MIL-HDBK-223
8 December 1966

MILITARY STANDARDIZATION HANDBOOK

CODED LIST OF MATERIALS

/MISC/

DEPARTMENT OF DEFENSE
WASHINGTON, D.C. 20360

MIL-HDBK-223
Coded List of Materials

1. This standardization handbook was developed by the Department of Defense and was approved on 8 December 1966 by the Assistant Secretary of Defense (I & L) persuant to Department of Defense Instruction 4210.1 for printing and inclusion in the military standardization handbook series.

2. This handbook supersedes the Coded List of Materials dated 1 October 1957 which has been issued previously pursuant to above Department of Defense Instruction.

3. The primary purpose of this handbook is to provide a uniform basis with respect to type of material, form, shape and unit of measure in the computation and submission of material requirements which will be requested by separate instructions as the need arises. Every effort has been made to reflect the latest information on materials. It is the intent to review this handbook periodically to insure its completeness and currency. Users of this document are encouraged to report any errors discovered and any recommendations for changes or inclusions to the Weapons Engineering Standardization Office (WESO), Attention: Code X-33, Naval Air Engineering Center, Philadelphia, Pennsylvania 19112.

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GENERAL CODING AND REPORTING INSTRUCTIONS FOR ALL MATERIALS

1. Unlisted Items: For the most part the Coded List of Materials provides all-inclusive classifications of products at varying levels of detail. If a product can not be assigned to a specific code at a level of breakdown for which requirements are requested, it should be listed separately with the appropriate "9" code numeral in the third or fourth digit position or "99" in the third and fourth positions. For example, if a detailed statement on Hardwood Plywood is requested, requirements should be indicated as either 5811, 5812, 5813, 5814, or 5815. If a hardwood plywood product either does not fit in one of these classes or its classification is unknown, it should be listed under the code 5819. If a product is known only as being plywood, it should be listed under the code number 5890.

2. Totals: Collective titles and codes generally are indicated by a zero in the fourth or both third and fourth digits (e.g., 5810 and 4100). The requirements given for a collective code should cover the total of the detailed breakdown below that code and of any other requirements which fall within the scope of the collective title, but are not listed in detail. In the previous example 5810 - Hardwood Plywood would include the total of 5811, 5812, 5813, 5814, 5815 which are listed and 5819 which is unlisted.

3. Repetitive Codes: Where a detail breakout is similar for several types of products a repetitive code is used. For example, the species of leather used for any one of the various types of leather products is indicated by a single code series for the fifth digit. Thus "3" for calfskin may be used in the fifth position to indicate calf shoe leather, non-military grade - 42123, calf glove leather - 42203, and so forth.

4. Units of Measure: The units of measure listed herein are to be used by Department of Defense activities in the submission of material requirements reports. In preparing Bills of Materials, however, the following units of measure shall be used: pounds for metals, board feet for lumber, and all others in accordance with the units of measure outlined herein.

LIST OF BASIC MATERIALS

I. METALS

A. MISCELLANEOUS BASE METAL ALLOYS

01 00	Cobalt Base Alloys	Ths. Pounds
01 10	Castings; Total	Ths. Pounds
01 20	Raw Stock Forms; Total (0121 + 0122 + 0124)	Ths. Pounds
01 21	Casting Stock	Ths. Pounds
01 22	Forging Stock	Ths. Pounds
01 24	Ingots, Billets, Blooms and other raw stock forms, excluding Casting and Forging Stock	Ths. Pounds
01 30	Flat Rolled Products; Total (0131 +0132)	Ths. Pounds
01 31	Plate	Ths. Pounds
01 32	Sheet and Strip	Ths. Pounds
01 40	Rod and Bar Products; Total	Ths. Pounds
01 50	Shapes, Rolled or Extruded; Total	Ths. Pounds
01 60	Pipe and Tubing; Total	Ths. Pounds
01 70	Wire and Wire Products; Total	Ths. Pounds
03 00	Iron Base Alloys	Ths. Pounds
03 10	Castings; Total	Ths. Pounds
03 20	Raw Stock Forms; Total (0321 + 0322 + 0324)	Ths. Pounds
03 21	Casting Stock	Ths. Pounds
03 22	Forging Stock	Ths. Pounds
03 24	Ingots, Billets, Blooms and other raw stock forms, excluding Casting and Forging Stock	Ths. Pounds
03 30	Flat Rolled Products; Total (0331 + 0332)	Ths. Pounds
03 31	Plate	Ths. Pounds
03 32	Sheet and Strip	Ths. Pounds
03 40	Rod and Bar Products; Total	Ths. Pounds
03 50	Shapes, Rolled or Extruded; Total	Ths. Pounds
03 60	Pipe and Tubing; Total	Ths. Pounds
03 70	Wire and Wire Products; Total	Ths. Pounds
05 00	Nickel Base Alloys	Ths. Pounds
05 10	Castings; Total	Ths. Pounds
05 20	Raw Stock Forms; Total (0521 + 0522 + 0524)	Ths. Pounds
05 21	Casting Stock	Ths. Pounds
05 22	Forging Stock	Ths. Pounds
05 24	Ingots, Billets, Blooms and other raw stock forms, excluding casting and forging stock	Ths. Pounds
05 30	Flat Rolled Products; Total (0531 + 0532)	Ths. Pounds
05 31	Plate	Ths. Pounds
05 32	Sheet and Strip	Ths. Pounds

MISCELLANEOUS BASE METAL ALLOYS (continued)

05 40	Rod and Bar Products; Total	Ths. Pounds
05 50	Shapes, Rolled or Extruded; Total	Ths. Pounds
05 60	Pipe and Tubing; Total	Ths. Pounds
05 70	Wire and Wire Products; Total	Ths. Pounds

NOTE: Use of the preceding for coding purposes is optional, depending on whether the individual establishment requires these codes to assist in identification of other materials. Requirements data for the above codes will not be requested.

06 00	Nickel Alloys (see definition Page 3)	Ths. Pounds
06 01	Nickel Alloys 5.00 to 29.99 percent nickel content inclusive	Ths. Pounds
06 02	Nickel Alloys 30.00 to 49.99 percent nickel content inclusive	Ths. Pounds
06 03	Nickel Alloys 50.00 to 100 percent nickel content inclusive	Ths. Pounds
07 00	Titanium and Titanium Base Alloys	Ths. Pounds
07 10	Castings (Total)	Ths. Pounds
07 20	Raw Stock Forms (Except sponge) Total 0721, 0722, 0724 and 0725	Ths. Pounds
07 21	Casting Stock	
07 22	Forging Stock	
07 24	Ingots, Billets, Blooms, Slabs and other raw forms excluding casting and forging stock	Ths. Pounds
07 25	Powder (excluding Titanium Oxide)	Ths. Pounds
07 30	Flat Rolled Products; Total (0731 + 0732)	Ths. Pounds
07 31	Plate	Ths. Pounds
07 32	Sheet and Strip	Ths. Pounds
07 40	Rod and Bar Products; Total	Ths. Pounds
07 50	Shapes Rolled and Extruded; Total	Ths. Pounds
07 60	Pipe and Tubing; Total	Ths. Pounds
07 70	Wire and Wire Products; Total	Ths. Pounds

INSTRUCTIONS AND DEFINITIONS
MISCELLANEOUS BASE METAL ALLOYS

GENERAL

Cobalt Base Alloys: Alloys containing cobalt as the principal or predominant element with 30 percent or more cobalt and less than 50 percent iron.

Iron Base Alloys: Alloys containing less than 50 percent iron. These alloys contain iron as the principal or predominant element. This group includes heat and corrosion resistant alloys other than those classified as stainless steel.

Nickel Base Alloys: Alloys containing nickel as the predominant element with 30 percent or more nickel and less than 50 percent iron.

Nickel Alloys: "Nickel Alloys" means those alloys for which the specified nickel content is 5 percent or more up to and including pure nickel, and which do not contain as much as 50 percent of iron or steel, nor as much as 40 percent of copper, nor as much as 50 percent of aluminum, in the following mill and foundry shapes and forms:

- Ingots, blooms, slabs, and billets.
- Plate, sheet, strip, and foil.
- Rods, bars, pipe, tubing, and shapes (Rolled, drawn, or extruded).
- Wire and wire rod.
- Powder.
- Castings (less gates and risers, rough as cast).
- Anodes (rolled or cast).

It also includes cast iron (less gates and risers, rough as cast) for which the specified nickel content is 5 percent or more. It does not include primary nickel in the forms of electrolytic cathodes, pigs, rondelles, cubes, pellets, shot, oxide (including sintered oxide), salts, or chemicals, nor does it include primary nickel in the forms of ingots or powder for remelting.

Titanium and Titanium Base Alloys: Comprises commercial titanium metal and titanium base alloys which in general can be defined as containing 85 percent or more titanium.

DEFINITIONS OF FORMS AND SHAPES

Castings:	Are all castings before machining.
Forging Stock:	Includes all ingots, billets, blooms, bars and other raw stock used in the fabrication of forgings.
Casting Stock:	Includes all pig, ingot, and other raw stock forms used in the fabrication of castings.

B. FERROUS METALS

STEEL

10 00	Stainless Steel - Non-Nickel Bearing	Ths. Pounds
10 11	Castings	Ths. Pounds
10 12	Ingots, Billets, Blooms, and Related Products (excluding Wire Rods)	Ths. Pounds
10 21	Bars, Cold Finished	Ths. Pounds
10 22	Bars, Hot Rolled	Ths. Pounds
10 31	Structural Shapes	Ths. Pounds
10 40	Pipe and Tubing (including Threaded Couplings) (1041 + 1042)	Ths. Pounds
10 41	Welded (including Threaded Couplings)	Ths. Pounds
10 42	Seamless (including Threaded Couplings)	Ths. Pounds
10 51	Plates	Ths. Pounds
10 52	Sheet and Strip	Ths. Pounds
10 90	Wire Rods, Wire and Wire Products	Ths. Pounds

IRON

11 00	Iron	Short Tons
11 10	Gray Iron Castings	Short Tons
11 20	Malleable and Ductile Iron Castings	Short Tons
11 30	Alloy Iron Castings	Short Tons
11 50	Iron Powder	Short Tons
11 90	Pure Iron	Short Tons

STEEL

12 00	Carbon Steel (Including Wrought Iron)	Short Tons
12 11	Castings	Short Tons
12 12	Ingots, Billets, Blooms, Slabs, and Related Products (excluding Wire Rods and Stock for Projectile and Shell Bodies)	Short Tons
12 15	Billets, Stock for Projectile and Shell Bodies	Short Tons
12 21	Bars, Cold Finished	Short Tons
12 22	Bars, Hot Rolled (excluding Stock for Projectile and Shell Bodies and Reinforcing Bars)	Short Tons
12 23	Bars, Reinforcing	Short Tons
12 25	Bars, Hot Rolled, Stock for Projectile and Shell Bodies	Short Tons

FERROUS METALS (continued)

STEEL (continued)

