

Technical Data

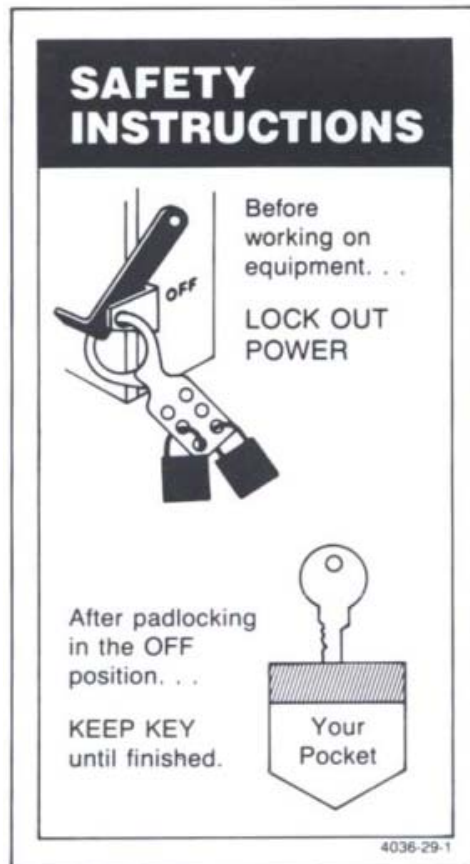
The Link-Belt screw conveyor layout, engineering and component selection information in this section is provided to assist you in the selection of the proper conveyor components for your particular material handling requirement. It has been compiled during the many years of experience designing numerous and varied screw conveyor installations, and includes detailed information on all Link-Belt standard screw conveyor components and accessories.

The data and formulas presented permit easy selection of the necessary components for handling materials under normal operating conditions by horizontal screw conveyors and screw feeders.

Where unusual applications or severe operating conditions are a factor or where there is doubt concerning the correct selection, contact FMC Conveyor Equipment Division, Tupelo, MS to assist you with additional information.

For prompt delivery, many of these components are carried in inventory at our authorized FMC Stocking Distributor locations and at our manufacturing facility in Tupelo, Mississippi.

Portions of Engineering and Component Selection sections are reproduced from Conveyor Equipment Manufacturers Association CEMA books 300 and 350. CEMA Book 350 contains comprehensive screw conveyor reference material. Book 300 contains screw conveyor dimensional standards.



CAUTION: Link-Belt Screw Conveyors and components must be installed, operated and maintained in accordance with accompanying FMC Service Instructions. Failure to follow these instructions can result in serious personal injury, property damage or both.

FMC Service Instructions accompany the shipment of equipment. If additional copies of Service Instructions are required, they are available free of charge from FMC Corporation, Conveyor Equipment Division, Box 1370, Tupelo, Mississippi 38802.



layout information

Layout Data

Use the conveyor layout on page 22 when selecting components. This layout is based on using regular, or odd length screws and troughs at the tail end of the conveyor and regular length screws and troughs for the drive and intermediate sections. Hangers are located at the trough joints.

The drive shafts that provide a nominal clearance between the ends of the conveyor screws and the trough end are designated as Type A shafts.

The drive and tail end shafts that are long enough to permit a clearance between the ends of the conveyor screws and the trough ends equal to approximately one-half the hanger bearing length are designated as Type B shafts.

Conveyor screws • Regular and half length conveyor screws, listed in Table 1 on page 22, should be used to obtain the required total screw length. The face of the screw, which moves the material being conveyed, is free of lugs for unimpeded flow. To maintain this condition, do not reverse rotation without turning the conveyor screws end for end, or conversely, do not turn the conveyor screws end for end without reversing rotation. Conveyor screws for reversible operation can be furnished for specific requirements. Flighting should be omitted over the last discharge opening. Flight ends at hanger locations should be set opposite to each other for continuous flow of material across the hanger space.

Selection of hand of screw • Refer to Figure A for selection of right or left hand conveyor screws. This drawing indicates the hand of conveyor screw to use when direction of rotation and material travel are known. If the edge of the flight on the near side of the conveyor screw slopes downward to the right, the conveyor screw is right hand, and if it slopes downward to the left, the conveyor screw is left hand.

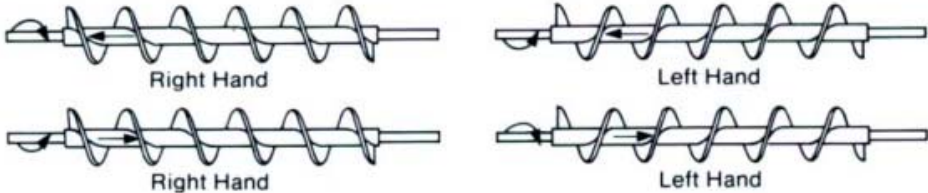


Figure A

layout information

Screw Conveyors

Screw conveyors are made with either helicoid or sectional flighting of various thicknesses in a wide range of sizes in both right-hand and left-hand

assemblies. The conveyor screws and troughs are made in regular lengths, but can also be furnished in odd lengths to suit requirements.

