



Designation: D6700 – 19

Standard Guide for Use of Scrap Tires as Tire-Derived Fuel¹

This standard is issued under the fixed designation D6700; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This guide covers and provides guidance for the material recovery of scrap tires for their fuel value. The conversion of a whole scrap tire into a chipped form for use as a fuel produces a product called tire-derived fuel (TDF). This recovery guide has moved from a pioneering concept in the early 1980s to a proven and continuous use in the United States with industrial and utility applications.

1.2 Combustion units engineered to use solid fuels, such as coal or wood, or both, are fairly numerous throughout the U.S. Many of these units are now using TDF even though they were not specifically designed to burn TDF. It is clear that TDF has combustion characteristics similar to other carbon-based solid fuels. Similarities led to pragmatic testing in existing combustion units. Successful testing led to subsequent acceptance of TDF as a supplemental fuel when blended with conventional fuels in existing combustion devices. Changes required to modify appropriate existing combustion units to accommodate TDF range from none to relatively minor. The issues of proper applications and specifications are critical to successful utilization of this alternative energy resource.

1.3 This guide explains TDF's use when blended and combusted under normal operating conditions with originally specified fuels. Whole-tire combustion for energy recovery is not discussed herein, since whole-tire usage does not require tire processing to a defined fuel specification.

1.4 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.5 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.6 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 ASTM Standards:²

- D2013/D2013M Practice for Preparing Coal Samples for Analysis
- D2361 Test Method for Chlorine in Coal (Withdrawn 2008)³
- D2795 Test Methods for Analysis of Coal and Coke Ash (Withdrawn 2001)³
- D3172 Practice for Proximate Analysis of Coal and Coke
- D3173/D3173M Test Method for Moisture in the Analysis Sample of Coal and Coke
- D3174 Test Method for Ash in the Analysis Sample of Coal and Coke from Coal
- D3175 Test Method for Volatile Matter in the Analysis Sample of Coal and Coke
- D3176 Practice for Ultimate Analysis of Coal and Coke
- D3177 Test Methods for Total Sulfur in the Analysis Sample of Coal and Coke (Withdrawn 2012)³
- D3178 Test Methods for Carbon and Hydrogen in the Analysis Sample of Coal and Coke (Withdrawn 2007)³
- D3179 Test Methods for Nitrogen in the Analysis Sample of Coal and Coke (Withdrawn 2008)³
- D3682 Test Method for Major and Minor Elements in Combustion Residues from Coal Utilization Processes
- D4239 Test Method for Sulfur in the Analysis Sample of Coal and Coke Using High-Temperature Tube Furnace Combustion
- D4326 Test Method for Major and Minor Elements in Coal and Coke Ash By X-Ray Fluorescence
- D4749 Test Method for Performing the Sieve Analysis of Coal and Designating Coal Size

¹ This guide is under the jurisdiction of ASTM Committee D34 on Waste Management and is the direct responsibility of Subcommittee D34.03 on Treatment, Recovery and Reuse.

Current edition approved Feb. 1, 2019. Published February 2019. Originally approved in 2001. Last previous edition approved in 2013 as D6700 – 01 (2013). DOI: 10.1520/D6700-19.

² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ The last approved version of this historical standard is referenced on www.astm.org.