



Designation: D5681 – 23

# Standard Terminology for Waste and Waste Management<sup>1</sup>

This standard is issued under the fixed designation D5681; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

## 1. Scope

1.1 This terminology contains standard definitions of terms used in the general area of waste and waste management. It is intended to promote understanding by providing precise technical definitions of terms used in the standards developed by Committee D34 and its subcommittees.

1.2 Terms used only within an individual standard, and having a meaning unique to that standard, may be defined or explained in the terminology section of that individual standard.

1.3 *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.*

1.4 *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:<sup>2</sup>

- D1129 Terminology Relating to Water
- D4439 Terminology for Geosynthetics
- D4448 Guide for Sampling Ground-Water Monitoring Wells
- D4646 Test Method for 24-h Batch-Type Measurement of Contaminant Sorption by Soils and Sediments
- D4790 Terminology of Aromatic Hydrocarbons and Related Chemicals
- D4874 Test Method for Leaching Solid Material in a Col-

- umn Apparatus (Withdrawn 2021)<sup>3</sup>
- D5120 Test Method for Inhibition of Respiration in Microbial Cultures in the Activated Sludge Process (Withdrawn 2014)<sup>3</sup>
- D5231 Test Method for Determination of the Composition of Unprocessed Municipal Solid Waste
- D5285 Test Method for 24-Hour Batch-Type Measurement of Volatile Organic Sorption by Soils and Sediments (Withdrawn 2008)<sup>3</sup>
- D5368 Test Methods for Gravimetric Determination of Total Solvent Extractable Content (TSEC) of Solid Waste Samples (Withdrawn 2014)<sup>3</sup>
- D5369 Practice for Extraction of Solid Waste Samples for Chemical Analysis Using Soxhlet Extraction (Withdrawn 2016)<sup>3</sup>
- D5468 Test Method for Gross Calorific and Ash Value of Waste Materials (Withdrawn 2016)<sup>3</sup>
- D5660 Test Method for Assessing the Microbial Detoxification of Chemically Contaminated Water and Soil Using a Toxicity Test with a Luminescent Marine Bacterium (Withdrawn 2014)<sup>3</sup>
- D5679 Practice for Sampling Consolidated Solids in Drums or Similar Containers
- D5680 Practice for Sampling Unconsolidated Solids in Drums or Similar Containers
- D5743 Practice for Sampling Single or Multilayered Liquids, with or Without Solids, in Drums or Similar Containers
- D5744 Test Method for Laboratory Weathering of Solid Materials Using a Humidity Cell
- D5745 Guide for Developing and Implementing Interim and Early Actions for Waste Contamination Site Remediation
- D5746 Classification of Environmental Condition of Property Area Types, Including Explosives Safety for Federally-Owned Real Property
- D5759 Guide for Characterization of Coal Fly Ash and Clean Coal Combustion Fly Ash for Potential Uses
- D5792 Practice for Generation of Environmental Data Related to Waste Management Activities: Development of Data Quality Objectives

<sup>1</sup> This terminology is under the jurisdiction of ASTM Committee D34 on Waste Management and is the direct responsibility of Subcommittee D34.94 on Terminology.

Current edition approved Nov. 1, 2023. Published November 2023. Originally approved in 1995. Last previous edition approved in 2022 as D5681 – 22. DOI: 10.1520/D5681-23.

<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

<sup>3</sup> The last approved version of this historical standard is referenced on [www.astm.org](http://www.astm.org).