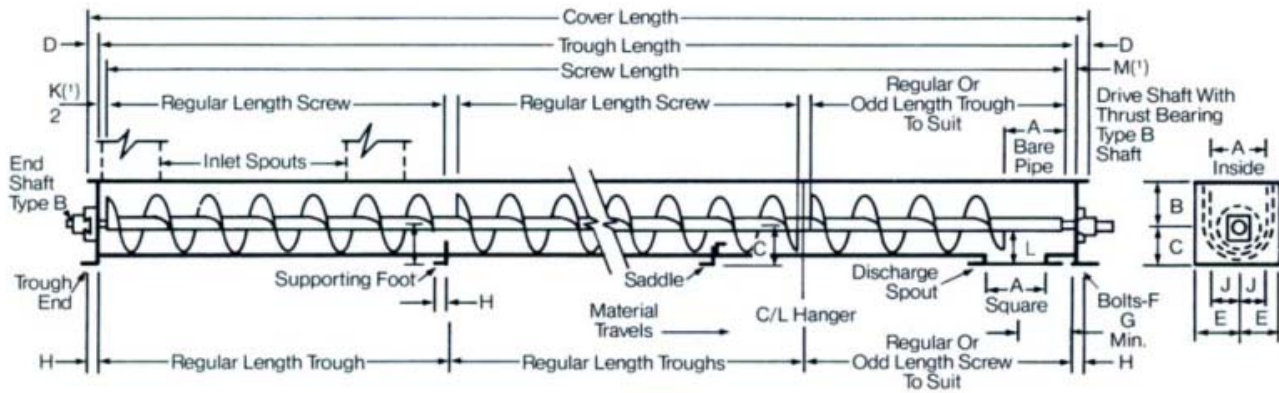


Figure B

Table 1 Layout Using No. 216, 220, 226, 270, 316, or 326 Hangers

Screw Dia.	Shaft and Coupling Dia.	Conveyor Screw				Conveyor Trough		M(1)														M(1)			
		Regular Length		Half Length		Reg. Length	Half Length	A	B	C	D	E	F (2)	G	H	J (2)	K	L	Steel Plate Trough End		Drive Shaft Trough End				
		Screw Length	Hanger Centers	Screw Length	Hanger Centers														Plain Drive Shaft	Drive Shaft With Bronze Thrust Bearing	Ball Bearing	Roller Bearing			
Inches		Feet and Inches						Inches																	
4	1	9-10½	10-0	4-10½	5-0	10-0	5-0	5	3⅞	4⅞	1½	3⅞	⅜	6	1	2⅞	1½	3¾	¾	—	—	—			
6	1½	9-10	10-0	4-10	5-0	10-0	5-0	7	4½	5⅞	1½	4⅞	⅜	7½	1	4⅞	2	5	1	1	1	1			
9	1½ 2	9-10 9-10	10-0 10-0	4-10 4-10	5-0 5-0	10-0 10-0	5-0 5-0	10	6⅞	7⅞	1⅞	6⅞	½	10	1½	4⅞	2	7⅞	1	1	1	1			
10	1½ 2	9-10 9-10	10-0 10-0	4-10 4-10	5-0 5-0	10-0 10-0	5-0 5-0	11	6⅞	8⅞	1¾	7⅞	½	11	1¾	4¾	2	7⅞	1	1	1	1			
12	2 2⅞ 3	11-10 11-9 11-9	12-0 12-0 12-0	5-10 5-9 5-9	6-0 6-0 6-0	12-0 12-0 12-0	6-0 6-0 6-0	13	7¾	9⅞	2	8⅞	⅞	12½	1⅞	6⅞	3	8⅞	1½	1½	1½	1½			
14	2⅞ 3	11-9 11-9	12-0 12-0	5-9 5-9	6-0 6-0	12-0 12-0	6-0 6-0	15	9¼	10⅞	2	9⅞	⅞	13½	1⅞	6¾	3	10⅞	1½	1½	1½	1½			
16	3	11-9	12-0	5-9	6-0	12-0	6-0	17	10⅞	12	2½	10⅞	⅞	14½	2	7⅞	3	11⅞	1½	1½	1½	1½			
18	3 3⅞	11-9 11-8	12-0 12-0	5-9 5-8	6-0 6-0	12-0 12-0	6-0 6-0	19	12⅞	13⅞	2½	12⅞	⅞	16½	2	8	3	12⅞	1½	1½	1½	1½			
20	3 3⅞	11-9 11-8	12-0 12-0	5-9 5-8	6-0 6-0	12-0 12-0	6-0 6-0	21	13½	15	2½	13⅞	¾	17½	2¼	9⅞	3	13⅞	1½	1½	1½	1½			
24	3⅞	11-8	12-0	5-8	6-0	12-0	6-0	25	16½	18⅞	2½	15⅞	¾	20	2½	10	4	15⅞	2	2	2	2			

(1) Varies slightly when drive shaft assemblies with thrust provisions are provided.
 (2) Dimensions same for trough ends, supporting feet and saddles.

layout information

Hangers - Hangers are located between conveyor screw sections. No. 216, 220, 226, 270, 316 and 326 hangers are located at trough joints in Figure B, page 22. All hangers should clear inlet and discharge openings.

Trough ends - The drive shaft or end shaft, depending on the direction of material travel, should have a thrust bearing to maintain clearance between the conveyor screws and hangers, and the conveyor screws and trough ends. This prevents excessive wear of operating parts and reduces power consumption. The preferred location for the thrust bearing is at the end of the conveyor, because the conveyor pipes and couplings will then be in tension during operation.

Drive shaft trough ends of either the double ball bearing or double roller bearing type will accommodate radial loads and thrust loads in either direction. The radial or overhung load usually consists of a shaft-mounted speed reducer drive or a chain drive connected to a power source.

Plain trough ends require auxiliary end thrust provision. Depending upon the direction of the thrust, either the drive or end shaft should have a bronze thrust bearing.

Seals - Trough end seals are used for additional protection for or against the material being handled, or to protect

and preserve the trough end bearings and shafts when handling abrasive or corrosive materials.

Troughs - Regular and half length troughs, listed in Table 1, page 22, should be used to obtain the required total trough length. Whenever possible, supporting feet should be used at the trough joints, otherwise, use saddles as needed. Supporting feet located at the ends of the conveyor will allow removal of the trough ends without disturbing trough alignment.

Covers - Covers are made with joints located at the hangers. Protective seals between the troughs and covers are easily applied when No. 216, 226, 270, 316, and 326 hangers are used. Inlet openings in the covers should clear hangers.

Drives - Drives should preferably be located at the discharge end of the conveyor in order to keep the conveyor screws and couplings in tension.

Assembly Bolts - Table 2 provides a guide to the quantities and sizes of bolts required to assemble a screw conveyor. Bolts are listed for each type of hanger, for each shroud, for each trough joint or trough end, and for 10 foot and 12 foot long sections of bolted cover.

Assembly bolts for No. 316 and No. 326 hangers are furnished with hanger assemblies.

Screw Conveyors

Many bulk materials are handled easily and efficiently in screw conveyors. However, to insure the best possible selection of components, it is recommended that consideration be given to the physical, chemical and handling characteristics of all materials.

The essential characteristics include size, flowability and abrasiveness of the materials. Other characteristics, such as contamination, corrosiveness, degradability, fluffiness, etc., may influence the handling and should be given consideration. Consideration should also be given to materials which may assume different characteristics under certain conditions of processing, atmosphere, age or storage. Many of the more common materials are classified in the Material Characteristics Table 4, pages 26 thru 34, and are given as a guide in selecting the proper components. Materials not appearing in the list can be classified by comparison with similar materials or by establishing a classification using the Material Classification Code Chart Table 3, page 25.

The delivery of material to a screw conveyor must be at a controlled and fairly uniform rate.

Table 2 Assembly Bolts for Installing Screw Conveyor Components

Screw Diameter, Inches	Bolt Sizes, Inches								
	No. 216 Hanger ⁽¹⁾	No. 220 Hanger ⁽¹⁾	No. 226 Hanger ⁽¹⁾	No. 270 Hanger ⁽¹⁾	Trough Assembly	Shroud	Trough End Assembly	Cover	
								10 Foot ⁽⁴⁾	12 Foot ⁽⁵⁾
4	—	—	¼ x ¾	—	¾ x 1 ⁽²⁾	¾ x ¾ ⁽¹⁾	¾ x 1 ⁽²⁾	¾ x ¾	—
6	¾ x 1	¾ x 1	¾ x 1	¾ x 1	¾ x 1 ⁽²⁾	¾ x ¾ ⁽²⁾	¾ x 1 ⁽²⁾	¾ x ¾	—
9	¾ x 1¼	¾ x 1	¾ x 1¼	¾ x 1¼	¾ x 1 ⁽²⁾	¾ x 1 ⁽²⁾	¾ x 1 ⁽²⁾	¾ x ¾	—
10	¾ x 1¼	¾ x 1	¾ x 1¼	¾ x 1¼	¾ x 1 ⁽²⁾	¾ x 1 ⁽²⁾	¾ x 1 ⁽²⁾	¾ x ¾	—
12	½ x 1½	½ x 1¼	½ x 1½	½ x 1½	½ x 1¼ ⁽³⁾	¾ x 1 ⁽²⁾	½ x 1¼ ⁽²⁾	—	¾ x ¾
14	½ x 1½	½ x 1¼	½ x 1½	½ x 1½	½ x 1¼ ⁽¹⁰⁾	¾ x 1 ⁽²⁾	½ x 1¼ ⁽¹⁰⁾	—	¾ x ¾
16	½ x 1½	½ x 1¼	½ x 1½	½ x 1½	¾ x 1¼ ⁽¹⁰⁾	¾ x 1 ⁽²⁾	¾ x 1¼ ⁽¹⁰⁾	—	¾ x ¾
18	¾ x 1¾	¾ x 1½	¾ x 1¾	¾ x 1¾	¾ x 1¼ ⁽⁴⁾	¾ x 1 ⁽²⁾	¾ x 1¼ ⁽⁴⁾	—	½ x 1
20	¾ x 1¾	—	—	¾ x 1¾	¾ x 1¼ ⁽⁴⁾	¾ x 1 ⁽²⁾	¾ x 1¼ ⁽⁴⁾	—	½ x 1
24	¾ x 1¾	—	—	¾ x 1¾	¾ x 1¼ ⁽⁴⁾	¾ x 1 ⁽²⁾	¾ x 1¼ ⁽⁴⁾	—	½ x 1

