



Standard Terminology Relating to Liquid Particles and Atomization¹

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INTRODUCTION

The transformation of bulk liquid into collections of discrete drops in sprays or mists is required for many processes including combustion, spray drying, evaporative cooling, humidification, and spray coating. Several techniques are commonly used to measure and characterize collections of drops as found in sprays, and a substantial body of terminology has evolved to describe liquid drops, drop populations, sprays, and spray devices, all of which are of interest to the users of liquid atomizers, spray instruments, and data. This terminology lists terms commonly encountered in the literature on liquid drops and sprays and provides definitions specific to the subject area.

1. Scope

1.1 In a broad sense, this terminology covers terminology associated with liquid particles dispersed in gas. The principal emphasis, however, is on particles produced by the process of atomization.

1.2 All terms, followed by their definitions, are arranged alphabetically. In addition, the terminology contains several tables wherein terms related to specific subjects are segregated and identified.

1.3 Within the broad scope, the following specific categories are included:

1.3.1 Terms pertaining to the structure and condition of individual particles or groups of particles as observed in nature.

1.3.2 Terms pertaining to the structure and condition of individual particles or groups of particles produced by an atomizing device.

1.3.3 Terms pertaining to atomizing devices according to the primary energy source responsible for spray development. (When more than one term is used for the same device or class of devices, the alternative term is followed by the preferred term.) Definitions of the devices may refer to their construction, operating principle, or distinctive spray characteristics. The atomizers, however, are not classified by their respective areas of application or end use. Moreover, the listed terms are generic and do not include brand names, trademarks, or proprietary designations.

1.3.4 Terms pertaining to statistical parameters involving particle measurement, particle size, and size distribution functions.

1.3.5 Terms pertaining to instruments and test procedures utilized in the characterization of liquid particles and sprays.

1.4 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

2. Referenced Documents

2.1 *ASTM Standards*:²

D1356 Terminology Relating to Sampling and Analysis of Atmospheres

E799 Practice for Determining Data Criteria and Processing for Liquid Drop Size Analysis

3. Terminology

aerating nozzle, *n*—a device to atomize liquid for the purpose of aeration.

DISCUSSION—Although this term is occasionally used to designate certain types of airblast or internal mixing pneumatic atomizers, it is ambiguous and is not recommended for describing the latter devices.

aerodynamic diameter, *n*—the diameter of a hypothetical sphere having a specific gravity of unity and the same settling velocity as the actual particle.

aerosol, *n*—a dispersion of solid particles or liquid particles, or both, in gaseous media. **D1356**

¹ This terminology is under the jurisdiction of ASTM Committee E29 on Particle and Spray Characterization and is the direct responsibility of Subcommittee E29.02 on Non-Sieving Methods.

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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.