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Standard Terminology for Homeland Security Applications¹

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^{ε1} NOTE—Editorially transferred terms in January 2014.

1. Scope

1.1 This terminology provides definitions and abbreviations of terms used in ASTM International standards pertaining to homeland security applications.

2. Referenced Documents

2.1 ASTM Standards:²

D638 Test Method for Tensile Properties of Plastics

D747 Test Method for Apparent Bending Modulus of Plastics by Means of a Cantilever Beam

D790 Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials

D882 Test Method for Tensile Properties of Thin Plastic Sheeting

D883 Terminology Relating to Plastics

E2411 Specification for Chemical Warfare Vapor Detector (CWVD)

E2639 Test Method for Blast Resistance of Trash Receptacles

E2740 Specification for Trash Receptacles Subjected to Blast Resistance Testing

E2831 Guide for Deployment of Blast Resistant Trash Receptacles in Crowded Places

2.2 Government Standards:

DOD 4145.26 M Department of Defense: DOD Contractors' Safety Manual for Ammunition and Explosives³

¹ This terminology is under the jurisdiction of ASTM Committee E54 on Homeland Security Applications and is the direct responsibility of Subcommittee E54.92 on Terminology.

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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.

³ Available from the Defense Technical Information Center, 8725 John J. Kingman Road, Suite 0944, Ft. Belvoir, VA 23060-6128.

3. Significance and Use

3.1 In this terminology, definitions used in other ASTM International standards are indicated by following the definition with the designation of the subcommittee responsible for that standard.

4. Terminology

4.1 Definitions:

add-on, *n*—in sensors and detectors for homeland security applications, any additional parts that provide tailoring of a personal detector's functionality for specific applications.

E2411

alias, *n*—a false low-frequency component that appears when reconstructing analog data that are sampled at an insufficient rate.

E2639

bare charge, *n*—explosive charge that is either not encased or is encased by a material, such as a cardboard tube, that will not produce primary fragments.

E2740

blast resistance, *n*—for purposes of this standard specification, the non-numerical attribute of a trash receptacle that is established when the results of explosive testing of the submitted specimens meet all performance requirements given in this specification.

E2740, E2831

blast resistant trash receptacle, *n*—a trash receptacle that conforms to the requirements given in Specification E2411.

E2831

crowded places, *n*—public areas where groups of people may concentrate for a continuous or limited period of time.

DISCUSSION—Examples of public areas that may be crowded include:

(1) buildings and related structures such as parking garages, including their access and egress points,

(2) entertainment and event venues,

(3) transportation terminals such as airports, train stations, and other public transportation stations,

(4) ticket counters, concession stands, retail stores, and dining establishments, and

(5) pedestrian walkways, sidewalks, streets, alleys, parks, plazas, playgrounds, schoolyards or other similar areas. **E2831**

detonation, *n*—(1) a violent chemical reaction within a chemical compound or mechanical mixture resulting in heat and pressure; (2) a reaction that proceeds through the reacted material toward the unreacted material at a supersonic velocity.

DISCUSSION—The result of the chemical reaction is exertion of extremely high pressure on the surrounding medium forming a propagating shock wave that is originally of supersonic velocity. **DOD 4145.26 M**

explosion, *n*—a chemical reaction of any chemical compound (or mechanical mixture) that, when initiated, undergoes a very rapid combustion or decomposition releasing large volumes of highly heated gases that exert pressure on the surrounding medium. **DOD 4145.26 M**

explosive, *n*—any chemical compound (or mechanical mixture) that, when subjected to heat, impact, friction, detonation, or other suitable initiation, undergoes a very rapid chemical change with the evolution of large volumes of highly heated gases that exert pressures in the surrounding medium. **DOD 4145.26 M**

fireball, *n*—a highly luminous, intensely hot cloud of dust, gas, and or vapor generated by an explosion. **E2639, E2831**