12 31	Structural Shapes	Short Tons
12 32	Piling	Short Tons
12 40	Pipe and Tubing (including threaded couplings) (Total of 1241-1248 incl.)	Short Tons
12 41	Welded (including threaded couplings, excluding galvanized and/or ceramic coated)	Short Tons
12 42	Seamless (including threaded couplings, excluding galvanized and/or ceramic coated)	Short Tons
12 43	Welded (including threaded couplings), galvanized	Short Tons
12 44	Seamless (including threaded couplings), galvanized	Short Tons
12 45	Welded (including threaded couplings, excluding galvanized) ceramic coated	Short Tons
12 46	Seamless (including threaded couplings, excluding galvanized) ceramic coated	Short Tons
12 47	Welded (including threaded couplings) galvanized ceramic coated	Short Tons
12 48	Seamless (including threaded couplings) galvanized ceramic coated	Short Tons
12 51	Plates (excluding Tin, Terne and Tin Mill Black Plate) (includes 1253)	Short Tons
12 52	Sheet and Strip (excluding galvanized)	Short Tons
12 53	Plate, Wide and Heavy (see definition page 13)	Short Tons
12 61	Sheet and Strip, galvanized	Short Tons
12 62	Tin Plate, Terne Plate, and Tin Mill Black Plate	Short Tons
12 63	Sheet and Strip, porcelain coated	Short Tons
12 70	Rails and Track Accessories	Short Tons
12 80	Wheels, Tires and Axles	Short Tons
12 90	Wire Rods, Wire, and Wire Products	Short Tons
13 00	Alloy Steel (excluding Stainless Steels)	Short Tons
13 11	Castings (excluding Armor)	Short Tons
13 12	Ingots, Billets, Blooms, Slabs, and Related Products (excluding Wire Rods)	Short Tons
13 14	Castings, Armor (total of 1315, 1316, 1317)	Short Tons
13 15	Castings, Armor, 300 pounds and under	Short Tons
13 16	Castings, Armor, 300 - 1500 pounds	Short Tons
13 17	Castings, Armor, 1500 pounds and over	Short Tons
13 21	Bars, Cold Finished	Short Tons
13 22	Bars, Hot Rolled	Short Tons
13 31	Structural Shapes	Short Tons

STEEL (continued)

13 40	Pipe and Tubing (including Threaded Couplings) (1341 + 1342)	Short Tons
13 41	Welded (including Threaded Couplings)	Short Tons
13 42	Seamless (including Threaded Couplings)	Short Tons
13 51	Plates (excluding Rolled Armor) (includes 1353)	Short Tons
13 52	Sheet and Strip	Short Tons
13 53	Plate, Wide and Heavy (see definition page 13)	Short Tons
13 55	Plates, Rolled Armor (Total 1356, 1357, 1358, 1359)	Short Tons
13 56	Plates, Rolled Armor 5/8 inch thickness and under	Short Tons
13 57	Plates, Rolled Armor, 5/8 - 1 inch thickness	Short Tons
13 58	Plates, Rolled Armor, 1 - 3 inch thickness	Short Tons
13 59	Plates, Rolled Armor, 3 inch thickness and over	Short Tons
13 70	Track Accessories	Short Tons
13 80	Wheels, Tires, and Axles	Short Tons
13 90	Wire Rods, Wire, and Wire Products	Short Tons
14 00	Stainless Steel - Nickel Bearing	Ths. Pounds
14 11	Castings	Ths. Pounds
14 12	Ingots, Billets, Blooms, and Related Products (excluding Wire Rods)	Ths. Pounds
14 21	Bars, Cold Finished	Ths. Pounds
14 22	Bars, Hot Rolled	Ths. Pounds
14 31	Structural Shapes	Ths. Pounds
14 40	Pipe and Tubing (including Threaded Couplings) (1441 + 1442)	Ths. Pounds
14 41	Welded (including Threaded Couplings)	Ths. Pounds
14 42	Seamless (including Threaded Couplings)	Ths. Pounds
14 51	Plates	Ths. Pounds
14 52	Sheet and Strip	Ths. Pounds
14 90	Wire Rods, Wire, and Wire Products	Ths. Pounds

INSTRUCTIONS AND DEFINITIONS
FERROUS METALS

GENERAL

Iron: Requirements will be expressed in short tons (2,000 pounds) of un-machined castings, less sprues, risers, gates, etc.

Gray Iron Castings: Iron Castings through which graphite is dispersed in laminated flakes resulting in the characteristic "gray" fracture.

Malleable and Ductile Iron Castings: Castings in which all of the graphite has been changed to nodular graphite by suitable heat treatment or by the addition of cerium, magnesium, or other nodulizing agents.

Alloy Iron Castings: Alloy iron castings containing 50 percent or more iron, and containing additive alloys in specified quantities intended to obtain specific properties.

Iron Powder: Metallurgically or chemically produced particles of iron characterized by small size, usually within the range of one (1) to 1,000 microns, used for forming small or intricate shaped parts by pressing and sintering.

Steel: Requirements will be expressed in short tons (2,000 pounds) of gross weight of mill products, except Stainless Steel which is to be reported in thousand pounds.

Carbon Steel: Carbon Steel means all steel customarily so classified and not covered by the definition of alloy steel. Also report under carbon steel:

All grades of electrical sheet and strip.
Low alloy, high strength steels means only the proprietary grades promoted and sold for this purpose.
Clad and coated carbon steels not included with alloy steels, e.g., galvanized, tin, terne, copper (excluding copper wire mill products containing 20 percent or more copper) or aluminum clad and/or coated carbon steels.
Navy high tensile steel, grade HT

Alloy Steel: Alloy Steel means any steel in which the iron content is 50 percent or more and in which the ranges given for alloying elements exceed one or more of the following limits:

Manganese in excess of 1.65 percent
Silicon in excess of 0.60 percent
Copper in excess of 0.60 percent
Aluminum, boron, chromium, cobalt, columbium, molybdenum, nickel, tantalum, titanium, tungsten, vanadium, zirconium, or any other alloying element in any amount specified or known to have been added to obtain a desired alloy effect.

Alloy Steel (excludes "Stainless Steel" and Special Steels): This classification includes all alloy steel except "stainless steel" as defined in the section below and the special types of alloy steel included for reporting purposes with carbon steel (See Carbon Steel above). (Note that this definition includes AISI types 501 and 502 and other alloy steel containing less than 10 percent of chromium.) Clad steels (a) which have an alloy steel base or (b) which have a carbon steel base and for which nickel and/or chromium is contained in the coating or cladding material (e.g., inconel, monel, or stainless) are to be reported with alloy steels.

Stainless Steel: "Stainless Steel" means heat and corrosion-resisting steel in which the limit of the range given for chromium is 10 percent or more for all products except castings and 8 percent or more for castings and containing 50 percent or more iron with or without nickel, molybdenum, or other elements.

"Nickel-Bearing Stainless Steel" - Stainless Steel containing 1 percent or more nickel.

"Non-Nickel-Bearing Stainless Steel" - Stainless Steel containing less than 1 percent nickel.

High-Temperature, Corrosion-Resistant Alloys (Non-Ferrous Wrought or Cast Alloys): This group of alloys which contain less than 50 percent iron is not to be included in the steel classification. They are alloys whose composition is primarily a combination of the non-ferrous metals such as chromium, nickel, cobalt, molybdenum, tungsten, columbium and tantalum-columbium. These

alloys may be tabulated under codes 0100, 0300 and 0500 as applicable. Provision has been made to include the non-ferrous constituents of this category under the respective non-ferrous metals in the 1900 series.

DEFINITIONS OF SHAPES AND FORMS

Castings: Are all castings before machining.

Forgings: Include impact and pressure forgings purchased as such.

NOTE: For materials reporting purposes, forgings are to be included in terms of the form or shape in which the semi-finished metal, such as ingots, billets, blooms, bars, etc., for making the forging, is procured.

Semi-Finished Steel:

Ingots, Billets, Blooms, Slabs, and Related Products: Include the following products required for the fabrication of shapes and forms not listed elsewhere in the steel classification. Exclude these products when purchased for the fabrication of listed shapes, and account for them under the form or shape into which they are fabricated.

Ingots: Ingots are steel castings of different shapes and sizes in an unworked condition and of suitable form for subsequent working by rolling or forging.

Blooms, Billets, and Slabs: are hot rolled or forged from ingots to approximate cross-sectional dimensions with round corners. Billets are defined as including 4 by 4 inch round cornered squares and larger except carbon steel for shell bodies.

Billets, Stock for Projectile and Shell Bodies (Carbon Steel Only): Stock 2-7/8 inches and larger (rounds, round cornered squares, etc.) for projectile and shell bodies only.

Tube Rounds: Rounds used for manufacturing seamless pipe and tubing.

Skelp: Flat rolled steel for the manufacture of welded pipe.

Sheet and Tin Bar: Slabs used for re-rolling into sheets and tin plate.

Bars, Cold Finished: Cold finished steel bars are produced from hot rolled material by several cold finishing processes for the purpose of improving surface finish, dimensional accuracy, alignment, or

machinability; also, in the case of cold-drawn and cold-rolled bars, to increase the yield and tensile strength.

Bars, Hot Rolled: Hot rolled bars are produced by hot rolling without subsequent processing for accuracy of cross-section or to polish the surface. This category includes bar size shapes such as angles, channels, tees and zees, under 3 inches in the greatest cross-sectional dimension. It also includes rounds, half rounds, ovals, half ovals, squares (under 4 X 4 inches), flats, hexagons, octagons, and concrete reinforcement bars rolled from new billet, rail or axle steel, except carbon steel for shell bodies.

Bars, Hot Rolled, Stock for Shell Bodies (Carbon Steel Only): Stock, under 2-7/8 inches (rounds, round cornered squares, etc.) for projectile and shell bodies only.

Structural Shapes: Structural shapes are rolled flanged sections (angles, channels, tees, zees, H or I shapes) having at least one dimension of the cross-section 3 inches or greater.

Piling: Steel sheet piling is a rolled steel shape having interlocks rolled integrally along the two edges for the purpose of interlocking adjacent pieces together to form a continuous steel wall. Tubular products used for piling will be included under the "Pipe and Tubing" category.

Pipe and Tubing, including couplings: Hollow shapes (generally cylindrical, rectangular, or square) used for conveying gases, liquids and solids, and for a diversity of mechanical and structural purposes.

Coupling: A device, usually cylindrical and threaded, used for joining together two pieces of pipe or tubing.

Welded: Welded pipe and tubing is that which is produced by shaping and welding of flat-rolled materials (skelp, plate, or strip).

Seamless: Seamless pipe and tubing is that which is produced by piercing a solid ingot, bloom, billet, or tube round and subsequently hot rolling or drawing to desired size; or that which is formed by hot cupping flat plate and subsequently hot drawing to desired size.

