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*Index 2064*

# NBS Voluntary Product Standard

PS 30-70

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**INITIALS**

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of Standards

UNITED STATES DEPARTMENT OF COMMERCE

MAURICE H. STANS, *Secretary*

NATIONAL BUREAU OF STANDARDS • LEWIS M. BRANSCOMB, *Director*

**Voluntary Product Standard**

**PS 30-70**

**School Chalk**

Technical Standards Coordinator: J. W. Eisele

**Abstract**

This standard provides requirements for the dimensions, material, breaking strength, characteristics, toxicity, workmanship, and chroma (as applicable) for six types and several classes and grades of school chalk. Test methods for determining the material content, breaking strength, and chroma are provided. Standard packages are given, and methods for labeling to indicate compliance with the standard are provided.

Key words: Calcium carbonate; calcium sulfate; chalk; chroma; toxicity; whiting.

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## VOLUNTARY PRODUCT STANDARDS

*Voluntary Product Standards* are standards developed under procedures established by the Department of Commerce (15 CFR Part 10, as amended, May 28, 1970). The standards may include (1) dimensional requirements for standard sizes and types of various products, (2) technical requirements, and (3) methods of testing, grading, and marking. The objective of a *Voluntary Product Standard* is to establish requirements which are in accordance with the principal demands of the industry and, at the same time, are not contrary to the public interest.

### Development of a VOLUNTARY PRODUCT STANDARD

The Office of Engineering Standards Services of the National Bureau of Standards has been assigned by the Department of Commerce the responsibility to work closely with scientific and trade associations and organizations, business firms, testing laboratories, and other appropriate groups to develop *Voluntary Product Standards*. The Bureau has the following role in the development process: It (1) provides editorial assistance in the preparation of the standard; (2) supplies such assistance and review as is required to assure the technical soundness of the standard; (3) acts as an unbiased coordinator in the development of the standard; (4) sees that the standard is representative of the views of producers, distributors, and users or consumers; (5) seeks satisfactory adjustment of valid points of disagreement; (6) determines the compliance with the criteria established in the Department's procedures cited above; and (7) publishes the standard.

Industry customarily (1) initiates and participates in the development of a standard; (2) provides technical counsel on a standard; and (3) promotes the use of, and support for, the standard. (A group interested in developing a *Voluntary Product Standard* may submit a written request to the Office of Engineering Standards Services, National Bureau of Standards, Washington, D.C. 20234.)

A draft of a proposed standard is developed in consultation with interested trade groups. Subsequently, a Standard Review Committee is established to review the proposed standard. The committee, appropriately balanced, includes qualified representatives of producers, distributors, and users or consumers of the product being standardized. When the committee approves a proposal, copies are distributed for industry consideration and acceptance. When the acceptances show general industry agreement, and when there is no substantive objection deemed valid by the Bureau, the Bureau announces approval of the *Voluntary Product Standard* and proceeds with its publication.

### Use of a VOLUNTARY PRODUCT STANDARD

The adoption and use of a *Voluntary Product Standard* is completely voluntary. *Voluntary Product Standards* have been used most effectively in conjunction with legal documents such as sales contracts, purchase orders, and building codes. When a standard is made part of such a document, compliance with the standard is enforceable by the purchaser or the seller along with other provisions of the document.

*Voluntary Product Standards* are useful and helpful to purchasers, manufacturers, and distributors. Purchasers may order products that comply with *Voluntary Product Standards* and determine for themselves that their requirements are met. Manufacturers and distributors may refer to the standards in sales catalogs, advertising, invoices, and labels on their product. Commercial inspection and testing programs may also be employed, together with grade labels and certificates assuring compliance, to promote even greater public confidence. Such assurance of compliance promotes better understanding between purchasers and sellers.

Voluntary Product Standard PS 30-70

Supersedes chalk portions of Commercial Standard CS 130-60 and Simplified Practice Recommendation R 192-63

School Chalk

Effective July 31, 1970. (See section 6.)