- D5956** Guide for Sampling Strategies for Heterogeneous Wastes
- D6008** Practice for Determining the Environmental Condition of Federal Property
- D6044** Guide for Representative Sampling for Management of Waste and Contaminated Media
- D6051** Guide for Composite Sampling and Field Subsampling for Environmental Waste Management Activities
- D6063** Guide for Sampling of Drums and Similar Containers by Field Personnel
- D6250** Practice for Derivation of Decision Point and Confidence Limit for Statistical Testing of Mean Concentration in Waste Management Decisions (Withdrawn 2018)<sup>3</sup>
- D6270** Practice for Use of Scrap Tires in Civil Engineering Applications
- D6311** Guide for Generation of Environmental Data Related to Waste Management Activities: Selection and Optimization of Sampling Design
- D6323** Guide for Laboratory Subsampling of Media Related to Waste Management Activities
- D6346** Guide for Accepting, Segregating, and Packaging Materials Collected Through Household Hazardous Waste Programs
- D6538** Guide for Sampling Wastewater With Automatic Samplers
- D6582** Guide for Ranked Set Sampling: Efficient Estimation of a Mean Concentration in Environmental Sampling (Withdrawn 2012)<sup>3</sup>
- D6661** Practice for Field Collection of Organic Compounds from Surfaces Using Wipe Sampling
- D6700** Guide for Use of Scrap Tires as Tire-Derived Fuel
- D6759** Practice for Sampling Liquids Using Grab and Discrete Depth Samplers
- D6842** Guide for Designing Cost-Effective Sampling and Measurement Plans by Use of Estimated Uncertainty and Its Components in Waste Management Decision-Making (Withdrawn 2015)<sup>3</sup>
- D6956** Guide for Demonstrating and Assessing Whether a Chemical Analytical Measurement System Provides Analytical Results Consistent with Their Intended Use
- D6982** Practice for Detecting Hot Spots Using Point-Net (Grid) Search Patterns
- E135** Terminology Relating to Analytical Chemistry for Metals, Ores, and Related Materials
- E177** Practice for Use of the Terms Precision and Bias in ASTM Test Methods
- E456** Terminology Relating to Quality and Statistics
- E702** Specification for Municipal Ferrous Scrap
- E708** Specification for Waste Glass as a Raw Material for the Manufacture of Glass Containers
- E711** Test Method for Gross Calorific Value of Refuse-Derived Fuel by the Bomb Calorimeter
- E828** Test Method for Designating the Size of RDF-3 From its Sieve Analysis (Withdrawn 2009)<sup>3</sup>
- E850** Guide for Characterization of Inorganic Process Wastes for Use as Structural Fill (Withdrawn 2019)<sup>3</sup>
- E868** Test Methods for Conducting Performance Tests on Mechanical Conveying Equipment Used in Resource Recovery Systems (Withdrawn 2013)<sup>3</sup>
- E884** Practice for Sampling Airborne Microorganisms at Municipal Solid-Waste Processing Facilities (Withdrawn 2021)<sup>3</sup>
- E889** Test Method for Composition or Purity of a Solid Waste Materials Stream
- E897** Test Method for Volatile Matter in the Analysis Sample of Refuse-Derived Fuel (Withdrawn 2011)<sup>3</sup>
- E929** Test Method for Measuring Electrical Energy Requirements of Processing Equipment (Withdrawn 2014)<sup>3</sup>
- E943** Terminology Relating to Biological Effects and Environmental Fate
- E949** Test Method for Total Moisture in a Refuse-Derived Fuel Laboratory Sample (Withdrawn 2011)<sup>3</sup>
- E953/E953M** Practice for Fusibility of Refuse-Derived Fuel (RDF) Ash
- E955** Test Method for Thermal Characteristics of Refuse-Derived Fuel Macrosamples (Withdrawn 2017)<sup>3</sup>
- E959** Test Method for Characterizing the Performance of Refuse Size-Reduction Equipment
- E1138** Terminology for Technical Aspects of Products Liability Litigation (Withdrawn 1995)<sup>3</sup>
- E1248** Practice for Shredder Explosion Protection
- E1266** Practice for Processing Mixtures of Lime, Fly Ash, and Heavy Metal Wastes in Structural Fills and Other Construction Applications
- E1527** Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process
- E1528** Practice for Limited Environmental Due Diligence: Transaction Screen Process

### 3. Significance and Use

3.1 This terminology defines terms and specialized meanings of terms in the subject areas of waste and management of waste.

3.2 This terminology is not intended for subjects other than waste and waste management. For terms applicable to other subject areas, the appropriate terminology standard(s) should be consulted. See the current edition of the Compilation of ASTM Standard Definitions<sup>4</sup> and the list of terminology standards cited therein.

3.3 Standards relating to subcategories of waste or waste management may use terms defined more narrowly than those included here. The more specialized terminology standards relating to the applicable specific subcategory, or terms defined within individual standards, or both, should be consulted for the exact meaning intended within a given standard.

3.4 The Thesaurus on Resource Recovery Terminology (Special Technical Publication (STP) 832)<sup>5</sup> contains many terms and may be useful for those not listed in terminology standards. However, a definition in a standard terminology shall be considered governing when the term is used in the sense or meaning defined therein.

<sup>4</sup> *Compilation of ASTM Standard Definitions*, ASTM, 8th edition, 1994.

<sup>5</sup> *Thesaurus on Resource Recovery Terminology*, ASTM STP 832, ASTM, 1983.