Plates (Rolled Armor and other): Plates comprise flat, hot rolled finished steel products such as universal, sheared and continuous strip mill plates in the following ranges:

Carbon Steel: 0.180 inches or thicker, over 48 inches wide.
0.230 inches or thicker, over 8 inches wide.
7.53 pounds per square foot or heavier, over 48 inches wide.
9.62 pounds per square foot or heavier, over 8 inches wide.

Alloy Steel: 0.180 inches or thicker, over 48 inches wide.
0.230 inches or thicker, over 8 inches wide.
7.53 pounds per square foot or heavier, over 48 inches wide.
9.62 pounds per square foot or heavier, over 8 inches wide.

Stainless Steel 3/16 inches (.1875) or thicker, over 10 inches wide.

Plate, Wide and Heavy: Plates which are either over 150 inches wide or over 30,000 pounds in weight.

Sheet and Strip:

Carbon and Alloy Steel: Flat rolled products which include 0.2299 inches to and including 0.2031 inches thick, over 6 inches to and including 48 inches wide; 0.2030 inches to and including 0.1800 inches thick to and including 48 inches wide; under 0.1800 inches thick any width mill can produce.

Stainless Steel: Flat rolled products which include all widths under 3/16 inch thickness.

Sheet, Galvanized: Sheets, of any thickness or width, coated with zinc by electroplating or by passing them, after pickling, through a bath of molten zinc. Galvanized sheets are a specialty and are not included in the standard classification by size and flat rolled steel products. Includes roofing, galvanized, corrugated, v crimp, channel drain, ridge roll (valley and flashing) and siding (corrugated and brick).

Tin Plate, Terne Plate, and Tin Mill Black Plate: Cold Rolled tin mill black plate coated, after pickling, with commercially pure tin or with terne metal, a lead-tin alloy.

Tin Mill Black Plate: Flat rolled product 0.0141 inch and thinner in thickness and over 12 to 32 inches inclusive width.

Rails and Track Accessories: Includes all rails, fish bars, fish plates, rail joints, splice bars, cut track spikes, guard rails, screw spikes, tie plates and rail braces.

Wheels, Tires, and Axles:

Wheels and Tires: Flanged wheels and tires made of steel, used under rolling equipment in railway services and under industrial cars, such as mine cars and cranes, including rolled, forged resilient, and mounted wheels.

Axles: Axles, solid or hollow, for use with the above described wheels.

C. NON-FERROUS METALS

COPPER AND COPPER BASE ALLOYS

15 10	Brass Mill Copper Base Alloy Products	Ths. Pounds
15 11	Plate, Sheet, and Strip (excluding Ammunition Cups and Discs)	Ths. Pounds
15 12	Rods, Bars, and Wire (including Extruded Shapes)	Ths. Pounds
15 13	Tube and Pipe	Ths. Pounds
15 14	Ammunition Cups and Discs	Ths. Pounds
15 20	Brass Mill Unalloyed Copper Products	Ths. Pounds
15 21	Plate, Sheet, and Strip	Ths. Pounds
15 22	Rods, Bars, and Wire (including Extruded Shapes but not including Wire Bars, Ingot Bars, or Rod and Wire for Electrical Conduction).	Ths. Pounds
15 23	Tube and Pipe	Ths. Pounds
15 30	Wire Mill Products (Copper and Copper Base Alloys)	Ths. Pounds
15 40	Foundry Products (Copper and Copper Base Alloys)	Ths. Pounds
15 50	Powder (Copper and Copper Base Alloys)	Ths. Pounds
15 51	Powder, Copper, Unalloyed	Ths. Pounds
15 52	Powder, Copper Base Alloys	Ths. Pounds

ALUMINUM

16 00	Aluminum	Ths. Pounds
16 11	Rods and Bars, Rolled (excluding Stock for Wire, Forgings, Impact Extrusions, Rolled Structural Shapes and Electrical Cable)	Ths. Pounds
16 12	Rods and Bars, Rolled, (Forging Stock and Impact Extrusion Stock)	Ths. Pounds
16 20	Wire and Cable (excluding Rivet Wire)	Ths. Pounds
16 30	Rivets and Rivet Wire	Ths. Pounds
16 51	Sand Castings	Ths. Pounds
16 52	Permanent and Semi-permanent (Plaster) Mold Castings	Ths. Pounds
16 53	Die Castings	Ths. Pounds
16 54	Rotor, Centrifugal, investment and other castings not specifically classified	Ths. Pounds
16 61	Shapes, Rolled Structural	Ths. Pounds
16 62	Shapes, Extruded (excluding Forging and Tube Stock)	Ths. Pounds
16 63	Shapes, Extruded, Forging Stock	Ths. Pounds

NON-FERROUS METALS (continued)

ALUMINUM (continued)

16 70	Flat Rolled Products (including Stock for Forgings, Pressings, and Impact Extrusions, but excluding Stock for Foil (Total 1671 + 1672)	Ths. Pounds
16 71	Plate	Ths. Pounds
16 72	Sheet and Strip	Ths. Pounds
16 80	Tubing	Ths. Pounds
16 91	Powder	Ths. Pounds
16 92	Ingot	Ths. Pounds
16 93	Foil (.005 inch and Thinner)	Ths. Pounds.
17 00	Magnesium	Ths. Pounds
17 10	Extrusions (exluding Forging Stock)	Ths. Pounds
17 40	Forgings (before Machining)	Ths. Pounds
17 51	Sand Castings	Ths. Pounds
17 52	Permanent Mold Castings	Ths. Pounds
17 53	Die Castings	Ths. Pounds
17 54	Other Castings including investment castings	Ths. Pounds
17 70	Flat Rolled Products (Total 1771 + 1772)	Ths. Pounds
17 71	Plate	Ths. Pounds
17 72	Sheet and Strip	Ths. Pounds
17 91	Powder	Ths. Pounds
17 92	Ingot or Cast Stick	Ths. Pounds.

PRECIOUS METALS

18 10	Platinum	Troy Ounce
18 20	Iridium	Troy Ounce
18 30	Osmium	Troy Ounce
18 40	Palladium	Troy Ounce
18 50	Rhodium	Troy Ounce
18 60	Ruthenium	Troy Ounce
18 70	Silver	Troy Ounce
18 80	Gold	Troy Ounce

MISCELLANEOUS BASE METALS AND BASE METAL ALLOYS

19 01	Antimony	Pounds
19 02A	Beryllium metal and beryllium content of alloys containing 10 percent or more beryllium	Pounds
19 02B	Beryllium content of alloys containing less than 10 percent beryllium	Pounds
19 03	Bismuth; excluding medicinal uses to be reported under "Chemicals and Drugs"	Pounds

NON-FERROUS METALS (continued)

MISCELLANEOUS BASE METALS AND BASE METAL ALLOYS (continued)

19 04	Cadmium	Pounds
19 05	Cerium: including cerium content in cerium compounds	Pounds
19 06	Chromium: including the chromium content of only those alloys containing less than 50 percent iron when the specified chromium content is 2 percent or over.	Pounds
19 07	Cobalt: including the cobalt content of only those alloys containing less than 50 percent iron when the specified cobalt content is 2 percent or over.	Pounds
19 08	Columbium, Tantalum-Columbium: include the columbium, and tantalum-columbium content of those alloys containing less than 50 percent iron when the specified columbium, and tantalum-columbium content is 1 percent or over; and the columbium, tantalum-columbium content of all stabilized "stainless steel".	Pounds
19 09	Lead: including lead content of antimonial lead and solder	Pounds
19 10	Manganese: including the manganese content of only those alloys containing less than 50 percent iron when the specified manganese content is 5 percent or more.	Pounds
19 11	Mercury	Pounds
19 12	Molybdenum: including the molybdenum content of only those alloys containing less than 50 percent iron when the specified molybdenum content is 2 percent or over.	Pounds
19 13	Nickel: includes the following: (a) average specified nickel content of all metals and alloys other than those classified as alloy steel (wrought and cast) and stainless steel, provided the average specified nickel content is 0.5 percent or more. This would include nickel contained in cast iron, copper-base alloys, aluminum-base alloys, nickel and nickel-base alloys and any other alloys which contain less than 50 percent iron. In all instances the nickel content will be calculated on the basis of gross weight of mill forms and shapes required to manufacture the finished item and for castings the rough weight less gates, sprues and risers; (b) identifiable uses of nickel plating.	
19 14	Tantalum: including tantalum content of only those alloys containing less than 50 percent iron when the specified content is 1 percent or over.	
19 15	Tin: excluding tin in tin plate and terne plate	Pounds
19 17	Tungsten: including the tungsten content of only those alloys containing less than 50 percent iron when the specified tungsten content is 2 percent or over.	Pounds

NON-FERROUS METALS (continued)

MISCELLANEOUS BASE METALS AND BASE METAL ALLOYS (continued)

19 18	Vanadium: vanadium content of only those alloys containing less than 50 percent iron when the specified content of vanadium is 1 percent or over.	Pounds
19 19	Zinc: including zinc content of zinc base alloys which, in general, are defined as containing 80 percent or more zinc but excluding zinc content of galvanized products purchased as such.	Pounds
19 21	Zirconium: wire, sheet, foil and powder	Pounds
19 22	Germanium	Pounds
19 23	Selenium	Pounds
19 24	Silicon. metal used for semiconductors	Pounds
19 25	Hafnium	Pounds

NON-FERROUS METALS

GENERAL INSTRUCTIONS

Content of Alloys: Non-ferrous metals as alloying elements in steel and non-ferrous base alloys will not be included except as specifically instructed under each respective metal. In general, the alloying elements are called for only when they constitute major constituents. Alloying elements present as minor percentages usually do not need to be stated because they can be calculated with reasonable accuracy from the total military requirements of alloy steels and non-ferrous base alloys.

Content of Oxides and Chemicals: Non ferrous metals in metal oxides or other chemical compounds will not be included except as specifically instructed.

INSTRUCTIONS AND DEFINITIONS

A. COPPER AND COPPER BASE ALLOYS

Brass Mill Products are plate and sheet; rod, bar and wire (other than for electrical conduction); or tube made from copper or copper base alloys.

Copper Base Alloys comprise all alloys containing copper as the principal element with 40 percent or more copper by weight. Copper base alloys include the brasses, bronzes and special alloys such as copper nickel, nickel silver, beryllium copper.

Unalloyed Copper is a 100 percent copper plus those coppers containing fractional percentages of other elements. Unalloyed copper includes electrolytic, deoxidized silver bearing, arsenical and leaded copper.

Forging Stock is to be included under the copper or copper base alloy rod and bar from which the forging is made.

Wire Mill Products are bare, insulated, armored or copper-clad wire (containing 20 percent or more copper) or cable for electrical conduction made from copper or copper base alloys. Include only the copper content.

Foundry Products are cast copper or copper base alloy shapes or forms suitable for ultimate use without rolling, drawing or extruding. The process includes the removal of gates, risers and sprues, and sand blasting, tumbling or dipping, but does not include further machining or processing.

Copper refinery shapes purchased as such for castings are to be included under foundry products.