(¹) Four bolts (⁴) Ten bolts (⁷) Sixteen bolts (¹⁰) Eight bolts for U-Trough & ten bolts for Flared Trough
 (²) Six bolts (⁵) Twelve bolts (⁸) Eighteen bolts
 (³) Eight bolts (⁶) Fourteen bolts (⁹) Twenty bolts

layout information

Special applications

Occasionally the characteristics of the material being handled are such that other than conventional or regular equipment is required for the purpose, such as:

1. When the materials are extremely hot, the screws and troughs may be made of high temperature alloy metals.
2. If the materials are sticky or viscous, ribbon flight conveyor screws may be the choice. Furthermore, special coatings applied to the screws and troughs may also aid the flow of the material.
3. Extremely abrasive materials may require screws and troughs made of abrasion resistant metals or the screws may be provided with hard surfaced flights.
4. When the materials are corrosive, it may be desirable to make the conveyor screws and troughs of stainless steel, Monel metal, nickel, aluminum, etc.
5. If the materials are to be mixed or aerated, a conveyor screw of ribbon flights or cut flights, or one of these combined with paddles may be used to obtain the desired results.
6. Materials which are to be heated or cooled may require jacketed troughs arranged for circulating heating or cooling media.
7. Contaminable materials may require self-lubricated bearings and screw and trough construction which will eliminate pockets, cracks, etc. Such screws and troughs will prevent the accumulation of the material and facilitate easy cleaning.

How to select a horizontal screw conveyor

Consider the following factors when selecting a horizontal screw conveyor:

Kind and character of material being handled, such as: size, flowability, abrasiveness, etc.

Weight of material in pounds per cubic foot.

Maximum rate at which material is handled in cubic feet per hour.

Maximum size of lumps in inches, average size of material and percentage of lumps in total volume.

Length of conveyor in feet.

material classification

Preface to Material Table

The Material Characteristics Table 4 lists a wide range of bulk materials that can be handled in screw conveyors. The table shows the first column the range of density that can be experienced in handling that material. The "as conveyed" density is not specifically shown but is often assumed to be at or near the minimum.

The next column shows the material code number. This consists of the average density, the usual size designation, the flowability number, the abrasive number followed by those material characteristics which are termed conveyability hazards.

The component series column refers to selection of conveyor components as used in Tables 9, 10, 11, & 12 on pages 39 and 40.

A very fine 100 mesh material with an average density of 50 lbs. per cubic foot that has average flowability and is moderately abrasive would have a material code 50A₁₀₀36. If this material was very dusty and mildly corrosive the number would be 50 A₁₀₀36LT.

The Material Factor is used in the horsepower formula to determine the horsepower to operate a horizontal screw conveyor. The calculation of horsepower is described on page 41.

The Material Characteristics Table is a guide only. The material code, and the material factor Fm are based on experience. A specific material sample may have properties that vary from those shown in the table. The range of densities will also vary depending on moisture content as well as its source.

Table 3 Material Classification Code Chart

Major Class	Material Characteristics Included	Code Designation
Density	Bulk Density, Loose	Actual lbs/ft ³
Size	Very Fine No. 200 Sieve (.0029") And Under No. 100 Sieve (.0059") And Under No. 40 Sieve (.016") And Under	A ₂₀₀ A ₁₀₀ A ₄₀
	Fine No. 6 Sieve (.132") And Under	B ₆
	Granular ½" And Under	C _½
	Granular 3" And Under	D ₃
	(¹)Lumpy Over 3" To Be Special X = Actual Maximum Size	D _x
Irregular Stringy, Fibrous, Cylindrical, Slabs, etc.	E	
Flowability	Very Free Flowing—Flow Function > 10	1
	Free Flowing—Flow Function > 4 But < 10	2
	Average Flowability—Flow Function > 2 But < 4	3
	Sluggish—Flow Function < 2	4
Abrasiveness	Mildly Abrasive—Index 1-17	5
	Moderately Abrasive—Index 18-67	6
	Extremely Abrasive— Index 68—416	7
Miscellaneous Properties Or Hazards	Builds Up and Hardens	F
	Generates Static Electricity	G
	Decomposes—Deteriorates in Storage	H
	Flammability	J
	Becomes Plastic or Tends to Soften	K
	Very Dusty	L
	Aerates and Becomes Fluid	M
	Explosiveness	N
	Stickiness-Adhesion	O
	Contaminable, Affecting Use	P
	Degradable, Affecting Use	Q
	Gives Off Harmful or Toxic Gas or Fumes	R
	Highly Corrosive	S
	Mildly Corrosive	T
	Hygroscopic	U
	Interlocks, Mats or Agglomerates	V
	Oils Present	W
Packs Under Pressure	X	
Very Light and Fluffy—May Be Windswept	Y	
Elevated Temperature	Z	

(¹) Refer to page 36 for lump size limitations.

material classification

Table 4 Material Characteristics				
Material	Weight lbs/ft ³	Material Code	Component Series	Mat'l. Factor Fm
Adipic Acid	45	45A ₁₀₀ 35	2B	.5
Alfalfa Meal	14-22	18B ₆ 45WY	2D	.6
Alfalfa Pellets	41-43	42C _{1/2} 25	2D	.5
Alfalfa Seed	10-15	13B ₆ 15N	1A-1B-1C	.4
Almonds, Broken	27-30	29C _{1/2} 35Q	2D	.9
Almonds, Whole Shelled	28-30	29C _{1/2} 35Q	2D	.9
Alum, Fine	45-50	48B ₆ 35U	1A-1B-1C	.6
Alum, Lumpy	50-60	55B ₆ 25	2A-2B	1.4
Alumina	55-65	58B ₆ 27MY	3D	1.8
Alumina Fines	35	35A ₁₀₀ 27MY	3D	1.6
Alumina Sized or Briquette	65	65D ₃ 37	3D	2.0
Aluminate Gel (Aluminate Hydroxide)	45	45B ₆ 35	2D	1.7
Aluminum Chips, Dry	7-15	11E45V	2D	1.2
Aluminum Chips, Oily	7-15	11E45V	2D	.8
Aluminum Hydrate	13-20	17C _{1/2} 35	1A-1B-1C	1.4
Aluminum Ore (See Bauxite)	—	—	—	—
Aluminum Oxide	60-120	90A ₁₀₀ 17M	3D	1.8
Aluminum Silicate (Andalusite)	49	49C _{1/2} 35S	3A-3B	.8
Aluminum Sulfate	45-58	52C _{1/2} 25	1A-1B-1C	1.0
Ammonium Chloride, Crystalline	45-52	49A ₁₀₀ 45FRS	3A-3B	.7
Ammonium Nitrate	45-62	54A ₄₀ 35NTU	3D	1.3
Ammonium Sulfate	45-58	52C _{1/2} 35FOTU	1A-1B-1C	1.0
Antimony Powder	—	A ₁₀₀ 35	2D	1.6
Apple Pomace, Dry	15	15C _{1/2} 45Y	2D	1.0
Arsenate of Lead (See Lead Arsenate)	—	—	—	—
Arsenic Oxide (Arsenolite) ⁽¹⁾	100-120	110A ₁₀₀ 35R	—	—
Arsenic Pulverized	30	30A ₁₀₀ 25R	2D	.8
Asbestos-Rock (Ore)	81	81D ₃ 37R	3D	1.2
Asbestos-Shredded	20-40	30E46XY	2D	1.0
Ash, Black Ground	105	105B ₆ 35	1A-1B-1C	2.0
Ashes, Coal, Dry — 1/2"	35-45	40C _{1/2} 46TY	3D	3.0
Ashes, Coal, Dry — 3"	35-40	38D ₃ 46T	3D	2.5
Ashes, Coal, Wet — 1/2"	45-50	48C _{1/2} 46T	3D	3.0
Ashes, Coal, Wet — 3"	45-50	48D ₃ 46T	3D	4.0
Ashes, Fly (See Fly Ash)	—	—	—	—
Ashphalt, Crushed — 1/2"	45	45C _{1/2} 45	1A-1B-1C	2.0
Bagasse	7-10	9E45RVXY	2A-2B-2C	1.5
Bakelite, Fine	30-45	38B ₆ 25	1A-1B-1C	1.4
Baking Powder	40-55	48A ₁₀₀ 35	1B	.6
Baking Soda (Sodium Bicarbonate)	40-55	48A ₁₀₀ 25	1B	.6
Barite (Barium Sulfate) + 1/2" — 3"	120-180	150D ₃ 36	3D	2.6
Barite, Powder	120-180	150A ₁₀₀ 35X	2D	2.0
Barium Carbonate	72	72A ₁₀₀ 45R	2D	1.6
Bark, Wood, Refuse	10-20	15E45TVY	3D	2.0
Barley, Fine, Ground	24-38	31B ₆ 35	1A-1B-1C	.4
Barley, Malted	31	31C _{1/2} 35	1A-1B-1C	.4
Barley, Meal	28	28C _{1/2} 35	1A-1B-1C	.4
Barley, Whole	36-48	42B ₆ 25N	1A-1B-1C	.5
Basalt	80-105	93B ₆ 27	3D	1.8
Bauxite, Dry, Ground	68	68B ₆ 25	2D	1.8
Bauxite, Crushed — 3"	75-85	80D ₃ 36	3D	2.5
Beans, Castor, Meal	35-40	38B ₆ 35W	1A-1B-1C	.8
Beans, Castor, Whole Shelled	36	36C _{1/2} 15W	1A-1B-1C	.5
Beans, Navy, Dry	48	48C _{1/2} 15	1A-1B-1C	.5
Beans, Navy, Steeped	60	60C _{1/2} 25	1A-1B-1C	.8

