



## Standard Test Method for Measurement of Backpack Capacity<sup>1</sup>

This standard is issued under the fixed designation F2153; 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 test method determines and standardizes an unextended and extended capacity for backpacks and related bags. Related bags include lumbar packs, soft rucksacks, internal and external frame packs, duffel bags, and travel packs.

1.2 This test method is designed to provide a means whereby manufacturers and consumers may have a consistent means to compare pack volumes.

1.3 This test method does not take into consideration areas of the backpack that are not completely enclosed by fabric such as mesh pockets, water bottle holders, and compressor pockets.

1.4 For practical purposes this test method cannot be used to measure capacities less than 4 L.

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. Terminology

#### 2.1 Definitions:

2.1.1 *backpack, n*—any carrying device constructed of fabric that utilizes a single or double shoulder strap as the means for the wearer to carry the bag on the users back.

2.1.2 *backpack back, n*—part of the backpack that is against the user's back.

2.1.3 *backpack front, n*—part of the backpack that is away from the user's back.

2.1.4 *extended capacity, n*—maximum achievable volume of a backpack including all compartments and extensions

maximized to their largest usable volume.

2.1.4.1 *full for panel loaded:* Zipped shut and all expansion panels open. When placed on a person the pack looks usable and the top pocket appears level or in alignment with rest of the pack style (that is, not tipped forward or back excessively).

2.1.4.2 *full for top loader:* 12 in.<sup>2</sup> maximum opening of extension collar draw cord, with pack body draw cord completely open. When placed on a person the pack looks usable and the top pocket appears level or in alignment with rest of the pack style (that is, not tipped forward or back excessively).

2.1.4.3 *roll top:* In accordance with the manufacturer's design with all extension panels open.

2.1.5 *extension skirt, n*—fabric extension which is attached to the top of the pack body and extends over and above the actual pack body.

2.1.6 *external frame pack, n*—backpack that uses a rigid or semirigid frame on the outside of the pack bag.

2.1.7 *frame sheet, n*—sheet generally constructed of foam or polyethylene, which forms the support in the back of the backpack.

2.1.8 *internal frame pack, n*—backpack that uses one or more supports, or stays, made from a rigid or semirigid material, and incorporated into the inside of the backpack (usually made of aluminum, graphite, or carbon-fiber).

2.1.9 *lumbar pack, n*—backpack that is designed to fit in the small of the back. Many lumbar packs do not have shoulder straps.

2.1.10 *soft rucksack, n*—backpack that does not have a rigid frame and is generally of smaller size. This backpack may have a back constructed of foam, or a light frame sheet.

2.1.11 *unextended backpack capacity, n*—maximum achievable volume of a backpack including all compartments maximized to their largest usable volume. All extensions closed.

2.1.11.1 *full for panel loaded:* Zipped shut. When placed on a person the pack looks usable and the top pocket appears level or in alignment with rest of the pack style (that is, not tipped forward or back excessively).

2.1.11.2 *full for top loader:* 12 in.<sup>2</sup> maximum opening of pack body draw cord. When placed on a person the pack looks usable and the top pocket appears level or in alignment with rest of the pack style (that is, not tipped forward or back

<sup>1</sup> This test method is under the jurisdiction of ASTM Committee F08 on Sports Equipment, Playing Surfaces, and Facilities and is the direct responsibility of Subcommittee F08.22 on Camping Softgoods.

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