Copper and copper base alloys in powder form include atomized, granular, flake, paste and pigment forms.

B. ALUMINUM

Aluminum: This section comprises commercial aluminum and aluminum base alloys which, in general, can be defined as containing 85 percent or more aluminum. Aluminum as an alloying element in other than aluminum base alloys is not to be included.

Rod and Bar: Rounds, squares, hexagonals, octagonals, and rectangles of diameter or measurement between flats of 3/8 inch or greater.

Wire and Cable: Include wire and wire for cable with rounds, squares, hexagonals, octagonals, and rectangles of diameter or greatest measurement between flats less than 3/8 inch.

Castings are all castings before machining.

Forgings: Include impact and pressure forgings purchased as such.

NOTE: For Departmental materials requirements reporting purposes, forgings are to be converted to the form or shape in which the semi-finished metal, such as ingots, bars, etc., for making the forging, is procured.

Powder: Include atomized or flake aluminum and the aluminum content of paste.

Ingot: Include ingot for the fabrication of forgings and any shapes and forms not listed in the classification. Exclude ingot purchased for the fabrication of listed shapes, and account for same under the form or shape into which it is to be fabricated.

C. MAGNESIUM

Magnesium: This comprises commercial magnesium and magnesium base alloys which contain 50 percent or more magnesium. Magnesium as an alloying element in other than magnesium base alloys is not to be included.

Castings: Are all castings before machining.

MAGNESIUM (continued)

Ingot or Cast Stick:	Include ingot or cast stick for the fabrication of shapes and forms not listed in the classification. Exclude ingot or cast stick purchased for the fabrication of listed shapes, and account for same under the form or shape into which it is to be fabricated.
Extrusions:	Include rods, bars, structural shapes, other solid shapes and tubing.

II. NON-METALLIC MINERALS AND BASIC PRODUCTS

20 00	Abrasives	Pounds
20 10	Natural	Pounds
20 11	Powder	Pounds
20 12	Grain	Pounds
20 13	Paper	Pounds
20 14	Cloth	Pounds
20 15	Wheels (bonded or cut)	Pounds
20 16	Special Shapes (bonded or cut)	Pounds
20 20	Synthetic	Pounds
20 21	Powder	Pounds
20 22	Grain	Pounds
20 23	Paper	Pounds
20 24	Cloth	Pounds
20 25	Wheels (bonded)	Pounds
20 26	Special Shapes (bonded)	Pounds

Repetitive Code for Material

01 Diamond	05 Emery
02 Corundum	06 Tripoli
03 Garnet	07 Pumice
04 Quartz	08 Silicon Carbide
	09 Aluminum Oxide

22 00	Asbestos	Pounds
22 10	Asbestos, Crocidolite	Pounds
22 11	Bolivian	Pounds
22 12	Other	Pounds
22 20	Asbestos, Chrysotile	Pounds
22 21	Spinning Grade, Low Iron Content (Not to Exceed 2 percent Magnetic Iron)	Pounds
22 22	Spinning Grade, Iron Content not specified	Pounds
22 30	Asbestos, Amosite	Pounds
22 31	Long Fiber	Pounds
22 32	Other	Pounds

NON-METALLIC MINERALS AND BASIC PRODUCTS (continued)

23 00	Mica	Pounds
23 10	Mica, Block, and Film	Pounds
23 11	Muscovite, Fair Stained and Better	Pounds
23 12	Muscovite, Good Stained	Pounds
23 13	Muscovite, Stained	Pounds
23 14	Phlogopite	Pounds
23 20	Mica Splittings	Pounds
23 21	Muscovite Splittings	Pounds
23 22	Phlogopite Splittings (excluding sizes smaller than No. 6)	Pounds
24 00	Talc, Natural, Block Steatite	Pounds
25 00	Graphite	Pounds
25 10	Natural Amorphous, 97 percent or more Carbon	Pounds
25 20	Lubricant and Packing Grade	Pounds
25 30	Crucible Grade	Pounds
25 40	Graphite, Synthetic	Pounds
26 00	Fibrous Glass	Pounds
26 10	Bonded Mat (includes material impregnated with polyester resins)	Pounds
26 20	Filtration Fibers	Pounds
26 30	Standard Wool	Pounds
26 40	Superfine Wool	Pounds
26 41	Superfine Wool, Type B (.00010 to .00015 inch)	Pounds
26 42	Superfine Wool, Type A (.00006 to .00010 inch)	Pounds
26 43	Superfine Wool, Type AA (.00003 to .00006 inch)	Pounds
26 44	Superfine Wool, Type AAA (under .00003 inch)	Pounds
26 50	Continuous Textile Filament	Pounds
26 51	Cloth	Pounds
26 52	Cord	Pounds
26 53	Sleeving and Tubing	Pounds
26 54	Tape	Pounds
26 60	Staple Fiber	Pounds

NON-METALLIC MINERALS AND BASIC PRODUCTS (continued)

28 00	Quartz Crystal Oscillator Blanks, Radio Grade	No. of Pieces
28 10	0.5 inch by 0.5 inch and smaller	No. of Pieces
28 20	Over 0.5 inch by 0.5 inch, but under 0.75 inch	No. of Pieces
28 30	0.75 inch by 0.75 inch, but under 1.0 inch	No. of Pieces
28 40	1.0 inch by 1.0 inch and larger	No. of Pieces
29 00	Ceramic Raw Materials	Tons
29 10	Fire Clay	Tons
29 20	High Alumina Refractories (over 85 percent Al_2O_3)	Short Tons

INSTRUCTIONS AND DEFINITIONS

ABRASIVES

Substances used for surfacing and finishing metals, stone, wood, glass and other materials by an abrasive action. The natural abrasives include diamond, emery, corundum, sand, garnet, quartz, tripoli and pumice. The artificial abrasives are marketed under many trade names, but are in general either silicon carbide or aluminum oxide.

ASBESTOS

Asbestos, Amosite, Long Fiber - includes grades B-1, D-1, D-3 and 3DM1.

Asbestos, Chrysotile, Spinning Grade - includes C and G-1; C and G-P1; C and G-2; C and G-P2; Canadian Crude 1 and 2, Canadian 3D, 3F, 3K, 3M, 3R, 3T and 3Z, Arizona Crude 1 and 2.

MICA

Block Mica - sheets of mica, with edges usually knife trimmed and ranging in thickness from 0.007 to 0.040 inch, with a minimum usable area of 1 square inch. There are 10 commercial qualities of block mica ranging from clear to black stained, the latter being the lowest quality.

Mica Film - sheets of mica split to thicknesses ranging from 0.0012 to 0.007 inch. There are 3 qualities of film, 1st, 2nd and 3rd quality.

Mica Splitting - sheets of mica split to thicknesses which do not exceed 0.0012 inch. The qualities of splittings are a combination of preparation, inclusions and size and have been standardized by the National Electrical Manufacturers Association, designated as AA for the highest quality and lower qualities ranging from A through F.

FIBROUS GLASS

Bonded Mat - includes battery retainer mat and underground pipe wrap - fiber diameter about .0006 inch.

Filtration Fiber - includes material for replacement type air filters, aeration packs as contact and elimination mats in air conditioning and tower packing in alcohol rectification plants, etc. - fiber diameter about .008 inch.

Standard Wool - includes insulating wool, preformed insulation, building insulation, roof insulation, duct insulation, acoustical tile and board, low temperature insulation, pipe insulation, metal mesh blanket, sewn blanket, Navy board, high temperature insulation, and plastics reinforcing mat - fiber diameter about .0035 inch.

Superfine Wool - includes superfine aircraft insulation, superfine insulation with thermosetting resin binder, and superfine insulation with thermosetting resin binder treated with water repellent silicone - fiber diameter from .00003 to .00015 inch.

Continuous Textile Filament - includes all yarn used as such including requirements for such materials when they have reached the more advanced fabricated forms of fibrous glass covered by codes 2651 to 2654.

Staple Fiber - includes continuous textile filament in cut staple form used as such or with other materials such as plastics.

III. TEXTILES, SYNTHETIC FIBERS, CORDAGE, BRISTLES, AND FEATHERS

A. COTTON - To be reported by types, widths and weights when unit of measure is linear yards.

31 00	Cotton Broad Woven Fabrics (12 inches and over)	Linear Yards
31 10	Cotton Duck	Linear Yards
	Army Duck	Linear Yards
	Flat Duck	Linear Yards
	Number Duck	Linear Yards
	Special Use Duck	Linear Yards
31 20	Coarse and Medium Yarn Fabrics, Carded Cotton	Linear Yards
	Broadcloth	Linear Yards
	Cheesecloth	Linear Yards
	Diaper Cloth	Linear Yards
	Drill	Linear Yards
	Gauze	Linear Yards
	Jean	Linear Yards
	Osnaburg	Linear Yards
	Permeable cloth (oxford)	Linear Yards
	Print Cloth	Linear Yards
	Sateen	Linear Yards
	Silesia	Linear Yards
	Sheeting	Linear Yards
	Twill	Linear Yards
31 30	Colored Yarn Cotton Goods and Related Fabrics (Carded and Combed)	Linear Yards
	Chambray	Linear Yards
	Denim	Linear Yards
	Seersucker	Linear Yards
	Ticking	Linear Yards
31 40	Fine Yarn Cotton Goods (Combed)	Linear Yards
	Airplane cloth	Linear Yards
	Balloon cloth	Linear Yards
	Broadcloth	Linear Yards
	Oxford	Linear Yards
	Percale	Linear Yards
	Poplin	Linear Yards
	Sateen	Linear Yards
	Sheeting	Linear Yards
	Twill	Linear Yards
31 50	Napped Fabrics	Linear Yards
	Corduroy	Linear Yards
	Flannel	Linear Yards
31 60	Towels, Toweling and Washlcoths	Linear Yards
	Toweling, crash	Linear Yards
	Toweling, huck	Linear Yards
	Toweling, turkish (terry)	Linear Yards

COTTON (continued)

31 70	Specialties and Other Miscellaneous	Linear Yards
	Bedspread fabrics	Linear Yards
	Bunting	Linear Yards
	Drapery fabrics	Linear Yards
	Damask	Linear Yards
	Furniture coverings	Linear Yards
	Tracing cloth	Linear Yards
32 00	Cotton Narrow Fabrics (under 12 inches)	Linear Yards
32 10	Woven Elastic	Linear Yards
32 20	Woven Non-Elastic	Linear Yards
	Webbing	Linear Yards
	Tape	Linear Yards
32 30	Cotton Thread	Pounds
32 40	Cotton Linters (Felting (Mattress) Grade)	Short Tons
32 50	Knit Fabrics (Cotton yarn content to knit end items)	Pounds