⁽¹⁾Consult FMC

material classification

Table 4 (cont'd) Material Characteristics				
Material	Weight lbs/ft ³	Material Code	Component Series	Mat'l. Factor Fm
Bentonite, Crude	34-40	37D ₃ 45X	2D	1.2
Bentonite, — 100 Mesh	50-60	55A ₁₀₀ 25MXY	2D	.7
Benzene Hexachloride	56	56A ₁₀₀ 45R	1A-1B-1C	.6
Bicarbonate of Soda (Baking Soda)	—	—	1B	.6
Blood, Dried	35-45	40D ₃ 45U	2D	2.0
Blood, Ground, Dried	30	30A ₁₀₀ 35U	1A-1B	1.0
Bone Ash (Tricalcium Phosphate)	40-50	45A ₁₀₀ 45	1A-1B	1.6
Boneblack	20-25	23A ₁₀₀ 25Y	1A-1B	1.5
Bonechar	27-40	34B ₆ 35	1A-1B	1.6
Bonemeal	50-60	55B ₆ 35	2D	1.7
Bones, Whole ⁽¹⁾	35-50	43E45V	2D	3.0
Bones, Crushed	35-50	43D ₃ 45	2D	2.0
Bones, Ground	50	50B ₆ 35	2D	1.7
Borate of Lime	60	60A ₁₀₀ 35	1A-1B-1C	.6
Borax, Fine	45-55	50B ₆ 25T	3D	.7
Borax Screening — ½"	55-60	58C _½ 35	2D	1.5
Borax, 1½"-2" Lump	55-60	58D ₃ 35	2D	1.8
Borax, 2"-3" Lump	60-70	65D ₃ 35	2D	2.0
Boric Acid, Fine	55	55B ₆ 25T	3D	.8
Boron	75	75A ₁₀₀ 37	2D	1.0
Bran, Rice-Rye-Wheat	16-20	18B ₆ 35NY	1A-1B-1C	.5
Braunite (Manganese Oxide)	120	120A ₁₀₀ 36	2D	2.0
Bread Crumbs	20-25	23B ₆ 35PQ	1A-1B-1C	.6
Brewer's Grain, spent, dry	14-30	22C _½ 45	1A-1B-1C	.5
Brewer's Grain, spent, wet	55-60	58C _½ 45T	2A-2B	.8
Brick, Ground — ⅙"	100-120	110B ₆ 37	3D	2.2
Bronze Chips	30-50	40B ₆ 45	2D	2.0
Buckwheat	37-42	40B ₆ 25N	1A-1B-1C	.4
Calcine, Flour	75-85	80A ₁₀₀ 35	1A-1B-1C	.7
Calcium Carbide	70-90	80D ₃ 25N	2D	2.0
Calcium Carbonate (See Limestone)	—	—	—	—
Calcium Fluoride (See Fluorspar)	—	—	—	—
Calcium Hydrate (See Lime, Hydrated)	—	—	—	—
Calcium Hydroxide (See Lime, Hydrated)	—	—	—	—
Calcium Lactate	26-29	28D ₃ 45QTR	2A-2B	.6
Calcium Oxide (See Lime, unslaked)	—	—	—	—
Calcium Phosphate	40-50	45A ₁₀₀ 45	1A-1B-1C	1.6
Calcium Sulfate (See Gypsum)	—	—	—	—
Carbon, Activated, Dry, Fine ⁽¹⁾	—	—	—	—
Carbon Black, Pelleted ⁽¹⁾	—	—	—	—
Carbon Black, Powder ⁽¹⁾	—	—	—	—
Carborundum	100	100D ₃ 27	3D	3.0
Casein	36	36B ₆ 35	2D	1.6
Cashew Nuts	32-37	35C _½ 45	2D	.7
Cast Iron, Chips	130-200	165C _½ 45	2D	4.0
Caustic Soda	88	88B ₆ 35RSU	3D	1.8
Caustic Soda, Flakes	47	47C _½ 45RSUX	3A-3B	1.5
Celite (See Diatomaceous Earth)	—	—	—	—
Cement, Clinker	75-95	85D ₃ 36	3D	1.8
Cement, Mortar	133	133B ₆ 35Q	3D	3.0
Cement, Portland	94	94A ₁₀₀ 26M	2D	1.4
Cement, Aerated (Portland)	60-75	68A ₁₀₀ 16M	2D	1.4

