; pelletized residues from livestock production and processing, including manures.

Ethanol is the most widely used biobased fuel additive. It is typically made by fermentation of an agricultural product or residue and can be used as an oxygenated additive and a source of octane in a formulation with other fuels. Another liquid biobased fuel additive is biodiesel. Biodiesel is defined as a mono-alkyl ester of vegetable oils or animal fats and can be used as a lubricity agent with low-sulfur conventional diesel fuel.

Biobased items that are solid fuels are typically "formed" for ease of handling into a wide variety of shapes and sizes including pellets, rolls, briquettes, and other forms. Combustible binders, which may both act as fuels or be blended with other primary fuels, allow the fuel to be formed into various shapes and sizes. Biobased and other binders, such as resins and propellants, are also used to facilitate ignition and combustion. Formed coal fines are one example of a solid fuel. Recovered coal fines can be formed into a variety of shapes and sizes, e.g., pellets and briquettes, by using a biobased binder such as proteins or sugars derived from

soy or milk, or a combination binder composed of biobased materials and other chemicals. Biobased binders typically comprise only a small part of the total solid fuel and can be derived from dairy byproducts and other agricultural sources. The binder would be considered a biobased fuel additive.

As noted previously, section 9002 and these guidelines do not apply to the procurement of motor vehicle fuels or electricity.

Proposed Minimum Content—Fuel Additives Category

To be included in this fuel additives category, the minimum biobased content of each item must be:

Items	Minimum biobased content (%)
Solid fuels	5
Liquid fuel additives	80

Landscaping Materials, Compost, and Fertilizer Category

This category includes materials and items associated with landscaping materials and compost. Many biobased items, such as construction materials, coatings, paper, fibers, and sorbents are compostable and reusable as landscaping materials.

Various agricultural crops and residues, including straws and short rotation woody crops, are the sources of landscaping materials. For the purposes of this category, woody materials are those obtained from activities such as forest thinning, fuel reduction in plantation stands, regenerated forest stands, intensively cultivated short rotation woody stands (*i.e.*, less than 10 years old), or from wood residue or recovered wood products.

Compost is derived from a managed process that decomposes and transforms organic material into a soil-like item called humus. Food scraps, leaves, paper, wood, livestock manures, and agricultural residues are organic materials that can be composted. Composting reduces the amount of waste that may go to a landfill and it produces a soil amendment that can improve the texture and fertility of the soil. Mulches and composted materials can be used to control moisture and nutrients in soils and reduce the potential for erosion. Other materials, such as agricultural and animal wastes, serve as fertilizers.

Items include landscaping materials such as bark, chips, mulch, and pine needles. Composted materials provide fertilizer and ground cover. These