B. WOOL - To be reported by types, widths and weights when unit of measure is linear yards.

33 00	Woolen and Worsted Fabrics	
33 10	Worsted Apparel Fabrics	Linear Yards
	Elastique	Linear Yards
	Flannel shirting	Linear Yards
	Gabardine	Linear Yards
	Necktie fabric	Linear yards
	Serge	Linear Yards
	Tropical worsted	Linear Yards
	Whipcord	Linear Yards
33 20	Woolen Apparel Fabrics	Linear Yards
	Covert	Linear Yards
	Doeskin	Linear Yards
	Flannel	Linear Yards
	Kersey	Linear Yards
	Melton	Linear Yards
	Shirting	Linear Yards
	Velour	Linear Yards
33 30	Non-Apparel Fabrics	Linear Yards
	Blanket Fabric	Linear Yards
	Bunting	Linear Yards
	Mohair, frieze	Linear Yards
	Pile (Alpaca and Wool)	Linear Yards
33 40	Knit Fabrics (Wool yarn content in knit end items)	Pounds

WOOL (continued)

33 50	Wool Felt (Pressed)	Pounds

C. SYNTHETIC FIBERS - To be reported by types, widths and weights when unit of measure is linear yards

34 00	Acetate and Rayon Fabrics	
34 10	Acetate Fabrics	Linear Yards
34 11	Broad Woven Fabrics (12 inches and over)	Linear Yards
34 12	100 Percent Filament Acetate Fabrics	Linear Yards
	Oxford	Linear Yards
	Saponified acetate rip-stop	Linear Yards
	Satin	Linear Yards
	Twill	Linear Yards
34 13	100 Percent Spun Acetate Fabrics	Linear Yards
34 14	Combination Filament and Spun Acetate Fabrics	Linear Yards
	Cloth, plain weave	Linear Yards
34 15	Narrow Fabrics (under 12 inches)	Linear Yards
	Ribbon, plain weave, continuous filament	
34 20	Rayon Fabrics Viscose and/or Cuprammonium	Linear Yards
34 21	Broad Woven Fabrics (12 inches and over)	Linear Yards
34 22	100 Percent Filament Rayon Fabrics	Linear Yards
	Banner Cloth	Linera Yards
	Broadcloth	Linear Yards
	Satin	Linear Yards
	Twill	Linear Yards
34 23	100 Percent Spun Rayon Fabrics	Linear Yards
	Plain weave	
	Tropical	
34 24	Combination Filament and Spun Rayon Fabrics	Linear Yards
34 25	Narrow Fabrics (under 12 inches)	Linear Yards
	Woven elastic	Linear Yards
	Woven non-elastic (webbing and tape)	Linear Yards
34 30	High Tenacity Rayon Fabrics	Pounds
35 00	Nylon Materials	
35 10	Nylon Broad Woven Fabrics (12 inches and over)	Linear Yards
	Duck nylon spun yarn	Linear Yards
	Duck nylon filament	Linear Yards
	Knitted	Linear Yards
	Netting	Linear Yards
	Nylon and rayon (for raincoats)	Linear Yards
	Oxford	Linear Yards

SYNTHETIC FIBERS (continued)

Nylon Broad Woven Fabrics (continued)

	Parachute fabrics (plain weave)	Linear Yards
	Parachute fabrics (rip-stop)	Linear Yards
	Twill	Linear Yards
35 20	Nylon Narrow Fabrics (under 12 inches)	Linear Yards
35 29	Nylon Braided Shroud Lines (Cord)	Pounds
35 30	Nylon Thread	Pounds
35 50	Nylon Rope and Twine (excluding Braided Shroud Lines)	Pounds
35 60	Nylon Bristles	Pounds
35 61	Nylon Bristles, Tapered	Pounds
35 65	Nylon Bristles, Level End	Pounds
36 10	Acrylic Fibers and Textiles	
36 11	Acrylic Fiber Broad Woven Fabrics, 12 inches and over) (by widths and weights)	Linear Yards
36 14	Acrylic Fiber Materials (excluding Broad Woven Fabrics)	Pounds
36 20	Polyester Fibers and Textiles	
36 21	Polyester Fiber Broad Woven Fabrics, (12 inches and over) (by widths and weights)	Linear Yards
36 24	Polyester Fiber Materials (excluding Broad Woven Fabrics)	Pounds
36 30	Polyethylene Fibers and Textiles	
36 31	Polyethylene Fiber Broad Woven Fabrics (12 inches and over (by widths and weights)	Linear Yards
36 34	Polyethylene Fiber Materials (excluding Broad Woven Fabrics)	Pounds
36 40	Protein Fibers and Textiles	
36 41	Protein Fiber Broad Woven Fabrics (12 inches and over) (by widths and weights)	Linear Yards
36 44	Protein Fiber Materials (excluding Broad Woven Fabrics)	Pounds
36 50	Vinyl Resin Fibers and Textiles	
36 51	Vinyl Resin Fiber Broad Woven Fabrics (12 inches and over) (by widths and weights)	Linear Yards
36 54	Vinyl Resin Fiber Materials (excluding Broad Woven Fabrics)	Pounds
36 60	Vinylidene Chloride (Saran) Fibers and Textiles	
36 61	Vinylidene Chloride Fiber Broad Woven Fabrics (12 inches and over) (by widths and weights)	Linear Yards
36 64	Vinylidene Chloride Fiber Materials (excluding Broad Woven Fabrics)	Pounds

D. OTHER FABRICS

37 10	Silk	Pounds
37 20	Burlap (by widths and weights)	Linear Yards

E. CORDAGE

HARD FIBER

38 11	Abaca (Manila) Rope and Twine	Pounds
38 12	Sisal Rope and Twine	Pounds
38 13	Henequen Rope and Twine	Pounds

SOFT FIBER

38 21	Hemp Rope and Twine	Pounds
38 22	Jute Rope and Twine	Pounds
38 23	Cotton Rope and Twine	Pounds

F. MISCELLANEOUS FIBERS AND YARNS

39 11	Coir	Pounds
39 12	Ramie	Pounds
39 13	Flax	Pounds

G. HORSEHAIR

39 24	Horsehair (Mane and Tail)	Pounds

H. WATERFOWL FEATHERS AND DOWN

39 31	Feathers, Waterfowl (3" and under)	Pounds
39 32	Down, Waterfowl	Pounds

GENERAL INSTRUCTIONS

FIBER AND TEXTILE MATERIALS (INCLUDING SYNTHETIC FIBERS)

The purpose of this coding of textiles is to assist in reporting requirements, Bills of Materials, etc. Due to the following reasons textiles have been listed coded and uncoded:

(1) The constantly changing types of textiles used by the military would require constant revision.

(2) The countless hundreds of variations of widths, weights, weave, and finish of each textile that must be considered in computing requirements would require a volume too large and complex to use.

The code, therefore, has been extablished for only the major categories of textiles. Uncoded fabrics have been specified within such categories to serve as a guide for the type of items that will be reported in each category. It is to be emphasized that this listing neither demands great detail of insignificant data, nor permits disregard of significant data solely because the material involved is not named.

Mineral fabrics are not covered in this category but are included under the NON-METALLIC MINERALS category.

(Examples: Fibrous glass and asbestos fabrics).

INSTRUCTIONS AND DEFINITIONS

SYNTHETIC FIBERS AND TEXTILES (EXCLUDING NYLON)

Acrylic Fibers and Textiles - includes trade names: "Orlon," "Dynel," "Acrilan," "X-51," "Creslan," and "Cyana".

Polyester Fibers and Textiles - includes trade names: "Dacron" ("Fiber-V.").

Polyethylene Fibers and Textiles - includes trade names: "Reevon," "Wynene," and "Firestone."

Protein Azlon Fibers and Textiles - includes trade names: "Caslen," and "Vicara".

Vinyl Resin Fibers and Textiles - includes trade names: "Vinyon-N" and "Vinyon-HH".

Vinylidene Chloride (Saran) Fibers and Textiles - includes trade names: "Velon," "Saran," "Lus-Trus," "National," "Boltaflex," "Dawbarn," and "Oriented."

Coir - a fiber obtained from coconuts and made into yarns - for such uses as mats, cordage and coarse cloth.

INSTRUCTIONS AND DEFINITIONS (continued)

Ramie - a plant fiber similar to hemp and flax which is made into yarns - includes such uses as cordage and coarse fabrics - strong wear resistant canvas for such products as fire hose - also for marine gland packings and twine.

Flax - a plant fiber made into yarns which includes such uses as thread, twine, cordage, and marine gland packings.

IV. LEATHER

41 00 ab*	Heavy Leather (report in terms of cattle hides only)	No. of Hides
41 10 ab*	Shoe Sole (including welting)	No. of Hides
41 11 ab*	Military Grade	No. of Hides
41 12 ab*	Non-military Grade	No. of Hides
41 20 ab*	Upper Leather	No. of Hides
41 21 ab*	Military Grade	No. of Hides
41 22 ab*	Non-military Grade	No. of Hides
41 30 ab*	Industrial Belting and Mechanical Leathers	No. of Hides
41 40 ab*	Harness and Miscellaneous Heavy Leathers	No. of Hides
42 00 ab*	Light Leather (report in terms of equivalent calf skins)	No. of Skins
42 10 ab*	Shoe, Upper and Lining	No. of Skins
42 11 ab*	Military Grade	No. of Skins
42 12 ab*	Non-Military Grade	No. of Skins
42 20 ab*	Glove, Garment, and Miscellaneous Light Leathers	No. of Skins

REPETITIVE CODE FOR SPECIES AND TANNAGE

* (a) On 5th Digit

SPECIES

1	Cattle (30 square feet or over)	6	Goat and Kid
2	Horse and Pony	7	Deer
3	Calf, including Kip (Whole)	8	Elk
4	Lamb and Sheep	9	Other
5	Chamois		

* (b) On 6th Digit

TANNAGE

1	Chrome	4	Oil
2	Vegetable	5	Alum
3	Chrome, Retanned	9	Other

INSTRUCTIONS AND DEFINITIONS

LEATHER

The categories of leather are to be further subdivided into Species and Tannage Groups as listed in the following:

Species

Cattle (30 Square feet or over)
Horse and Pony
Calf, Inc. Kip (whole)
Lamb and Sheep
Chamois
Goat and Kid
Deer
Elk

Tannage

Chrome
Vegetable
Chrome, retanned
Oil
Alum, etc.

Military Grade Leather is that grade required to meet military footwear specifications.

CONVERSION FACTORS

Cattle hide	40 square feet or 40 pounds per hide
Horse and Pony hide	34 pounds sole, 36 square feet other than sole per hide.
Calf, incl. whole Kip skin	12 square feet per skin
Lamb and Sheep skin	7 square feet per skin
Goat and Kid skin	4.7 square feet per skin

V. WOOD AND CORK MATERIALS

A. WOOD ROUNDS AND TIES

51 00	Wood, Round (species not required)	Linear Feet
51 10	Logs for Camels	Linear Feet
51 20	Poles	Linear Feet
51 30	Piles	Linear Feet
52 00	Ties (species not required)	(M. B. M.)
52 10	Switch Ties	(M. B. M.)
52 20	Bridge Ties	(M. B. M.)
52 30	Cross Ties	(M. B M.)