⁽¹⁾Consult FMC

material classification

Table 4 (cont'd) Material Characteristics				
Material	Weight lbs/ft ³	Material Code	Component Series	Mat'l. Factor Fm
Cerrusite (See Lead Carbonate)	—	—	—	—
Chalk, Crushed	75-95	85D ₃ 25	2D	1.9
Chalk, Pulverized	67-75	71A ₁₀₀ 25MXY	2D	1.4
Charcoal, Ground	18-28	23A ₁₀₀ 45	2D	1.2
Charcoal, Lumps	18-28	23D ₃ 45Q	2D	1.4
Chocolate, Cake Pressed	40-45	43D ₃ 25	2B	1.5
Chrome Ore	125-140	133D ₃ 36	3D	2.5
Cinders, Blast Furnace	57	57D ₃ 36T	3D	1.9
Cinders, Coal	40	40D ₃ 36T	3D	1.8
Clay (See Bentonite, Diatomaceous Earth, Fuller's Earth, Kaolin & Marl)	—	—	—	—
Clay, Ceramic, Dry, Fines	60-80	70A ₁₀₀ 35P	1A-1B-1C	1.5
Clay, Calcined	80-100	90B ₆ 36	3D	2.4
Clay, Brick, Dry, Fines	100-120	110C _{1/2} 36	3D	2.0
Clay, Dry, Lumpy	60-75	68D ₃ 35	2D	1.8
Clinker, Cement (See Cement Clinker)	—	—	—	—
Clover Seed	45-48	47B ₆ 25N	1A-1B-1C	.4
Coal, Anthracite (River & Culm)	55-61	60B ₆ 35TY	2A-2B	1.0
Coal, Anthracite, Sized — 1/2"	49-61	55C _{1/2} 25	2A-2B	1.0
Coal, Bituminous, Mined	40-60	50D ₃ 35LNXY	1A-1B	.9
Coal, Bituminous, Mined, Sized	45-50	48D ₃ 35QV	1A-1B	1.0
Coal, Bituminous, Mined, Slack	43-50	47C _{1/2} 45T	2A-2B	.9
Coal, Lignite	37-45	41D ₃ 35T	2D	1.0
Cocoa Beans	30-45	38C _{1/2} 25Q	1A-1B	.5
Cocoa, Nibs	35	35C _{1/2} 25	2D	.5
Cocoa, Powdered	30-35	33A ₁₀₀ 45XY	1B	.9
Cocconut, Shredded	20-22	21E45	2B	1.5
Coffee, Chaff	20	20B ₆ 25MY	1A-1B	1.0
Coffee, Green Bean	25-32	29C _{1/2} 25PQ	1A-1B	.5
Coffee, Ground, Dry	25	25A ₄₀ 35P	1A-1B	.6
Coffee, Ground, Wet	35-45	40A ₄₀ 45X	1A-1B	.6
Coffee, Roasted Bean	20-30	25C _{1/2} 25PQ	1B	.4
Coffee, Soluble	19	19A ₄₀ 35PUY	1B	.4
Coke, Breeze	25-35	30C _{1/2} 37	3D	1.2
Coke, Loose	23-35	30D ₇ 37	3D	1.2
Coke, Petrol, Calcined	35-45	40D ₇ 37	3D	1.3
Compost	30-50	40D ₇ 45TV	3A-3B	1.0
Concrete, Pre-Mix Dry	85-120	103C _{1/2} 36U	3D	3.0
Copper Ore	120-150	135D _x 36	3D	4.0
Copper Ore, Crushed	100-150	125D ₃ 36	3D	4.0
Copper Sulphate, (Bluestone)	75-95	85C _{1/2} 35S	2A-2B-2C	1.0
Copperas (See Ferrous Sulphate)	—	—	—	—
Copra, Cake Ground	40-45	43B ₆ 45HW	1A-1B-1C	.7
Copra, Cake, Lumpy	25-30	28D ₃ 35HW	2A-2B-2C	.8
Copra, Lumpy	22	22E35HW	2A-2B-2C	1.0
Copra, Meal	40-45	42B ₆ 35HW	2D	.7
Cork, Fine Ground	5-15	10B ₆ 35JNY	1A-1B-1C	.5
Cork, Granulated	12-15	14C _{1/2} 35JY	1A-1B-1C	.5
Corn, Cracked	40-50	45B ₆ 25P	1A-1B-1C	.7
Corn Cobs, Ground	17	17C _{1/2} 25Y	1A-1B-1C	.6
Corn Cobs, Whole ⁽¹⁾	12-15	14E35	2A-2B	—
Corn Ear ⁽¹⁾	56	56E35	2A-2B	—
Corn Germ	21	21B ₆ 35PY	1A-1B-1C	.4
Corn Grits	40-45	43B ₆ 35P	1A-1B-1C	.5
Cornmeal	32-40	36B ₆ 35P	1A-1B	.5
Corn Oil, Cake	25	25D ₇ 45HW	1A-1B	.6

⁽¹⁾Consult FMC

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Table 4 (cont'd) Material Characteristics				
Material	Weight lbs/ft ³	Material Code	Component Series	Mat'l. Factor Fm
Corn Seed	45	45C _{1/2} 25PQ	1A-1B-1C	.4
Corn Shelled	45	45C _{1/2} 25	1A-1B-1C	.4
Corn Sugar	30-35	33B ₆ 35PU	1B	1.0
Cottonseed, Cake, Crushed	40-45	43C _{1/2} 45HW	1A-1B	1.0
Cottonseed, Cake, Lumpy	40-45	43D ₇ 45HW	2A-2B	1.0
Cottonseed, Dry, Delinted	22-40	31C _{1/2} 25X	1A-1B	.6
Cottonseed, Dry, Not Delinted	18-25	22C _{1/2} 45XY	1A-1B	.9
Cottonseed, Flakes	20-25	23C _{1/2} 35HWY	1A-1B	.8
Cottonseed, Hulls	12	12B ₆ 35Y	1A-1B	.9
Cottonseed, Meal, Expeller	25-30	28B ₆ 45HW	3A-3B	.5
Cottonseed, Meal, Extracted	35-40	37B ₆ 45HW	1A-1B	.5
Cottonseed, Meats, Dry	40	40B ₆ 35HW	1A-1B	.6
Cottonseed, Meats, Rolled	35-40	38C _{1/2} 45HW	1A-1B	.6
Cracklings, Crushed	40-50	45D ₃ 45HW	2A-2B-2C	1.3
Cryolite, Dust	75-90	83A ₁₀₀ 36L	2D	2.0
Cryolite, Lumpy	90-110	100D ₁₆ 36	2D	2.1
Cullet, Fine	80-120	100C _{1/2} 37	3D	2.0
Cullet, Lump	80-120	100D ₁₆ 37	3D	2.5
Culm (See Coal, Anthracite)	—	—	—	—
Cupric Sulphate (Copper Sulfate)	—	—	—	—
Detergent (See Soap Detergent)	—	—	—	—
Diatomaceous Earth	11-17	14A ₄₀ 36Y	3D	1.6
Dicalcium Phosphate	40-50	45A ₄₀ 35	1A-1B-1C	1.6
Disodium Phosphate	25-31	28A ₄₀ 35	3D	.5
Distiller's Grain, Spent Dry	30	30B ₆ 35	2D	.5
Distiller's Grain, Spent Wet	40-60	50C _{1/2} 45V	3A-3B	.8
Dolomite, Crushed	80-100	90C _{1/2} 36	2D	2.0
Dolomite, Lumpy	90-100	95D _X 36	2D	2.0
Earth, Loam, Dry, Loose	76	76C _{1/2} 36	2D	1.2
Ebonite, Crushed	63-70	67C _{1/2} 35	1A-1B-1C	.8
Egg Powder	16	16A ₄₀ 35MPY	1B	1.0
Epsom Salts (Magnesium Sulfate)	40-50	45A ₄₀ 35U	1A-1B-1C	.8
Feldspar, Ground	65-80	73A ₁₀₀ 37	2D	2.0
Feldspar, Lumps	90-100	95D ₇ 37	2D	2.0
Feldspar, Powder	100	100A ₂₀₀ 36	2D	2.0
Feldspar, Screenings	75-80	78C _{1/2} 37	2D	2.0
Ferrous Sulfide — 1/2"	120-135	128C _{1/2} 26	1A-1B-1C	2.0
Ferrous Sulfide — 100M	105-120	113A ₁₀₀ 36	1A-1B-1C	2.0
Ferrous Sulphate	50-75	63C _{1/2} 35U	2D	1.0
Fish Meal	35-40	38C _{1/2} 45HP	1A-1B-1C	1.0
Fish Scrap	40-50	45D ₇ 45H	2A-2B-2C	1.5
Flaxseed	43-45	44B ₆ 35X	1A-1B-1C	.4
Flaxseed Cake (Linseed Cake)	48-50	49D ₇ 45W	2A-2B	.7
Flaxseed Meal (Linseed Meal)	25-45	35B ₆ 45W	1A-1B	.4
Four Wheat	33-40	37A ₄₀ 45LP	1B	.6
Flue Dust, Basic Oxygen Furnace	45-60	53A ₄₀ 36LM	3D	3.5
Flue Dust, Blast Furnace	110-125	118A ₄₀ 36	3D	3.5
Flue Dust, Boiler H. Dry	30-45	38A ₄₀ 36LM	3D	2.0
Fluorspar, Fine (Calcium Fluoride)	80-100	90B ₆ 36	2D	2.0
Fluorspar, Lumps	90-110	100D ₇ 36	2D	2.0
Flyash	30-45	38A ₄₀ 36M	3D	2.0
Foundry Sand, Dry (See Sand)	—	—	—	—
Fuller's Earth, Dry, Raw	30-40	35A ₄₀ 25	2D	2.0
Fuller's Earth, Oily, Spent	60-65	63C _{1/2} 45OW	3D	2.0
Fuller's Earth, Calcined	40	40A ₁₀₀ 25	3D	2.0
Galena (See Lead Sulfide)	—	—	—	—
Gelatine, Granulated	32	32B ₆ 35PU	1B	.8