3.5 Statistical terms are not defined in this terminology to the extent that the terms, when used regarding waste and management of waste, have the same meanings as in Practice E177 or Terminology E456.

3.6 Regulatory terms are often developed by regulatory agencies for special regulatory purposes and may have technical content or meaning different from terms defined herein. When a regulatory term exists that differs in meaning from a term given here, the regulatory term should be considered to take precedence for regulatory matters.

#### 4. Terminology

**accepts**, *n*—the output stream from a materials separation device that contains the highest concentration (purity) of the components that the device is designed to separate.

**accuracy**, *n*—closeness of a measured value to the true or an accepted reference or standard value. **E135, D6311**

**acid producing potential (AP)**, *n*—the potential for a solid material sample to produce acidic effluent, based on the percent of sulfide contained in that sample as iron-sulfide mineral (for example, pyrite or pyrrhotite). The AP is commonly converted to the amount of calcium carbonate required to neutralize the resulting amount of acidic effluent produced by the oxidation of contained iron sulfide minerals; it is expressed as the equivalent tons of calcium carbonate per 1000 tons of solid material. The AP is therefore calculated by multiplying the percent of sulfide contained in the material by a stoichiometric factor of 31.25. **D5744**

**action level (AL)**—the level above or below which will lead to the adoption of one of two alternative actions. **D6956**

**adiabatic calorimeter**, *n*—a calorimeter that has a jacket temperature adjusted to follow the calorimeter temperature as closely as possible so as to maintain zero thermal head. **D5468**

**air drying**—a process of partial drying of RDF-3 to bring its moisture content near to equilibrium with the atmosphere in the room in which the sieving is to take place. **E828**

**air drying**—a process of partial drying of RDF to bring its moisture content near to equilibrium with the atmosphere in which further reduction, division, and characterization of the sample are to take place. In order to bring about the equilibrium, the RDF is usually subjected to drying under controlled temperature conditions ranging from 30 to 40 °C. **E949**

**analysis**, *n*—the activity to determine the proximate and ultimate analysis, fuel value and size specification of TDF. **D6700**

**analysis of variance (ANOVA)**, *n*—a statistical method of decomposing (or breaking down) the total variance and estimating or testing its contributing component variances for statistical significance. **D6842**

**analyte**—the constituent to be measured. **D6956**

**analytical unit**, *n*—the actual amount of the sample material analyzed in the laboratory. **D6044**

**applicable or relevant and appropriate requirements (ARAR)**—those requirements, cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under federal or state law that show either a direct correspondence or address problems or situations sufficiently similar at a site to show that they are well suited for application. **D5745**

**asbestos**—six naturally occurring fibrous minerals found in certain types of rock formations. Of the six, the minerals chrysotile, amosite, and crocidolite have been most commonly used in building products. When mined and processed, asbestos is typically separated into very thin fibers. Because asbestos is strong, incombustible, and corrosion-resistant, asbestos was used in many commercial products beginning early in this century and peaking in the period from World War II into the 1970s. When inhaled in sufficient quantities, asbestos fibers can cause serious health problems. **D6008**

**asbestos-containing material (ACM)**—any material or product that contains more than 1 % asbestos. **D6008**

**as-determined basis**, *n*—analytical data obtained from an analysis sample after conditioning and preparation which represent the numerical values obtained at the particular moisture and ash level in the sample at the time of analysis.

**ash**, *n*—the residue remaining after ignition of a substance as determined by definite prescribed methods.

DISCUSSION—Ash may not be identical in composition or quantity with the inorganic substances present in the analysis sample before ignition.

**as-received basis**, *n*—test data calculated to the condition of the sample as it arrived in the laboratory and before any laboratory processing or conditioning.

**attribute**, *n*—a quality of samples or a population. **D5956, D6311**

**auxiliary variable**, *n*—the secondary characteristic or measurement of interest.

DISCUSSION—In ranked set sampling, information contained in an auxiliary variable is useful for ranking the samples. This ranking may mimic the rankings of the samples with respect to the values of the primary variable when there is correlation between the auxiliary variable and the primary variable. Auxiliary information may include visual inspection, inexpensive quick measurement, knowledge of operational history, previous site data, or any other similar information. **D6582**

**balanced design**, *n*—a statistical study where replication in each of the levels of ANOVA is identical. **D6842**

**bead wire**, *n*—a high tensile steel wire surrounded by rubber, which forms the bead of a tire that provides a firm contact to the rim. **D6270, D6700**

**bias**, *n*—a systematic positive or negative deviation of the sample or estimated value from the true population value. **D6044**