B. LUMBER

53 00	Lumber for Shipping (species not required)	(M. B. M.)
53 10	Lumber for Dunnage, Ship and Car, low grade	(M. B. M.)
53 20	Lumber for Dunnage, Ship Ceiling, Nos. 1 & 2 common grades	(M. B. M.)
53 30	Lumber for Dunnage, Ship Ceiling, 1200f or better stress rating	(M. B. M.)
53 40	Lumber for Boxing, Crating, and Pallets	(M. B. M.)
54 00	Lumber for Construction, Rough or Worked (species not required)	(M. B. M.)
54 10	Yard Lumber (finished lumber grade)	(M. B. M.)
54 20	Factory and Shop Grades	(M. B. M.)
54 30	Stress Grades (1200f or better stress rating)	(M. B. M.)
55 00	Lumber for Special Purposes (show species)	(M. B. M.)
55 10 cc*	Aircraft	(M. B. M.)
55 20 cc*	Gunstocks	Each
55 30 cc*	Ponton	(M. B. M.)
55 40 cc*	Ship and Boat, Planking, Sheathing, Framing, Decking and Bending Stock (Total of 5541-5542)	(M. B. M.)
55 41 cc*	Planking, Sheathing, Framing, Decking and Bending Stock, Untreated	(M. B. M.)
55 42 cc*	Planking, Sheathing, Framing, Decking and Bending Stock, Treated	(M. B. M.)
55 50 cc*	Ship and Boat, Spars & Booms (Total of 5551 and 5552)	Linear Feet
55 51 cc*	Ship and Boat, Spars & Booms, Untreated	Linear Feet
55 52 cc*	Ship and Boat, Spars & Booms, Treated	Linear Feet
55 60 cc*	Templets and Molds	(M. B. M.)
55 62 cc*	Tank Stock	(M. B. M.)

*NOTE: cc indicates fifth and sixth digits for species code found on page 38.

WOOD AND CORK MATERIALS (continued)

55 70 cc*	Truck and Trailer Bodies	(M. B. M.)
55 80 cc*	Stage & Scaffolding Planking	(M. B. M.)
56 00	Lumber for All Other Purposes (show species)	(M. B. M.)
56 10 cc*	Yard Lumber Grade	(M. B. M.)
56 20 cc*	Factory and Shop Grades	(M. B. M.)
56 30 cc*	Stress Grades (1200f or better stress rating)	(M. B. M.)
56 40 cc*	Ladder Pike and Pole Stock	(M. B. M.)

C. VENEER (SHOW SPECIES)

57 10 cc*	Hardwood Veneer for Containers (1/8 inch Rough Equivalent)	Square Feet
57 20 cc*	Other Hardwood Veneer (1/12 inch Rough Equiv.)	Square Feet
57 30 cc*	Softwood Veneer (1/8 inch Rough Equivalent)	Square Feet

D. PLYWOOD (SHOW SPECIES)

58 10 cc*	Hardwood Plywood (1/4 inch Net thickness equiv.)	Square Feet
58 11 cc*	Technical & Types I, II, & III (per CS 35-36 specification but excluding Boat Hull Plywood)	Square Feet
58 12 cc*	Aircraft (per DOD specification)	Square Feet
58 13 cc*	Container (per NN-P-515 specification, including paper-faced veneer)	Square Feet
58 14 cc*	Plastic or other non-wood-faced but excluding paper-faced veneer	Square Feet
58 15 cc*	Lumber Core	Square feet
58 16 cc*	Boat Hull (per DOD specs) Untreated	Square Feet
58 17 cc*	Boat Hull (per DOD specs) Treated	Square Feet
58 20 cc*	Softwood Plywood (3/8 inch Rough Equivalent)	Square Feet
58 21 cc*	Interior Type (per NN-P-530 spec)	Square Feet
58 22 cc*	Exterior Type (per NN-P-530 spec but excluding Boat Hull Plywood) Untreated	Square Feet
58 23 cc*	Exterior Type (per NN-P-530 spec but excluding Boat Hull Plywood) Treated	Square Feet
58 24 cc*	Container (per NN-P-515 including paper-faced veneer)	Square Feet
58 25 cc*	Plastic or other Non-wood-faced (excluding paper-faced veneer and Boat Hull Type with Resin-paper overlay)	Square Feet
58 26 cc*	Boat Hull Type (per DOD spec) Untreated	Square Feet
58 27 cc*	Boat Hull Type (per DOD spec) Treated	Square Feet
58 28 cc*	Boat Hull Type (per DOD spec) Resin-paper overlay faced, Untreated	Square Feet

*NOTE: cc indicates fifth and sixth digits for species code found on page 38.

WOOD AND CORK MATERIALS (continued)

58	29 cc*	Boat Hull Type (per DOD spec) Resin-paper overlay faced, Treated	Square Feet

E. LIGNUM VITAE

59	10	Lignum Vitae (in bulk)	Pounds

F. CORK

59	21	Raw Cork and Cork Slab (Trimmed and Sized)	Pounds
59	22	Processed Cork Materials	Pounds

REPETITIVE CODES FOR SPECIES
(5th and 6th Digits)

01 Species not specified
02 Softwoods, unspecified
03 Hardwoods, unspecified

SOFTWOODS

11	Cedar, Alaska	25	Hemlock, West Coast
12	Cedar, Eastern Red	26	Larch, Western
13	Cedar, Incense	27	Pine, Idaho white
14	Cedar, Northern White	28	Pine, Eastern White
15	Cedar, Port Orford	29	Pine, Norway
16	Cedar, Southern White	31	Pine, Ponderosa
17	Cedar, Western Red	32	Pines, Southern Yellow
18	Cypress	33	Pine, Sugar
19	Fir, Douglas	34	Redwood
21	Fir, Noble	35	Spruce, Eastern
22	Fir, White	36	Spruce, Englemann
23	Fir, Other (True firs)	37	Spruce, Sitka
24	Hemlock, Eastern	38	Tamarack

HARDWOODS

41	Ash	63	Lignum Vitae
42	Aspen	64	Locust
43	Alder, Red	65	Magnolia
44	Balsa	66	Mahogany
45	Basswood	67	Mahogany, Central and South American and African
46	Beech		
47	Buckeye	68	Maple, Hard Sugar

HARDWOODS (continued)

48	Butternut
49	Birch, Yellow
51	Birch, Other
52	Cherry
53	Chestnut
54	Cottonwood
55	Elm, Hard (Rock)
56	Elm, Other
57	Greenheart
58	Gum, Red
59	Gum, Sap
61	Hackberry
62	Hickory and Pecan
69	Maple, Soft
71	Oak, White
72	Oak, Red
73	Persimmon and Dogwood
74	Philippine Hardwoods
75	Poplar, Yellow
76	Spanish Cedar
77	Sycamore
78	Other Tropical Hardwoods
79	Teak
81	Tupelo and Black Gum
82	Walnut
83	Willow

0.330 inches or thicker, over 8 inches wide

INSTRUCTIONS AND DEFINITIONS

WOOD ROUND

Logs for camels - refers to logs 30 to 40 inches in diameter and 20 feet or more in length, generally used for pier protection in docking ships. These "camels" may also be made up of logs 8 to 10 inches in diameter and about 16 feet long, which are chained together. In this case, include the necessary material under the category of poles. Not to be confused with the buoyant watertight fabricated structures defined as "camels" which involve the use of bending oak and structural timbers.

Poles - covers, in general, telephone and telegraph poles, transmission line poles, and similar erect uses.

Piles - covers, in general, those logs used in the construction of piers, wharfs, docks, building foundations and similar uses where the logs are driven.

Spars and Booms - have many of the characteristics of poles but are defined in the specifications of the using service.

LUMBER

For all lumber (including boards, dimension and timbers), thousand feet board measure will be used. All footage is to be developed from nominal dimensions of rough green lumber.

Where specific species are to be shown, use the Species Table, page 38 for the additional classification. If in these cases alternates are allowed, show the species most likely to be used.

LUMBER FOR CONSTRUCTION, ROUGH OR WORKED (SPECIES NOT REQUIRED)

This includes lumber for troop housing, hospitals, administration buildings, hangars, munitions plants, depots, holding and re-consignment points, advance bases, shipyards, naval operating bases, docks and piers. Definitions of lumber classifications will be found in Simplified Practice Recommendation R16 for soft woods and in the grading rules of the National Hardwood Lumber Association for hardwoods.

LUMBER FOR ALL OTHER PURPOSES (SHOW SPECIES)

This includes all lumber which cannot be classified in any of the above categories. It includes stock for such items as ladders, tent poles, cots, bedsteads, skis, toboggans, tool handles, patterns, flasks, cooperage and furniture. If a specific species is required, that species should be reported. For those cases in which alternate softwoods are allowed, the species will be indicated in Softwood, Unspecified. Where alternate hardwoods are allowed, the species will be indicated

LUMBER FOR ALL OTHER PURPOSES (SHOW SPECIES) (continued)

in Softwood, Unspecified. Where alternate hardwoods are allowed, the species will be indicated as Hardwood, Unspecified. If either hardwoods or softwoods are allowed, the designation will be Species not Required.

VENEER

For the specific species use the Species Table, page 38. Veneers are to be converted to the thickness equivalents indicated. The following conversion table will be used for the standard veneer thicknesses shown; for other thicknesses use appropriate conversion factors.

Required Thickness In Inches (Rough)	Multiply by following figures to convert to: 1/8 Inch	1/12 Inch
1/32 (1/31 - 1/34)	0.25	0.375
1/28 (1/27 - 1/30)	0.2857	0.4285
1/24 (1/23 - 1/26)	0.330	0.50
1/20 (1/19 - 1/22)	0.40	0.60
1/16 (1/15 - 1/18)	0.50	0.75
1/12 (1/11 - 1/14)	0.667	1.00
1/8 (1/7 - 1/10)	1.00	1.50
1/6	1.3330	2.00
1/4	2.00	3.00
5/16	2.50	3.75

INSTRUCTIONS AND DEFINITIONS (continued)

PLYWOOD

For the specific species use the Species Table, page 38. If more than one species is involved use the face species. Hardwood plywoods are to be reported in square feet converted to a 1/4 inch net basis. Softwood plywoods are to be reported in square feet converted to a 3/8 inch rough basis. The following conversion table will be used for the standard thicknesses shown; for other thicknesses use appropriate conversion factors.

INSTRUCTIONS AND DEFINITIONS (continued)

Softwood Plywood Conversion Table
(To arrive at 3/8 inch thick rough footage)

Sanded Thickness (Inch)	Rough Thickness (Inch)	Multiply by
3/16		0.6667
1/4	5/16	0.8333
	3/8	1.0000
3/8		1.1667
	1/2	1.3333
1/2		1.5000
9/16	5/8	1.6667
5/8		1.8333
3/4		2.1667
7/8		2.5000
1		2.8333
1-1/8		3.1667

Hardwood Plywood Conversion Table

Required Thickness (Inch Net)	Multiply by following figures to convert to 1/4 inch net
1/8	0.500
3/16	0.75
1/4	1.00
5/16	1.25
3/8	1.50
1/2	2.00
5/8	2.50
3/4	3.00
13/16	3.25
7/8	3.50
1	4.00

LIGNUM VITAE

The hard, heavy and tough wood from tropical America, with oily self lubricating bearing properties, used principally for propeller-shaft bearings in ships.