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Table 4 (cont'd) Material Characteristics				
Material	Weight lbs/ft ³	Material Code	Component Series	Mat'l. Factor Fm
Gilsonite	37	37C _{3/8} 35	3D	1.5
Glass, Batch	80-100	90C _{3/8} 37	3D	2.5
Glue, Ground	40	40B ₆ 45U	2D	1.7
Glue, Pearl	40	40C _{3/8} 35U	1A-1B-1C	.5
Glue, Veg. Powdered	40	40A ₄₀ 45U	1A-1B-1C	.6
Gluten, Meal	40	40B ₆ 35P	1B	.6
Granite, Fine	80-90	85C _{3/8} 27	3D	2.5
Grape Pomace	15-20	18D ₃ 45U	2D	1.4
Graphite Flake	40	40B ₆ 25LP	1A-1B-1C	.5
Graphite Flour	28	28A ₁₀₀ 35LMP	1A-1B-1C	.5
Graphite Ore	65-75	70D _x 35L	2D	1.0
Guano Dry ⁽¹⁾	70	70C _{3/8} 35	3A-3B	2.0
Gypsum, Calcined	55-60	58B ₆ 35U	2D	1.6
Gypsum, Calcined, Powdered	60-80	70A ₁₀₀ 35U	2D	2.0
Gypsum Raw — 1"	70-80	75D ₃ 25	2D	2.0
Hay, Chopped ⁽¹⁾	8-12	10C _{3/8} 35JY	2A-2B	1.6
Hexanedioic Acid (See Adipic Acid)	—	—	—	—
Hominy, Dry	35-50	43C _{3/8} 25D	1A-1B-1C	.4
Hops, Spent, Dry	35	35D ₃ 35	2A-2B-2C	1.0
Hops, Spent, Wet	50-55	53D ₃ 45V	2A-2B	1.5
Ice, Crushed	35-45	40D ₃ 350	2A-2B	.4
Ice, Flaked ⁽¹⁾	40-45	43C _{3/8} 350	1B	.6
Ice, Cubes	33-35	34D ₃ 350	1B	.4
Ice, Shell	33-35	34D ₃ 450	1B	.4
Ilmenite Ore	140-160	150D ₃ 37	3D	2.0
Iron Ore Concentrate	120-180	150A ₄₀ 37	3D	2.2
Iron Oxide Pigment	25	25A ₁₀₀ 36LMP	1A-1B-1C	1.0
Iron Oxide, Millscale	75	75C _{3/8} 36	2D	1.6
Iron Pyrites (See Ferrous Sulfide)	—	—	—	—
Iron Sulphate (See Ferrous Sulfate)	—	—	—	—
Iron Sulfide (See Ferrous Sulfide)	—	—	—	—
Iron Vitriol (See Ferrous Sulfate)	—	—	—	—
Kafir (Corn)	40-45	43C _{3/8} 25	3D	.5
Kaolin Clay	63	63D ₃ 25	2D	2.0
Kaolin Clay-Tale	42-56	49A ₄₀ 35LMP	2D	2.0
Kryalith (See Cryolite)	—	—	—	—
Lactose	32	32A ₄₀ 35PU	1B	.6
Lamp Black (See Carbon Black)	—	—	—	—
Lead Arsenate	72	72A ₄₀ 35R	1A-1B-1C	1.4
Lead Arsenite	72	72A ₄₀ 35R	1A-1B-1C	1.4
Lead Carbonate	240-260	250A ₄₀ 35R	2D	1.0
Lead Ore — 1/8"	200-270	235B ₆ 35	3D	1.4
Lead Ore — 1/2"	180-230	205C _{3/8} 36	3D	1.4
Lead Oxide (Red Lead) — 100 Mesh	30-150	90A ₁₀₀ 35P	2D	1.2
Lead Oxide (Red Lead) — 200 Mesh	30-180	105A ₂₀₀ 35LP	2D	1.2
Lead Sulphide — 100 Mesh	240-260	250A ₁₀₀ 35R	2D	—
Lignite (See Coal Lignite)	—	—	—	—
Limanite, Ore, Brown	120	120C _{3/8} 47	3D	1.7
Lime, Ground, Unslaked	60-65	63B ₆ 35U	1A-1B-1C	.6
Lime Hydrated	40	40B ₆ 35LM	2D	.8
Lime, Hydrated, Pulverized	32-40	36A ₄₀ 35LM	1A-1B	.6
Lime, Pebble	53-56	55C _{3/8} 25HU	2A-2B	2.0
Limestone, Agricultural	68	68B ₆ 35	2D	2.0
Limestone, Crushed	85-90	88D _x 36	2D	2.0
Limestone, Dust	55-95	75A ₄₀ 46MY	2D	1.6-2.0
Lindane (Benzene Hexachloride)	—	—	—	—
Linseed (See Flaxseed)	—	—	—	—