(This voluntary Standard, initiated by the Crayon, Water Color, and Craft Institute, has been developed under the *Procedures for the Development of Voluntary Product Standards*, published by the U.S. Department of Commerce. See Section 7, *History of Project*, for further information.)

1. PURPOSE

The purpose of this Voluntary Product Standard is to establish nationally recognized sizes and significant quality requirements for school chalk. The Standard is intended to provide producers, distributors, and users with a basis for common understanding of the characteristics of this product.

2. SCOPE AND CLASSIFICATION

2.1. **Scope**—This Voluntary Product Standard provides requirements for the dimensions, material, breaking strength, characteristics, toxicity, workmanship, and chroma for standard types, classes, and grades of school chalk. Test methods for determining the material content, breaking strength, and chroma are provided. Methods for identifying products conforming to the requirements of this Standard are included. Information on packaging practices is included as an appendix.

2.2. **Classification**—This Standard covers the types, classes, and grades of school chalk shown in table 1. Types I through IV are for use on chalkboards; types V and VI are for use on paper and craft materials.

TABLE 1. Classifications of school chalk

Type of chalk	Class	Grade
I Colored dustless, chalkboard		
II Sightsaving dustless, chalkboard	1—Regular 2—Large	
III White dustless, chalkboard	1—Regular 2—Large	A or B (See table 2) A or B (See table 2)
IV White molded, chalkboard, plain or enameled finish		
V Colored dustless, paper and craft materials	1—Pastel 2—Regular 3—Lecturer 3a—regular 3b—large	
VI Colored molded, paper and craft materials	1—Regular 2—Large 3—Lecturer 3a—regular 3b—large	

### 3. REQUIREMENTS

**3.1. General**—Any chalk represented as complying with this Voluntary Product Standard shall meet all of the requirements specified herein.

**3.2. Dimensions and characteristics**—The chalk shall be of the dimensions and possess the characteristics shown in table 2.

**3.3. Material**—The chalk shall be made of such materials as to insure compliance with the requirements of this Standard. Additional material requirements shall be as specified in table 2 when tested in accordance with 4.1.

**3.4. Breaking strength**—The chalk shall have the minimum breaking strength specified in table 2 when tested in accordance with 4.2.

**3.5. Toxicity**—The chalk shall contain no quantities of toxic materials that may cause personal harm as a result of any reasonably foreseeable handling or use, including reasonably foreseeable ingestion by children. Advice concerning the appropriateness of specific materials may be obtained by writing to the Food and Drug Administration, Department of Health, Education, and Welfare, 200 C Street, SW., Washington, D.C. 20204.

**3.6. Workmanship**—The chalk shall be free from grit, hard spots, and sandy abrasives.

**3.7. Chroma**—The minimum chroma notations for chalk types V and VI shall be either Munsell book notations or Munsell renotations, as specified in table 3 or table 4, when tested in accordance with 4.3. The Munsell book notations were obtained from the *Munsell Book of Color*, 1942 matte edition, and apply closely also to any edition between 1938 and 1949. If the colors are notated by means of these books, refer to the requirements given as Munsell book notations. Between 1950 and 1965 the matte editions of the *Munsell Book of Color* were in the course of being adjusted to agree with the Munsell renotations. These editions should not be used to check conformity to the chroma requirements. Beginning with the first glossy edition in 1955 and after 1965 for the matte edition, the colors were completely adjusted to agree with the renotations. If the colors are notated by comparison with the color chips in these recent editions of the *Munsell Book of Color*, refer to the requirements given as Munsell renotations.