CORK

Raw Cork and Cork Slab - includes raw cork (corkwood or bark; milling cork; grinding cork), blocks, slabs, planks, boards, life preserver blocks, stock for cork stoppers; and other applications of slab cork.

Processed cork materials - includes such as gaskets, tiles, disks, washers, and similar applications of processed cork materials including ground cork.

Where quantities of cork materials in the form of slabs, blocks, planks, or boards are expressed in board feet measure, the conversion factor to pounds is 8/10 pounds per board foot.

V. PULP, PAPER, AND PAPERBOARD MATERIALS

62 00	Newsprint	Short Tons
63 10	Groundwood Paper, Uncoated	Short Tons
63 20	Machine Coated Printing and Converting Paper	Short Tons
63 30	Book Paper, Uncoated	Short Tons
63 40	Fine Paper	Short Tons
63 50	Coarse Paper	Short Tons
63 60	Special Industrial Paper	Short Tons
63 70	Sanitary Tissue Stock	Short Tons
63 80	Tissue Paper, except Sanitary and Thin Paper	Short Tons
63 90	Absorbent Paper	Short Tons
64 10	Container Board	Short Tons
64 20	Bending Board	Short Tons
64 30	Non-bending Board	Short Tons
64 40	Special Paperboard Stock	Short Tons
64 50	Cardboard	Short Tons
65 00	Wet Machine Board	Short Tons
66 10	Building Paper	Short Tons
66 20	Building Board	Short Tons
66 30	Flexible Wood Fiber Insulation	Short Tons
66 40	Other Construction Paper Materials	Short Tons

INSTRUCTIONS AND DEFINITIONS

PULP, PAPER AND PAPERBOARD MATERIALS

Newsprint - includes superstandard, standard and substandard grades.

Groundwood paper, uncoated - uncoated paper containing more than 25 percent ground wood pulp. Includes groundwood publication and printing paper; hanging paper; box lining and covering; base stock for coating; base stock for carbonizing; drawing, tablet and album paper; writing and mimeograph paper; railroad manila; poster paper; and other groundwood paper.

Machine coated printing and converting paper - paper coated on one or both sides in a paper machine as part of the primary process.

Book paper, uncoated - uncoated paper containing 25 percent or less groundwood pulp. Includes book publication and printing paper; body stock for coating; envelope, tablet, business-machine paper, box lining and covering; government post card and other miscellaneous book paper.

Fine paper - paper containing rags, cotton, flax and similar fibers which includes writing paper; ledger; manifold; mimeograph, gelatin and spirit process stock; index; brown print, photographic, and blueprint (sensitizing) stock; protective and duck paper; map and chart; mechanical drawing and other rag papers.

Also includes fine papers of the same categories whose base is chemical wood pulp, plus bristol; cover paper; text paper; thin paper of carbonizing grade free from groundwood pulp; condenser tissue stock; cigarette paper; and other fine paper such as stencil and lens paper.

Coarse paper - includes kraft wrapping paper, glassine, greaseproof and vegetable parchment; kraft bag paper of grocery and variety bag stock; m.f. and m.g. wrapping paper; shipping sack paper; kraft converting paper; asphalt kraft wrapping (base stock); envelope and gumming stock including kraft adhesive tape base stock; twisting, spinning and waxing stock; bread wrap stock; drinking cup stock; manila envelope stock; and other coarse paper.

Special Industrial Paper - includes all weights and calipers of such industrial paper as abrasive paper stock; cable paper, electrical insulation and armature paper and paperboard; gasket paper and paperboard; stencil backing paper and stencil board; tabulating card stock; file folder stock; tag stock; wallet and patch stock; pressboard, including imitation pressboard; and other industrial paper.

Sanitary Tissue Stock - includes sanitary napkin stock wadding, surgical dressing wadding stock, toweling stock, toilet tissue stock, napkin stock, facial tissue stock and other sanitary tissue stock.

PULP, PAPER AND PAPERBOARD MATERIALS (continued)

Tissue Paper, except sanitary and thin paper - includes wrapping tissue, waxing tissue stock, twisting tissue stock, fruit and vegetable wraps, crepe wadding for packing, and other tissue paper stock.

Absorbent paper - includes blotting paper, chemical and air filter paper; matrix paper and board; vulcanizing fiber stock, resin impregnating stock, die wiping stock and other absorbent paper.

Container board - includes kraft, jute and other liners; kraft, straw, bogus and other corrugating materials; container chipboard. (This classification includes stock for "V" and "W" boxes. "V" board is water resistant fiberboard capable of withstanding the most severe conditions of shipping, handling and storage including resistance to ply separation on water immersion; is made of plies of heavily sized and dense fiberboard. "W" board is similar to "V" board but of lighter grades of water resistant fiberboard; is used where the greater strength of "V" board is not required.)

Bending board - includes bending boxboard stock; single and double lined manila and other chipboard; coated boxboard of all types, solid manila and chemical pulp board; food container stock; and other bending board stock.

Nonbending board - includes setup boxboard; solid newsboard; strawboard; and other nonbending board.

Special paperboard stock - includes tube, can and drum stock; solid woodpulp board; match board; egg case filler board; panel board; building board stock for gypsum and plaster board; laminated wallboard stock; and other special paperboard stock.

Cardboard - includes mill blanks; photomount stock; bogus bristol; playing card stock; railroad and poster manila; and other cardboard.

Wet Machine Board - includes binder's board; shoe board; and other wet machine board.

Building paper - includes sheathing paper; roofing, flooring, automotive and other felts; asbestos paper and asbestos filled paper; and other building paper.

Building board - includes wallboard and ;insulating wallboard (except laminated wallboard) such as roof insulation board, interior board factory finished; panels; plank; sheathing board.

Flexible Wood Fiber insulation - this ;includes blankets, bats and ;fills.

VII. INDUSTRIAL OILS

71 00	Oils, Industrial	Pounds
71 01	Castor Oil	Pounds
71 02	Coconut Oil	Pounds
71 03	Linseed Oil	Pounds
71 04	Neatsfoot oil	Pounds
71 05	Oiticica Oil	Pounds
71 06	Palm Oil	Pounds
71 07	Oleic Acid (Red Oil)	Pounds
71 08	Sperm Oil	Pounds
71 09	Tung Oil	Pounds
71 11	Wool Grease and Lanolin	Pounds
71 13	Peanut Oil	Pounds

INSTRUCTIONS AND DEFINITIONS

INDUSTRIAL OILS

Significant uses of these oils include, but are not limited to the following applications:

Castor Oil - for dehydrated castor oil in paints, for hydraulic fluids, and for sebacic acid.

Coconut Oil - for service soaps; cocoamines for disinfectans; and coconut oil acids for incendiaries.

Linseed Oil - for use in paint formulations.

Neatsfoot Oil - for use in protective dubbing compounds for leather.

Oiticica Oil - for use in special salt water varnish formulations.

Palm Oil - for use in manufacture of tin plate and cotton finishing.

Red Oil (Oleic acid) - for use in incendiaries.

Sperm Oil - for use in leather dressing and insecticides.

Tung Oil - for paint and varnish formulations.

Wool grease, including Lanolin - for rust preventative compounds.

VIII. CHEMICALS AND DRUGS

A. CHEMICALS

1. SOLVENTS

73 01	Acetone	Short Tons
73 02	Butyl Alcohol	Pounds
73 03	Carbon Tetrachloride	Gallons
73 04	Ethyl Alcohol	Gallons
73 05	Furfuryl Alcohol	Gallons
73 06	Isopropyl Alochol	Pounds
73 07	Methyl Alcohol	Pounds
73 08	Methyl Ethyl Ketone	Gallons
73 09	Methylene Chloride	Pounds
73 10	Ethyl Acetate	Pounds
73 11	Perchlorethylene	Gallons
73 12	Trichlorethylene	Pounds
73 13	Turpentine	Gallons
73 15	Diethylenetriamine	Pounds

2. ACIDS, MINERAL

81 11	Chlorosulfonic Acid	Short Tons
81 12	Hydrofluoric Acid	Short Tons
81 13	Sulfuric Acid (including Oleum)	Short Tons

3. ACIDS. ORGANIC

81 21	Acetic Acid (Glacial)	Short Tons
81 22	Acetic Anhydride	Short Tons
81 23	Citric Acid	Pounds
81 24	Monochloracetic Acid	Pounds
81 25	Naphthenic Acid and Derivatives	Pounds

4. ALKALIS AND CHLORINE

81 31	Calcium Hypochlorite (High-test)	Pounds
81 32	Chloride of Lime (Bleaching Powder)	Short Tons
81 33	Chlorine	Short Tons
81 34	Sodium Carbonate (Soda Ash)	Short Tons
81 35	Chloro-melamine	Pounds
81 36	Potassium Hydroxide	Pounds
81 37	Sodium Hydroxide (Caustic Soda)	Short Tons

VIII. CHEMICALS AND DRUGS (continued)

5. NITROGEN CHEMICALS

81 41	Ammonia (Anhydrous)	Short Tons
81 42	Calcium Cyanamid	Short Tons
81 43	Nitric Acid (65 percent)	Short Tons
81 44	Nitric Acid, Fuming (Indicate White or Red)	Short Tons
81 45	Ammonium Nitrate	Short Tons
81 46	Ammonium Sulfate	Short Tons
81 47	Sodium Nitrate	Short Tons
81 48	Urea	Short Tons
81 49	Nitrogen Tetroxide	Pounds

6. GASES, INDUSTRIAL

81 61	Acetylene	Cubic Feet
81 62	Argon	Cubic Feet
81 63	Carbon Dioxide (Gas)	Pounds
81 64	Carbon Dioxide (Dry Ice)	Pounds
81 66G	Helium (Gas)	Cubic Feet
81 66L	Helium (Liquid)	Pounds
81 67G	Nitrogen (Gas)	Cubic Feet
81 67L	Nitrogen (Liquid)	Short Tons
81 68	Oxygen (Gas)	Cubic Feet
81 69	Oxygen (Liquid)	Short Tons

7. COAL TAR AND PETROLEUM DERIVATIVES

81 71	Aniline	Pounds
81 72	Benzene	Pounds
81 73	Benzil	Pounds
81 74	Cresols	Pounds
81 75	Naphthalene	Pounds
81 76	Hydroquinone	Pounds
81 77	Phenol	Pounds
81 78	Phthalic Anhydride	Pounds
81 79	Toluene	Pounds
81 81	Dimethyl Phthalate	Pounds
81 82	Diethyl Phthalate	Pounds
81 83	Dibutyl Phthalate	Pounds
81 84	Di-2-ethylhexyl Phthalate	Pounds
81 85	Di-n-octyl Phthalate	Pounds
81 86	Di-iso-octyl Phthalate	Pounds
81 89	Xylene	Pounds