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Table 4 (cont'd) Material Characteristics				
Material	Weight lbs/ft ³	Material Code	Component Series	Mat'l. Factor Fm
Litharge (Lead Oxide)	—	—	—	—
Lithopone	45-50	48A ₃₂₅ 35MR	1A-1B	1.0
Maize (See Milo)	—	—	—	—
Malt, Dry, Ground	20-30	25B ₆ 35NP	1A-1B-1C	.5
Malt, Meal	36-40	38B ₆ 25P	1A-1B-1C	.4
Malt, Dry Whole	20-30	25C _{1/2} 35N	1A-1B-1C	.5
Malt, Sprouts	13-15	14C _{1/2} 35P	1A-1B-1C	.4
Magnesium Chloride (Magnesite)	33	33C _{1/2} 45	1A-1B	1.0
Manganese Dioxide ⁽¹⁾	70-85	78A ₁₀₀ 35NRT	2A-2B	1.5
Manganese Ore	125-140	133D _x 37	3D	2.0
Manganese Oxide	120	120A ₁₀₀ 36	2D	2.0
Manganese Sulfate	70	70C _{1/2} 37	3D	2.4
Marble, Crushed	80-95	88B ₆ 37	3D	2.0
Marl, (Clay)	80	80D _x 36	2D	1.6
Meat, Ground	50-55	53E45HQTX	2A-2B	1.5
Meat, Scrap (W/bone)	40	40E46H	2D	1.5
Mica, Flakes	17-22	20B ₆ 16MY	2D	1.0
Mica, Ground	13-15	14B ₆ 36	2D	.9
Mica, Pulverized	13-15	14A ₁₀₀ 36M	2D	1.0
Milk, Dried, Flake	5-6	6B ₆ 35PUY	1B	.4
Milk, Malted	27-30	29A ₄₀ 45PX	1B	.9
Milk, Powdered	20-45	33B ₆ 25PM	1B	.5
Milk Sugar	32	32A ₁₀₀ 35PX	1B	.6
Milk, Whole, Powdered	20-36	28B ₆ 35PUX	1B	.5
Mill Scale (Steel)	120-125	123E46T	3D	3.0
Milo, Ground	32-36	34B ₆ 25	1A-1B-1C	.5
Milo Maize (Kafir)	40-45	43B ₆ 15N	1A-1B-1C	.4
Molybdenite Powder	107	107B ₆ 26	2D	1.5
Monosodium Phosphate	50	50B ₆ 36	2D	.6
Mortar, Wet ⁽¹⁾	150	150E46T	3D	3.0
Mustard Seed	45	45B ₆ 15N	1A-1B-1C	.4
Naphthalene Flakes	45	45B ₆ 35	1A-1B-1C	.7
Niacin (Nicotinic Acid)	35	35A ₄₀ 35P	2D	.8
Oats	26	26C _{1/2} 25MN	1A-1B-1C	.4
Oats, Crimped	19-26	23C _{1/2} 35	1A-1B-1C	.5
Oats, Crushed	22	22B ₆ 45NY	1A-1B-1C	.6
Oats, Flour	35	35A ₁₀₀ 35	1A-1B-1C	.5
Oat Hulls	8-12	10B ₆ 35NY	1A-1B-1C	.5
Oats, Rolled	19-24	22C _{1/2} 35NY	1A-1B-1C	.6
Oleo Margarine (Margarine)	59	59E45HKPWX	2A-2B	.4
Orange Peel, Dry	15	15E45	2A-2B	1.5
Oxalic Acid Crystals — Ethane Diacid Crystals	60	60B ₆ 35QS	1A-1B	1.0
Oyster Shells, Ground	50-60	55C _{1/2} 36T	3D	1.6-2.0
Oyster Shells, Whole	80	80D ₃ 36TV	3D	2.1-2.5
Paper Pulp (4% or less)	62	62E45	2A-2B	1.5
Paper Pulp (6% to 15%)	60-62	61E45	2A-2B	1.5
Paraffin Cake — 1/2"	45	45C _{1/2} 45K	1A-1B	.6
Peanuts, Clean, in shell	15-20	18D ₃ 35Q	2A-2B	.6
Peanut Meal	30	30B ₆ 35P	1B	.6
Peanuts, Raw, Uncleaned (unshelled)	15-20	18D ₃ 36Q	3D	.7
Peanuts, Shelled	35-45	40C _{1/2} 35Q	1B	.4
Peas, Dried	45-50	48C _{1/2} 15NQ	1A-1B-1C	.5
Perlite-Expanded	8-12	10C _{1/2} 36	2D	.6
Phosphate Acid Fertilizer	60	60B ₆ 25T	2A-2B	1.4
Phosphate Disodium (See Sodium Phosphate)	—	—	—	—

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Table 4 (cont'd) Material Characteristics				
Material	Weight lbs/ft ³	Material Code	Component Series	Mat'l. Factor Fm
Phosphate Rock, Broken	75-85	80D _x 36	2D	2.1
Phosphate Rock, Pulverized	60	60B ₆ 36	2D	1.7
Phosphate Sand	90-100	95B ₆ 37	3D	2.0
Plaster of Paris (See Gypsum)	—	—	—	—
Plumbago (See Graphite)	—	—	—	—
Polystyrene Beads	40	40B ₆ 35PQ	1B	.4
Polyvinyl, Chloride Powder	20-30	25A ₁₀₀ 45KT	2B	1.0
Polyvinyl, Chloride Pellets	20-30	25E45KPQT	1B	.6
Polyethelene, Resin Pellets	30-35	33C _{1/2} 45Q	1A-1B	.4
Potash (Muriate) Dry	70	70B ₆ 37	3D	2.0
Potash (Muriate) Mine Run	75	75D _x 37	3D	2.2
Potassium Carbonate	51	51B ₆ 36	2D	1.0
Potassium Chloride Pellets	120-130	125C _{1/2} 25TU	3D	1.6
Potassium Nitrate — 1/2"	76	76C _{1/2} 16NT	3D	1.2
Potassium Nitrate — 1/4"	80	80B ₆ 26NT	3D	1.2
Potassium Sulfate	42-48	45B ₆ 46X	2D	1.0
Potato Flour	48	48A ₂₀₀ 35MNP	1A-1B	.5
Pumice — 1/8"	42-48	45B ₆ 46	3D	1.6
Pyrite, Pellets	120-130	125C _{1/2} 26	3D	2.0
Quartz, — 100 Mesh	70-80	75A ₁₀₀ 27	3D	1.7
Quartz, — 1/2"	80-90	85C _{1/2} 27	3D	2.0
Rice, Bran	20	20B ₆ 35NY	1A-1B-1C	.4
Rice, Grits	42-45	44B ₆ 35P	1A-1B-1C	.4
Rice, Polished	30	30C _{1/2} 15P	1A-1B-1C	.4
Rice, Hulled	45-49	47C _{1/2} 25P	1A-1B-1C	.4
Rice, Hulls	20-21	21B ₆ 35NY	1A-1B-1C	.4
Rice, Rough	32-36	34C _{1/2} 35N	1A-1B-1C	.6
Rosin — 1/2"	65-68	67C _{1/2} 45Q	1A-1B-1C	1.5
Rubber, Reclaimed Ground	23-50	37C _{1/2} 45	1A-1B-1C	.8
Rubber, Pelleted	50-55	53D ₃ 45	2A-2B-2C	1.5
Rye	42-48	45B ₆ 15N	1A-1B-1C	.4
Rye Bran	15-20	18B ₆ 35Y	1A-1B-1C	.4
Rye Feed	33	33B ₆ 35N	1A-1B-1C	.5
Rye Meal	35-40	38B ₆ 35	1A-1B-1C	.5
Rye Middlings	42	42B ₆ 35	1A-1B	.5
Rye, Shorts	32-33	33C _{1/2} 35	2A-2B	.5
Safflower, Cake	50	50D ₃ 26	2D	.6
Safflower, Meal	50	50B ₆ 35	1A-1B-1C	.6
Safflower Seed	45	45B ₆ 15N	1A-1B-1C	.4
Saffron (See Safflower)	—	—	—	—
Sal Animoniac (Ammonium Chloride)	—	—	—	—
Salt Cake, Dry Coarse	85	85B ₆ 36TU	3D	2.1
Salt Cake, Dry Pulverized	65-85	75B ₆ 36TU	3D	1.7
Salicylic Acid	29	29B ₆ 37U	3D	.6
Salt, Dry Coarse	45-60	53C _{1/2} 36TU	3D	1.0
Salt, Dry Fine	70-80	75B ₆ 36TU	3D	1.7
Saltpeter — (See Potassium Nitrate)	—	—	—	—
Sand Dry Bank (Damp)	110-130	120B ₆ 47	3D	2.8
Sand Dry Bank (Dry)	90-110	100B ₆ 37	3D	1.7
Sand Dry Silica	90-100	95B ₆ 27	3D	2.0
Sand Foundry (Shake Out)	90-100	95D ₃ 37Z	3D	2.6
Sand (Resin Coated) Silica	104	104B ₆ 27	3D	2.0
Sand (Resin Coated) Zircon	115	115A ₁₀₀ 27	3D	2.3
Sawdust, Dry	10-13	12B ₆ 45UX	1A-1B-1C	.7
Sea-Coal	65	65B ₆ 36	2D	1.0
Sesame Seed	27-41	34B ₆ 26	2D	.6