TABLE 2. Requirements for school chalk

Type	Class	Grade	Minimum dimensions of chalk sticks (by class)		Material	Minimum breaking strength (pounds force)	Characteristics
			Cross-section <sup>a</sup> (inches)	Length (inches)			
I			3/8 rd	2 3/4	Whiting, pigments, other essential material. <sup>b</sup>	4	Shall have a soft, velvety texture and shall render a marking, which can be easily erased, on any chalkboard.
II	1		3/16 rd	3 3/16	Not less than 85% by weight calcium carbonate, appropriate pigments, other essential material. <sup>b</sup>	5	
	2		5/8 rd	3 1/4			
III	1	A or B	3/8 rd, hex, or sq	3 3/16	Calcium carbonate by weight as follows: Grade A 85% min. Grade B 50% min. other essential material. <sup>b</sup>	5	Shall have a soft, velvety texture and shall render a marking, which can be easily erased, on any chalkboard.
	2	A or B	5/8 rd	3 1/4			
IV			7/16 tapered to 3/8 rd, or 3/8 rd	3 1/8	Not less than 90% by weight calcium sulfate, other essential material. <sup>b</sup>	2	
V	1		1/4 rd, hex, or sq	2	Pigments, inert fillers, other essential material. <sup>b</sup>	1	Shall have a soft, velvety texture.
	2		3/8 rd	2 3/4			
	3		1/2 sq	3			
	3b		1 sq	3			

TABLE 2. Requirements for school chalk (continued)

Type	Class	Grade	Minimum dimensions of chalk sticks (by class)		Material	Minimum breaking strength (pounds force)	Characteristics
			Cross-section <sup>a</sup> (inches)	Length (inches)			
VI	1		$\frac{1}{16}$ tapered to $\frac{3}{8}$ rd, or $\frac{3}{8}$ rd	3 $\frac{3}{8}$	Pigments, calcium sulfate, other essential material. <sup>b</sup>	1	Shall have a soft, velvety texture.
	2		1 tapered to $\frac{1}{8}$ rd	3			
	3		$\frac{1}{2}$ sq	3			
	3a		1 sq	3			
	3b		1 sq	3			

1 inch equals 25.4 millimeters

<sup>a</sup> Hexagonal (hex) cross section refers to the distance between opposite flat sides of the chalk. Round (rd) cross section refers to the diameter.

<sup>b</sup> See 3.3, page 2.

TABLE 3. *Minimum Munsell<sup>a</sup> chroma notations for type V, colored dustless chalk*

Common color name	ISCC-NBS <sup>b</sup> hue designation	Chroma notation	
		Type V Munsell book notation	Type V Munsell renotation <sup>c</sup>
Blue (ultramarine)	strong blue	14.0	11.8
Blue green	strong greenish blue	8.5	8.7
Blue violet	vivid violet	12.5	13.2
Brown (burnt umber)	moderate brown	4.5	4.9
Burnt sienna	dark reddish orange	10.0	9.2
Dark blue (Prussian)	strong blue	11.5	9.7
Dark green	moderate green	6.0	6.6
Dark red (Indian)	moderate reddish brown	6.0	6.4
Green	moderate yellowish green	4.5	5.0
Light red (pink)	deep purplish pink	13.3	11.8
Magenta	vivid reddish purple	14.5	14.9
Orange	strong orange	14.0	13.7
Peach (flesh)	moderate pink	5.5	5.3
Red	vivid red	13.5	13.5
Red orange	strong red	12.0	12.3
Red violet	strong reddish purple	10.0	10.4
Turquoise blue	brilliant greenish blue	7.5	7.5
Violet	strong violet	8.0	9.4
Yellow	brilliant greenish yellow	9.0	9.0
Yellow green	light yellow green	6.5	6.6
Yellow orange	vivid yellow	14.0	14.1

<sup>a</sup> An explanation of the use of the Munsell chroma notation is given in the booklet, *A Color Notation*. The Munsell notation of a chalk color is determined from the *Munsell Book of Color (Matte Edition)*. Both of these documents are available from the Munsell Color Company, Inc., 2441 N. Calvert Street, Baltimore, Md. 21218.

<sup>b</sup> *The Inter-Society Color Council—National Bureau of Standards Method of Designating Colors and a Dictionary of Color Names*.

<sup>c</sup> Munsell renotations interpolated from Munsell book notation and *Journal of the Optical Society of America*, July 1943.

