



## Standard Terminology Relating to Biomass Fuels<sup>1</sup>

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**aerobic**—able to live, grow, or take place only where free oxygen is present.

**aerobic fermentation**—fermentation processes that require the presence of air.

**alcohols**—the family name of a group of organic compounds that vary in chain length and consist of a hydrocarbon plus one or more hydroxyl groups; for example, the straight chain series  $\text{CH}_3\text{-(CH}_2\text{)}_n\text{-OH}$ . Includes methanol, ethanol, butanol, propanol, and higher alcohols. If the hydrocarbon is aromatic, the compounds are called phenols.

**anaerobic**—living or active in an airless environment.

**anaerobic bacteria**—microbes whose metabolisms require the absence of free oxygen.

**anaerobic digester**—a chemical reactor in which anaerobic bacteria are used to decompose biomass or organic wastes to produce methane and carbon dioxide.

**anaerobic digestion**—degradation of organic matter by microbes in the absence of air (oxygen) to produce methane and carbon dioxide (biogas).

**anaerobic fermentation**—fermentation processes conducted in the absence of air. The following anaerobic fermentation processes are significant in obtaining useful forms of energy from biomass: (1) alcoholic fermentation, fermentation processes whereby certain microorganisms convert glucose and other substrates with alcohol as an end product, (2) methane fermentation, generally termed anaerobic digestion (See also **anaerobic digestion**).

**anhydrous**—a material that does not contain water either absorbed on its surface or as water of crystallization; a water-free product.

**ash**—inorganic residue remaining after combustion, determined by definite prescribed methods.

**ash fusion temperature**—melting point of ash, usually expressed in degrees Fahrenheit. Variations include oxidizing atmosphere or reducing atmosphere, initial softening, or final fluid temperature. Some specifications include two intermediate points between initial softening and final fluid.

**bagasse**—residue remaining after extraction of a sugar-containing juice from plants like sugar cane.

**bioconversion**—a general term describing the use of biological systems to transform one compound into another. Examples are digestion of organic wastes or sewage by microorganisms to produce methane.

**biofuel**—biomass-derived fuel.

**biogas**—a gaseous mixture of mainly carbon dioxide and methane produced by the anaerobic digestion of organic matter.

**biomass**—total weight of living matter in a given volume. When considered as an energy source, biomass is further subdivided into: (1) primary biomass, rapidly growing plant material that may be used directly or after a conversion process for the production of energy, and (2) secondary biomass, biomass residues remaining after the production of fiber, food, or other products of agriculture, or biomass by-products from animal husbandry or food preparation that are modified physically rather than chemically. Examples include waste materials from agriculture and forestry industries (manure, sewage, etc.) from which energy may be produced. The above distinction noted between primary and secondary biomass is based on economic factors; these are defined differently in ecological science.

**DISCUSSION**—material, excluding fossil fuels, which is or was a living organism that can be used as a fuel directly or after a conversion process. Wood, peanut hulls, agricultural waste, corn and other grains, sugar, and bagasse are all examples of biomass. Matter formed from living cells.

**DISCUSSION**—the living materials in the biosphere and their refuse and waste products. Defined in the Energy Security Act (P.L. 96-294) as any organic matter that is available on a renewable basis, including agricultural crops and agricultural wastes and residues, wood and wood wastes and residues, animal wastes, municipal wastes, and aquatic plants.

**biomass**—any material, excluding fossil fuels, which is or was a living organism that can be used as a fuel directly or after a conversion process. Peat is not a biomass.

**DISCUSSION**—Wood, peanut hulls, agricultural waste, corn and other grains, sugar, and bagasse are all examples of biomass.

**biomass fuel**—fuel derived from biomass.

**biomass pellet**—see **fuel pellet**.

**corn stover**—the stalks of the maize plant.

**denatured fuel ethanol**—fuel ethanol to which chemicals (denaturants) have been added to make the ethanol unfit for human consumption in accordance with the regulations of the Bureau of Alcohol, Tobacco, and Firearms of the U. S. Treasury Department.

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