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Table 4 (cont'd) Material Characteristics				
Material	Weight lbs/ft ³	Material Code	Component Series	Mat'l. Factor Fm
Shale, Crushed	85-90	88C _{1/2} 36	2D	2.0
Shellac, Powdered or Granulated	31	31B ₆ 35P	1B	.6
Silicon Dioxide (See Quartz)	—	—	—	—
Silica, Flour	80	80A ₄₀ 46	2D	1.5
Silica Gel + 1/2"-3"	45	45D ₃ 37HKQU	3D	2.0
Slag, Blast Furnace Crushed	130-180	155D ₃ 37Y	3D	2.4
Slag, Furnace Granular, Dry	60-65	63C _{1/2} 37	3D	2.2
Slate, Crushed, —1/2"	80-90	85C _{1/2} 36	2D	2.0
Slate, Ground, —1/8"	82-85	84B ₆ 36	2D	1.6
Sludge, Sewage, Dried	40-50	45E47TW	3D	.8
Sludge, Sewage, Dry Ground	45-55	50B46S	2D	.8
Soap, Beads or Granules	15-35	25B ₆ 35Q	1A-1B-1C	.6
Soap, Chips	15-25	20C _{1/2} 35Q	1A-1B-1C	.6
Soap Detergent	15-50	33B ₆ 35FQ	1A-1B-1C	.8
Soap, Flakes	5-15	10B ₆ 35QXY	1A-1B-1C	.6
Soap, Powder	20-25	23B ₆ 25X	1A-1B-1C	.9
Soapstone, Talc, Fine	40-50	45A ₂₀₀ 45XY	1A-1B-1C	2.0
Soda Ash, Heavy	55-65	60B ₆ 36	2D	1.0
Soda Ash, Light	20-35	28A ₄₀ 36Y	2D	.8
Sodium Aluminate, Ground	72	72B ₆ 36	2D	1.0
Sodium Aluminum Fluoride (See Kryolite)	—	—	—	—
Sodium Aluminum Sulphate ⁽¹⁾	75	75A ₁₀₀ 36	2D	1.0
Sodium Bentonite (See Bentonite)	—	—	—	—
Sodium Bicarbonate (See Baking Soda)	—	—	—	—
Sodium Chloride (See Salt)	—	—	—	—
Sodium Carbonate (See Soda Ash)	—	—	—	—
Sodium Hydrate (See Caustic Soda)	—	—	—	—
Sodium Hydroxide (See Caustic Soda)	—	—	—	—
Sodium Borate (See Borax)	—	—	—	—
Sodium Nitrate	70-80	75D ₃ 25NS	2A-2B	1.2
Sodium Phosphate	50-60	55A35	1A-1B	.9
Sodium Sulfate (See Salt Cake)	—	—	—	—
Sodium Sulfite	96	96B ₆ 46X	2D	1.5
Sorghum, Seed (See Kafir or Milo)	—	—	—	—
Soybean, Cake	40-43	42D ₃ 35W	2A-1B-1C	1.0
Soybean, Cracked	30-40	35C _{1/2} 36NW	2D	.5
Soybean, Flake, Raw	18-25	22C _{1/2} 35Y	1A-1B-1C	.8
Soybean, Flour	27-30	29A ₄₀ 35MN	1A-1B-1C	.8
Soybean Meal, Cold	40	40B ₆ 35	1A-1B-1C	.5
Soybean Meal, Hot	40	40B ₆ 35T	2A-2B	.5
Soybeans, Whole	45-50	48C _{1/2} 26NW	—	1.0
Starch	25-50	38A ₄₀ 15M	1A-1B-1C	1.0
Steel Turnings, Crushed	100-150	125D ₃ 46WV	3D	3.0
Sugar Beet, Pulp, Dry	12-15	14C _{1/2} 26	2D	.9
Sugar Beet, Pulp, Wet	25-45	35C _{1/2} 35X	1A-1B-1C	1.2
Sugar, Refined, Granulated Dry	50-55	53B ₆ 35PU	1B	1.0-1.2
Sugar, Refined, Granulated Wet	55-65	60C _{1/2} 35X	1B	1.4-2.0
Sugar, Powdered	50-60	55A ₁₀₀ 35PX	1B	.8
Sugar, Raw	55-65	60B ₆ 35PX	1B	1.5
Sulphur, Crushed—1/2"	50-60	55C _{1/2} 35N	1A-1B	.8
Sulphur, Lumpy,—3"	80-85	83D ₃ 35N	2A-2B	.8
Sulphur, Powdered	50-60	55A ₄₀ 35MN	1A-1B	.6
Sunflower Seed	19-38	29C _{1/2} 15	1A-1B-1C	.5
Talcum,—1/2"	80-90	85C _{1/2} 36	2D	.9
Talcum Powder	50-60	55A ₂₀₀ 36M	2D	.8
Tanbark, Ground ⁽¹⁾	55	55B ₆ 45	1A-1B-1C	.7

⁽¹⁾Consult FMC

material classification

Table 4 (cont'd) Material Characteristics				
Material	Weight lbs/ft³	Material Code	Component Series	Mat'l. Factor Fm
Timothy Seed	36	36B ₆ 35NY	1A-1B-1C	.6
Titanium Dioxide (See Ilmenite Ore)	—	—	—	—
Tobacco, Scraps	15-25	20D ₃ 45Y	2A-2B	.8
Tobacco, Snuff	30	30B ₆ 45MQ	1A-1B-1C	.9
Tricalcium Phosphate	40-50	45A ₄₀ 45	1A-1B	1.6
Triple Super Phosphate	50-55	53B ₆ 36RS	3D	2.0
Trisodium Phosphate	60	60C _{1/2} 36	2D	1.7
Trisodium Phosphate, Granular	60	60B ₆ 36	2D	1.7
Trisodium Phosphate, Pulverized	50	50A ₄₀ 36	2D	1.6
Tung Nut Meats, Crushed	28	28D ₃ 25W	2A-2B	.8
Tung Nuts	25-30	28D ₃ 15	2A-2B	.7
Urea Polls, Coated	43-46	45B ₆ 25	1A-1B-1C	1.2
Vermiculite, Expanded	16	16C _{1/2} 35Y	1A-1B	.5
Vermiculite, Ore	80	80D ₃ 36	2D	1.0
Vetch	48	48B ₆ 16N	1A-1B-1C	.4
Walnut Shells, Crushed	35-45	40B ₆ 36	2D	1.0
Wheat	45-48	47C _{1/2} 25N	1A-1B-1C	.4
Wheat, Cracked	40-45	43B ₆ 25N	1A-1B-1C	.4
Wheat, Germ	18-28	23B ₆ 25	1A-1B-1C	.4
White Lead, Dry	75-100	88A ₄₀ 36MR	2D	1.0
Wood Chips, Screened	10-30	20D ₃ 45VY	2A-2B	.6
Wood Flour	16-36	26B ₆ 35N	1A-1B	.4
Wood Shavings	8-16	12E45VY	2A-2B	1.5
Zinc, Concentrate Residue	75-8	78B ₆ 37	3D	1.0
Zinc Oxide, Heavy	30-35	33A ₁₀₀ 45X	1A-1B	1.0
Zinc Oxide, Light	10-15	13A ₁₀₀ 45XY	1A-1B	1.0