TABLE 4. Minimum Munsell<sup>a</sup> chroma notations for type VI, colored molded chalk

Common color name	ISCC-NBS <sup>b</sup> hue designation	Chroma notation	
		Type VI Munsell book notation	Type VI Munsell renotation <sup>c</sup>
Blue (ultramarine)	strong purplish blue	14.5	12.0
Blue green	strong bluish green	7.5	7.9
Blue violet	strong violet	11.5	12.3
Brown (burnt umber)	strong brown	5.0	5.4
Burnt sienna	moderate reddish brown	5.5	6.5
Dark blue (Prussian)	strong blue	12.0	9.5
Dark green	strong green	9.0	9.3
Dark red (Indian)	moderate reddish orange	10.0	9.6
Green	light green	5.0	5.9
Magenta	vivid purplish red	14.0	13.9
Orange	moderate orange	10.0	10.0
Peach (flesh)	moderate yellowish pink	5.5	5.2
Red	strong red	12.5	12.1
Red orange	strong red	12.0	12.4
Red violet	strong reddish purple	12.0	12.6
Tuquoise blue	brilliant greenish blue	8.0	8.2
Violet	strong violet	10.0	11.2
Yellow	brilliant yellow	9.0	8.7
Yellow green	strong yellow green	9.5	9.5
Yellow orange	moderate orange yellow	9.5	9.3

<sup>a</sup> An explanation of the use of the Munsell chroma notation is given in the booklet, *A Color Notation*. The Munsell notation of a chalk color is determined from the *Munsell Book of Color (Matte Edition)*. Both of these documents are available from the Munsell Color Company, Inc., 2441 N. Calvert Street, Baltimore, Md. 21218.

<sup>b</sup> *The Inter-Society Color Council—National Bureau of Standards Method of Designating Colors and a Dictionary of Color Names*.

<sup>c</sup> Munsell renotations interpolated from Munsell book notation and *Journal of the Optical Society of America*, July 1943.

#### 4. INSPECTION AND TEST PROCEDURES

##### 4.1. Material—

4.1.1. **Calcium carbonate**—The calcium carbonate content of the chalk shall be determined in accordance with the applicable provisions of American Society for Testing and Materials (ASTM) Designation C 25-67, *Standard Methods of Chemical Analysis of Limestone, Quicklime, and Hydrated Lime*.<sup>1</sup>

4.1.2. **Calcium sulfate**—The calcium sulfate content of the chalk shall be determined in accordance with the applicable provisions of ASTM Designation C 471-66, *Standard Methods for Chemical Analysis of Gypsum and Gypsum Products*,<sup>1</sup> and reported as CaSO<sub>4</sub>·2H<sub>2</sub>O.

4.2. **Breaking strength**—Remove all wrappers from the specimen. Support the specimen in a horizontal position using two 1/4-inch-diameter rods placed 1/2 inch from the ends of the specimen. Gradually apply the test load specified in table 2 in a vertical direction at the midpoint of the specimen using a 1/4-inch-diameter

<sup>1</sup> Later issues of ASTM publications may be used, provided the requirements are equivalent to those specified in the issues designated. Copies of ASTM publications are available from the American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pa. 19103.

rod. Maintain the test load for 10 seconds. (While various methods may be used for measuring the applied load, care must be taken to ensure that the load is applied directly to the chalk. A suggested method is to perform the test on a scale.)

4.3. **Chroma**—The chroma shall be determined by making a solid rubout with the chalk being tested on drawing paper and referencing it to the *Munsell Book of Color (Matte Edition)*.<sup>2</sup>

## 5. IDENTIFICATION

In order that purchasers may identify products conforming to all requirements of this Voluntary Product Standard, producers and distributors may include a statement of compliance in conjunction with their name and address on product labels, invoices, sales literature, and the like. The following statement is suggested when sufficient space is available:

This chalk conforms to all of the requirements for Type \_\_, Class \_\_, Grade \_\_, (as appropriate), established in Voluntary Product Standard PS 30-70,<sup>2</sup> developed cooperatively with the industry and published by the National Bureau of Standards under the *Procedures for the Development of Voluntary Product Standards* of the U.S. Department of Commerce. Full responsibility for the conformance of this product to the standard is assumed by (name and address of producer or distributor).