force protection, *n*—numerical level of blast resistance of a trash receptacle expressed in the mass of trinitrotoluene (TNT) explosive. **E2740, E2831**

fragment, *n*—solid material propelled from an explosion as a result of fragmentation. **E2639, E2740, E2831**

primary fragment, *n*—a fragment produced from the explosive device itself. **E2639, E2740, E2831**

secondary fragment, *n*—a fragment produced from the container or environment where the container is placed; a piece of receptacle broken off as a result of the charge being detonated inside of it. **E2639, E2740, E2831**

fragmentation, *n*—breaking up of the confining material of a chemical compound (or mechanical mixture) when an explosion takes place. **DOD 4145.26 M**

overpressure, *n*—the pressure, exceeding the ambient pressure, manifested in the shock wave of an explosion. **DOD 4145.26 M**

public area, *n*—a space or place that is open and accessible to all people, regardless of whether it is publicly or privately owned. **E2831**

rigid plastic, *n*—for purposes of general classification, a plastic that has a modulus of elasticity, either in flexure or in tension, greater than 700 MPa (100 000 lbf/in²) at 23°C (73°F) and 50 % relative humidity when tested in accordance with Test Method **D747**, Test Methods **D790**, Test Method **D638**, or Test Method **D882**. **D883**

silhouette, *n*—a witness panel that is constructed in the approximate shape of a human. **E2639, E2740**

trash receptacle, *n*—a public- or commercial-use refuse bin that holds discarded items until collected.

DISCUSSION—The capacity of a trash receptacle specimen subjected to the test procedure described in this standard is typically less than 200 L (50 gal). **E2639, E2740, E2831**

trash receptacle lid, *n*—a removable or hinged cover that fits over the open hollow of the receptacle.

DISCUSSION—A lid component is normally fitted to the configuration of the top opening of the trash receptacle and is manufactured by means of a molding process using a rigid plastic having a relatively low tensile or flexural modulus, 1000 MPa (150 000 lbf/in.²) maximum. The thickness of a section (for example, top) of a typical lid generally does not exceed 5 mm (3/16 in.). **E2639, E2740**

trash receptacle liner, *n*—a removable lining that is provided within a trash receptacle to retain liquids and fluid-like materials that seep from trash.

DISCUSSION—This component is normally fitted to the configuration of the interior of the trash receptacle and is manufactured by means of a molding process using a rigid plastic having a relatively low tensile or flexural modulus, 1000 MPa (150 000 lbf/in.²) maximum. The wall thickness of a typical liner generally does not exceed 5 mm (3/16 in.). **E2639, E2740**

trash receptacle rubbish bag, *n*—a removable, replaceable container that is provided within a trash receptacle to allow collected trash (that is, rubbish) to be removed from the receptacle and moved to a disposal location.

DISCUSSION—This bag is normally of a volume capacity to fit the configuration of the interior of the trash receptacle. It is manufactured from a plastic film generally having a thickness of less than 0.16 mm (0.006 in.). **E2639, E2740**

witness panel, *n*—a flat, rectangular sheet-construction mounted upright within the explosion test arena for purposes of determining whether fragments are produced during the detonation of the specimen. **E2639, E2740**

4.2 Abbreviations:

GA—nerve agent—common name: tabun, IUPAC name: O-Ethyl N,N-dimethyl phosphoramidocyanidate

GB—nerve agent—common name: sarin, IUPAC name: Propan-2-yl methylphosphonofluoridate

GD—nerve agent—common name: soman, IUPAC name: 3,3-Dimethylbutan-2-yl methylphosphonofluoridate

GF—nerve agent—common name: cyclosarin, IUPAC name: Cyclohexyl methylphosphonofluoridate

HD—blister agent—common name: distilled mustard, IUPAC name: Bis(2-chloroethyl) sulfide

L—blister agent—common name: lewisite, IUPAC name: 2-Chloroethenylarsonous dichloride

5. Keywords

5.1 decontamination; detection; homeland security; preparedness