Designation: D1695 – 07 (Reapproved 2012)

Standard Terminology of Cellulose and Cellulose Derivatives[1]

This standard is issued under the fixed designation D1695; 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 terminology standard contains terms, definition of terms, descriptions of terms, nomenclature, and explanations of acronyms and symbols specifically associated with standards under the jurisdiction of ASTM Committee D01 on Paint and Related Coatings, Materials, and Applications; Subcommittee D01.36 on Cellulose and Cellulose Derivatives.

1.2 This terminology is divided into three classes as follows:

	Section
Cellulosic Materials and Constituents	3.1
Chemical Modifications and Derivatives of Cellulose	3.2
Properties of Cellulose and Associated Concepts that are applicable to both Sections 3.1 and 3.2	3.3

2. Referenced Documents

2.1 The numerous ASTM Standards to which this standard applies are found in the *Annual Book of ASTM Standards*, Vol 06.03.

2.2 *TAPPI Standards:*[2]

TAPPI Method T 203 om-93 Alpha-, Beta- and Gamma-Cellulose in Pulp

3. Terminology

3.1 Cellulosic Materials and Constituents

acetylation pulps—pulps used in the manufacture of cellulose acetate or other esters, and subject to various specifications by the manufacturers, including those of purity, moisture content, sheet properties, and viscosity.

alpha-cellulose—(*1*) Historically, a term used to indicate the pure, relative undegraded cellulose found in pulps. (*2*) Alpha-cellulose content is often measured by TAPPI Method T 203 om-93 where alpha-cellulose is that portion of the pulp which does not dissolve under the test conditions.

alpha pulps—see **chemical cellulose**.

araban—a pentosan yielding essentially only arabinose on hydrolysis.

arabinogalactan—a polysaccharide consisting of arabinose and galactose units, like the water-soluble polysaccharide of larch.

arabinose—a pentose that occurs as one of the sugar units in some hemicelluloses.

arabinomethylglucuronoxylan—a hemicellulose containing arabinose, 4-O-methylglucuronic acid, and xylose groups in its structure.

beta-cellulose—(*1*) Historically, a term used to indicate impurities of moderate chain lengths found in pulps, predominately degraded cellulose. (*2*) Beta-cellulose content, as measured by TAPPI Method T 203 om-93, is the pulp fraction soluble in caustic, which precipitates upon acidification.

carbohydrates not cellulose—the noncellulosic carbohydrates of a cellulosic material.

cellophane pulps—pulps used in the manufacture of cellophane, and subject to various specifications by the manufacturers, including those of purity, moisture content, sheet properties, and viscosity.

cellulose—(*1*) the main solid constituent of woody plants; it occurs widely elsewhere in the vegetable kingdom, and to a small extent in the animal kingdom. (*2*) chemically, cellulose is β-1-4 glucan of high degree of polymerization. It is desirable to apply "cellulose" to this material only and to designate the predominantly cellulosic residue obtained by subjecting woody tissues to various pulping processes as "cellulosic residues," "cellulosic pulps," or the like.

cellulose I—the crystalline modification of cellulose that normally occurs in nature.

cellulose II—the crystalline modification of cellulose that is found in mercerized cellulose, in regenerated cellulose, and in cellulose produced by the hydrolysis of various cellulose derivatives.

cellulose III—a crystalline modification of cellulose produced by treatment, under certain conditions, with ammonia or

[1] This terminology is under the jurisdiction of ASTM Committee D01 on Paint and Related Coatings, Materials, and Applications and is the direct responsibility of Subcommittee D01.36 on Cellulose and Cellulose Derivatives.

Current edition approved June 1, 2012. Published August 2012. Originally approved in 1959. Last previous edition approved in 2007 as D1695 - 07. DOI: 10.1520/D1695-07R12.

[2] Available from Technical Association of the Pulp and Paper Industry (TAPPI), 15 Technology Parkway South, Norcross, GA 30092, http://www.tappi.org.

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