The following abbreviated statement is suggested when available space on labels is insufficient for the full statement:

Conforms to Type \_\_, Class \_\_, Grade \_\_, (as appropriate), of PS 30-70, (name and address of producer or distributor).

## 6. EFFECTIVE DATE

The effective date of this Voluntary Product Standard is the date upon which reference to the Standard may be made by producers, distributors, users and consumers, and other interested parties. Compliance by producers with all of the requirements of this Voluntary Product Standard may not actually occur until some time after its effective date. Products shall not be represented as conforming to this Voluntary Product Standard until such time as all requirements established in the Standard are met. The effective date of this Standard is July 31, 1970.

## 7. HISTORY OF PROJECT

**First edition**—On April 7, 1943, the Crayon, Water Color and Craft Institute, Inc., requested the assistance of the Department of Commerce in the establishment of a commercial standard for

<sup>2</sup> Available from the Munsell Color Company, Inc., 2441 N. Calvert St., Baltimore, Maryland 21218. A matte edition is recommended; however, a glossy edition may be used.

color materials for art education in schools. It included requirements for the size, working properties, chroma and packaging of crayons, water colors, tempera, chalk, and modeling clay. With the cooperation of the industry, Commercial Standard CS 130-46 was developed and became effective on January 1, 1946.

**First revision**—On October 4, 1957, the previous proponent submitted a draft of a proposed revision of CS 130-46. The revision reflected developments within the industry since the original standard had been published and included new requirements for finger paint. The effective date of this revision, CS 130-60, was December 30, 1960.

**Current revision**—A request for a revision of CS 130-60 was received again from the Crayon, Water Color and Craft Institute, Inc., in October 1962. That request was for the inclusion of school paste and block printing inks. While coordination of this revision was underway, the proponent suggested that the chalk portion of CS 130-60 should also be updated. The entire project was reviewed in late 1967, and it was then deemed appropriate to combine the requirements of CS 130-60 and Simplified Practice Recommendation R 192-63, *Crayons, Chalks, and Related Art Materials for School Use*, and to develop individual standards for chalk, school paste, and paints and block printing inks.

The proposed Voluntary Product Standard for school chalk was approved by the reconstituted Standing Committee on October 15, 1969. This recommended Voluntary Product Standard was widely circulated on February 3, 1970, to producers, distributors, users, and others interested in the product, to determine its acceptability.

The responses returned to the National Bureau of Standards indicated a consensus of acceptability, as defined in the *Procedures for the Development of Voluntary Product Standards*. On July 1, 1970, the Voluntary Product Standard, PS 30-70, *School Chalk*, was approved for publication by the National Bureau of Standards to be effective July 31, 1970.

*Technical Standards Coordinator:*

J. W. Eisele, Office of Engineering Standards Services,  
National Bureau of Standards

## 8. STANDING COMMITTEE

The individuals whose names are listed below constitute the membership of the Standing Committee for this Standard. The function of the committee is to review all proposed revisions and amendments in order to keep this Standard up to date. Comments concerning this Standard and suggestions for its revision may be addressed to any member of the committee or to the Office of Engineering Standards Services, National Bureau of Standards, Washington, D.C. 20234 which acts as secretary for the committee.

*Representing Producers*

Elizabeth Clarkson (Chairman), The Crayon, Water Color and Craft Institute, Inc., Newtown, Connecticut 06470

John Wolfe, M. Grumbacher, Inc., New York, New York 10001  
John Gormley, American Art Clay Company, Inc., Indianapolis,  
Indiana 46222

### *Representing Distributors*

D. McCurrach, National School Supply and Equipment Association, Chicago, Illinois 60603  
L. P. Larson, Colburn School Supply Company, Grand Fork, North Dakota 58201  
George E. Curran, Pacesetter Learning Aids, Birmingham, Alabama 35208

### *Representing Users*

Irvin Brose, Educational Supplies & Equipment Administration, Baltimore City Public Schools, Baltimore, Maryland 21218  
Ray Charlson, Monterey County Superintendent of Schools, Monterey, California 93940  
Dagny Laughlin, 1012 St. Philips Street, New Orleans, Louisiana 70116  
Lawrence McVitty, Department of Art and Art Education, Indiana University of Pennsylvania, Indiana, Pennsylvania 15701  
Kermit L. Swenson, Arsenal Technical High School, Indianapolis, Indiana 46201  
E. Carey Kenney, Art Department, McDonough School, McDonough, Maryland 21208

## 9. ACCEPTORS

The manufacturers, distributors, users, and others listed below have individually indicated in writing their acceptance of this Voluntary Product Standard prior to its publication. The acceptors have indicated their intention to use this Standard as far as practicable but reserve the right to depart from it when necessary. The list is published to show the extent of recorded public support for this Standard.

## ASSOCIATIONS

Association of School Business Officials, Chicago, Illinois 60625  
Crayon, Water Color, and Craft Institute, Inc., The, Newton, Connecticut 06470  
National School Supply and Equipment Association, Chicago, Illinois 60603

## PRODUCERS

American Art Clay Company, Inc., Indianapolis, Indiana 46222  
American Crayon Company, The, Sandusky, Ohio 44870  
Binney & Smith, Inc., New York, New York 10017  
Carter's Ink Company, Crossville, Tennessee 38555  
Marsh Chalkboard Company, Dover, Ohio 44622  
Sargent Art, Division of the Mead Corporation, Hazleton, Pennsylvania 18201  
Weber Costello Company, Chicago, Illinois 60639

## DISTRIBUTORS

<p>American Visual Aids, Brooklyn, New York 11232          Bardeen's, Inc., Syracuse, New York 13201          Central School Supply Company, Louisville, Kentucky 40218          Colburn School Supply Company, Grand Forks, North Dakota 58701          Crocker, H. S., Inc., San Francisco, California 94108          Educator Supply Company, Mitchell, South Dakota 57301          Hammett, J. L., Company, Union, New Jersey 07088          Hershkowitz, J., Inc., Brooklyn, New York 11212</p>	<p>Hoosier Book &amp; Supply Company, Inc., Indianapolis, Indiana 46205          Latta, J. S., and Son, Cedar Falls, Iowa 50618          Martin School Equipment Company, Inc., Jackson, Mississippi 39205          Practical Drawing Company, Dallas, Texas 75222          Schmidt, Otto, and Son, Inc., New Hyde Park, New York 11040          School Specialty Supply, Inc., Salina, Kansas 67401          University Book Store, University of Utah, Salt Lake City, Utah 84112          Utah Idaho School Supply Company, Salt Lake City, Utah 84111</p>
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## USERS

<p>Anoka-Hennepin School District #11, Anoka, Minnesota 55308          Arsenal Technical High School, Indianapolis, Indiana 46201          Austin Independent School District, Austin, Texas 78752          Board of Education, Anne Arundel County, Arnold, Maryland 21012          Board of Education, Baltimore County, Towson, Maryland 21204          Board of Education, City of Chicago, Chicago, Illinois 60601          Board of Education, Elizabeth, New Jersey 07207          Board of Education, Hartford, Connecticut 06108          Board of Education, New Providence, New Jersey 07974          Board of Education, City of Peoria, Peoria, Illinois 61603          Board of Education, Philadelphia, Pennsylvania 19108          Board of Education, Trenton, New Jersey 08611          Board of Public Education, Pittsburgh, Pennsylvania 15213          Board of Public Instruction, Tampa, Florida 33601          Catawba College, Salisbury, North Carolina 28144          Cedar Rapids Community School District, Cedar Rapids, Iowa 52404          Chesterfield County Public Schools, Chesterfield, Virginia 23832          Cincinnati Public Schools, Cincinnati, Ohio 45206          City School District, Rochester, New York 14614          Clark County School District, Las Vegas, Nevada 89109          Cleveland Public Schools, Cleveland, Ohio 44114          Cranbrook, Bloomfield Hills, Michigan 48013          Culver Military Academy, Culver, Indiana 46511          Dade County Public Schools, Miami, Florida 33134          Dayton Public Schools, Dayton, Ohio 45427          Des Moines Independent Community School District, Des Moines, Iowa 50307          Dutch Broadway School, Elmont, New York 11008          Edmonds School District #15, Lynnwood, Washington 98036          Educational Supplies &amp; Equipment Administration, Baltimore, Maryland 21218          Fall River Schools, Fall River, Massachusetts 02720          Fremont Unified School District, Fremont, California 94538          Grand Rapids Board of Education, Grand Rapids, Michigan 49502          Hathboro-Horsham School District, Horsham, Pennsylvania 19044          Indiana University of Pennsylvania, Indiana, Pennsylvania 15701          Indianapolis Public Schools, Indianapolis, Indiana 46204</p>	<p>Kanawha County Schools, Charleston, West Virginia 25311          Lansing School District, Lansing, Michigan 48910          Muscogee County School District, Columbus, Georgia 31906          Newport News School System, Newport News, Virginia 23606          Norfolk City Schools, Norfolk, Virginia 23510          Oakland Public Schools, Oakland, California 94601          Orange Unified School District, Orange, California 92666          Orleans Parish School Board, New Orleans, Louisiana 70116          Phoenix Union High School District, Phoenix, Arizona 85004          Plainedge High School, North Massapequa, New York 11758          Principia Upper School, St. Louis, Missouri 63131          Public Education Department, Hato Rey, Puerto Rico 00919          Rapides Parish School Board, Alexandria, Louisiana 71301          Rhode Island State Division of Purchases, Providence, Rhode Island 02908          Richland County School District One, Columbia, South Carolina 29201          Riverside Unified School District, Riverside, California 92501          Sacramento City Unified School District, Sacramento, California 95810          San Jose Unified School District, San Jose, California 95114          San Juan Unified School District, Carmichael, California 95608          School District of the City of Pontiac, Pontiac, Michigan 48058          Shelby County Board of Education, Memphis, Tennessee 38117          Smiley, John H., Educational Development Center, Daytona Beach, Florida 32015          South Bend Community School Corporation, South Bend, Indiana 46623          Spokane Public School District No. 81, Spokane, Washington 99201          Stockton Unified School District, Stockton, California 95202          Syracuse University, Syracuse, New York 13210          Toledo Board of Education, Toledo, Ohio 43608          Torrance Unified School District, Torrance, California 90509          Tucson Public Schools, Tucson, Arizona 85717          University of Nevada, Reno, Nevada 89507          University of Tennessee, Chattanooga, Tennessee 37403          Virginia Beach City Schools, Virginia Beach, Virginia 23456          Washoe County School District, Reno, Nevada 89502          Worcester Public Schools, Worcester, Massachusetts 01609</p>
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## GENERAL INTEREST

United States Testing Company, Inc., Hoboken, New Jersey 07080      University of Colorado, Boulder, Colorado 80302

### STATE AND LOCAL GOVERNMENTS

Bureau of Standards, Department of Property & Supplies, Harrisburg, Pennsylvania 17125      New Hampshire State Department of Education, Concord, New Hampshire 03301  
 General Services, Bureau of Procurement, Washington, D.C. 20001

## APPENDIX

### PACKAGING

Packaging practices for school chalk are given in table A1.

TABLE A1. *Standard packages of school chalk*

Type	Class	Box type <sup>a</sup>	Sticks per box
I		1 or 2	12, 36, or 144
II and III	all	1 or 2	12, 36, or 48 in a primary box with 4 or 12 primary boxes in a secondary box, or 144 in a box
IV		1 or 2	144
V	1 2 3a 3b	2 1 or 2 1 or 2 1 or 2	12, 24, or 48 8, 12, 24, or 144 8, 12, 24, or 72 12 or 72
VI	1 2 3a 3b	1 or 2 1 or 2 2 2	12, 24, 72, or 144 8, 12, 36, or 72 8, 12, 24, or 72 6, 12, or 72

<sup>a</sup> Type 1 box (folding box)—A flexible box available in various styles consisting of as many pieces as necessary to provide adequate packaging. Type 2 box (set-up-box)—A rigid box, generally having a removable top.