VIII. CHEMICALS AND DRUGS (continued)

8. MISCELLANEOUS CHEMICALS

82 01	Acetylene Black	Pounds
82 02	Antimony Oxide	Pounds
82 03	Antimony Sulfide	Pounds
82 04	Auramine Hydrochloride	Pounds
82 11	Bromofluoro hydrocarbons	Pounds
82 15	Calcium Carbide	Short Tons
82 16	Calcium Cyanide	Pounds
82 17	Calcium Hydride	Pounds
82 18	Carbonyl Iron	Pounds
82 19	Charcoal, Activated	Pounds
82 21	Chrome Chemicals and Pigments (See repetitive code page 50)	Pounds
82 22	Cuprous Oxide	Pounds
82 23	Calcium (Metallic)	Pounds
82 24	Charcoal (not activated)	Pounds
82 25	Chlorofluoro hydrocarbons (Freons)	Pounds
82 27	Ethylene Glycol	Pounds
82 34	Glycerine	Pounds
82 35	Di-octyl Sebacate	Pounds
82 36	Di-octyl Azelate	Pounds
82 41	Hexachlorethane	Pounds
82 42	Iron Oxide - Magnetic	Pounds
82 43	Iron Oxide - Red	Pounds
82 44	Lead Carbonate, Basic (White Lead)	Pounds
82 45	Lead Oxide (Red Lead)	Pounds
82 46	Lithium and Compounds	Pounds
82 51 N	Manganese, Battery Grade, Natural Ore	Short Tons
82 51 S	Manganese, Battery Grade, Synthetic Dioxide	Short Tons
82 52	Microcrystalline Wax	Pounds
82 53	Methylamine Anthraquinone	Pounds
82 54	Methyl Chloride	Pounds
82 56	Phenyl Cyclohexane	Pounds
82 57	Paraffin, Chlorinated	Pounds
82 58	Pentaerythritol	Pounds
82 61	Phosphorus, White	Pounds
82 62	Phosphorus, Red	Pounds
82 63	Polyvinyl Alcohol	Pounds
82 66	Potassium Chlorate	Pounds
82 67	Phosphorous Trichloride	Pounds
82 68	Picoline	Pounds
82 69	Pyridine	Pounds
82 71	Silica Gel	Pounds

VIII. CHEMICALS AND DRUGS (continued)

8. MISCELLANEOUS CHEMICALS (continued)

82 72	Sodium Acetate, Anhydrous	Pounds
82 73	Silver Nitrate	Pounds
82 74	Sodium, Metallic	Pounds
82 75	Sodium Phosphates	Pounds
82 76	Sodium Oxalate	Pounds
82 77	Sulphur	Long Tons
82 81	Trioxane	Pounds
82 82	Triacetin	Pounds
82 83	Titanium Dioxide	Pounds
82 84	Titanium Tetrachloride	Pounds
82 85	Wax, Paraffin (not chlorinated)	Pounds
82 91	Yellow Iron Oxide (Natural)	Pounds
82 96	Zinc Oxide	Pounds

REPETITIVE CODE FOR CHROME CHEMICALS AND PIGMENTS (Base Code 8221)

01	Sodium Bichromate
02	Sodium Chromate
03	Chromic Acid
04	Lead Chromate
05	Zinc Chromate
06	Chrome Green Oxide

9. EXPLOSIVES AND PROPELLANT MATERIALS

83 04	Ammonium Picrate	Pounds
83 06	Barium Nitrate	Pounds
83 07	Barium Peroxide	Pounds
83 08	Black Powder	Pounds
83 11	Calcium Silicide	Pounds
83 12	Dimethyl Hydrazine, Unsymmetrical (UDMH)	Pounds
83 13	Ethyl Centralite (Diethyldiphenylurea)	Pounds
83 14	Fluorine	Pounds
83 15	Hydrazine	Pounds
83 16	Hydrogen Peroxide (70 percent and over by weight)	Pounds
83 21	Lead Azide	Pounds
83 23	Lead Styphnate	Pounds
83 26	Mercury Fulminate	Pounds
83 28	Monomethyl Hydrazine (MMH)	Pounds
83 30	Nitrocellulose	Pounds

VIII. CHEMICALS AND DRUGS (continued)

9. EXPLOSIVES AND PROPELLANT MATERIALS (continued)

83 32	Nitroglycerine	Pounds
83 33	Nitroguanidine	Pounds
83 34	Smokeless Powder (Triple Base)	Pounds
83 42	Pentaerythritol Tetranitrate (PETN)	Pounds
83 43	Perchlorates (See repetitive code page 51)	Pounds
83 44	Potassium Nitrate	Pounds
83 45	Potassium Sulfate	Pounds
83 48	Cyclotrimethylyene Trinitramine (RDX)	Pounds
83 49	Cyclotetramethylenetetranitramine (HMX)	Pounds
83 53	Smokeless Powder (Double Base)	Pounds
83 54	Smokeless Powder (Single Base)	Pounds
83 67	Tetryl (Trinitrophenyl Methylnitramine)	Pounds
83 69	Trinitrotoluene	Pounds
83 70	Strontium Chemicals	Pounds
83 71	Strontium Nitrate	Pounds
83 72	Strontium Oxalate	Pounds
83 73	Strontium Peroxide	Pounds
83 74	Strontium Tartrate	Pounds
83 80	Composition A-3	Pounds
83 85	Composition B	Pounds
83 90	Diphenylamine	Pounds
83 95	2-Nitrodiphenylamine	Pounds

REPETITIVE CODE FOR PERCHLORATES (Base Code 8343)

01 Ammonium Perchlorate
02 Potassium Perchlorate
03 Lithium Perchlorate

10. ALPHA CELLULOSE RAW MATERIALS

84 10	Cotton Linters Pulp (Nitrating Grade)	Short Tons
84 20	Wood Pulp (Nitrating Grade)	Short Tons

11. INSECTICIDES

85 11	Aliphatic Thiocyanates	Pounds
85 12	Allethrin	Pounds
85 13	Benzene Hexachloride (Gamma Isomer, Lindane)	Pounds
85 14	Chlordane	Pounds
85 15	Dichloro-Diphenyl-Trichlorethane (DDT)	Pounds

VIII. CHEMICALS AND DRUGS (continued)

11. INSECTICIDES (continued)

85 16	Dieldrin	Pounds
85 17	Methylated Naphthalenes	Pounds
85 19	Piperonyl Butoxide	Pounds
85 21	Pyrethrum (20 percent Extract)	Pounds
85 22	Thiocyanoacetates	Pounds

12. INSECT REPELLANTS

85 70	Indalone (Mesityl Oxide Oxalic Acid n-Butyl Ester)	Pounds
85 80	612 (2 Ethyl Hexanediol 1-3)	Pounds
85 90	Benzyl Benzoate	Pounds

13. FUNGICIDES

86 10	Phenyl Mercury Ethanolamine Lactate	Pounds
86 20	Phenyl Mercury Oleate	Pounds
86 30	G-4 (Dihydroxy Dichlor Diphenyl Methane)	Pounds
86 40	Copper 8 Quinolinolate	Pounds
86 50	Copper Naphthenate	Pounds
86 60	Trimethyl Cetyl Ammonium Pentachlor Phenate	Pounds
86 70	Paranitrophenol	Pounds
86 81	Pentachlorophenol	Pounds
86 82	Acid Cupric Chromate	Pounds
86 83	Ammoniacal Copper Arsenate	Pounds
86 84	Chromated Zinc Chloride	Pounds
86 85	Tanalith (sodium fluoride, disodium hydrogen arsenate, sodium chromate, dinitrophenol)	Pounds

14. RODENTICIDES

87 10	Red Squill	Pounds
87 20	Sodium m-fluoroacetate	Pounds
87 30	Zinc Phosphide	Pounds

INSTRUCTIONS AND DEFINITIONS

CHEMICALS

Significant uses of the chemicals include, but are not limited to, the following applications:

Acids, Mineral

Chlorosulfonic acid - for chemical smokes.
Hydrofluoric acid - for chemical warfare munitions.
Sulfuric acid (including oleum) for manufacture of explosives, and for automotive and submarine storage batteries.

Acids, organic

Acetic acid (Glacial) - for chemical warfare munitions.
Acetic Anhydride - for manufacture of explosives.
Citric Acid - for chemical warfare munitions.
Monochloracetic acid - for chemical warfare munitions.
Naphthenic acid and Derivatives - for fungicides, paint driers, and chemical warfare munitions.

Alkalis and Chlorine

Calcium hypochlorite - for decontaminating agents.
Chloride of lime (bleaching powder) - for decontaminating agents.
Chlorine - for chemical warfare munitions.
Sodium carbonate - for explosives.
Chloro-melamine - for water purification.

Basic Nitrogen Chemicals - for manufacture of explosives and propellants.

Solvents

Acetone - for smokeless powder manufacture.
Butyl alcohol - for lacquer and enamel solvents.
Carbon Tetrachloride - for chemical warfare munitions.
Ethyl alcohol (95 percent) - for smokeless powder.
Furfuryl alcohol - for rocket fuel.
Isopropyl alcohol - for chemical warfare munitions.
Methyl alcohol - for explosives.
Methyl-ethyl ketone - for chemical warfare munitions.
Methylene chloride - for non-flammable paint remover.
Perchlorethylene - for degreasing operations.

Solvents (continued)

Trichlorethylene -for degreasing and dry cleaning operations.
Turpentine - for paint formulations.

Gases, Industrial

Acetylene - for welding and cutting of metals.
Argon - for shielded arc welding.
Carbon dioxide gas - for fire extinguishers and fire extinguishing systems.
Carbon dioxide, dry ice - as refrigerant in transportation of temperature sensitive medical supplies, such as blood plasma.
Helium - includes Grade "A" (oil free) and Grade "D". Used for welding, breathing apparatus, and lighter-than-air-craft.
Nitrogen - for inert gas applications.

Coal Tar and Petroleum Derivatives

Aniline - for manufacture of explosives.
Benzene - for manufacture of explosives and synthetic detergents.
Benzil - for chemical warfare munitions.
Cresols (including ortho, meta and para cresols and cresylic acid) - for carbon stripping compounds, and in tricresyl phosphate for heat and fire resistant electrical cable.
Hydroquinone - for photographic use.
Naphthalene - for mothproofing and synthetic detergents.
Phenol - for manufacture of explosives and synthetic resins.
Phthalic anhydride - for alkyd resin paints.
Dimethyl Phthalate - for insect repellants.
Diethyl Phthalate - for smokeless powder.
Dibutyl Phthalate - for smokeless powder.
Toluene - for manufacture of explosives.

Miscellaneous Chemicals

Acetylene black - for special dry cell batteries and conductive rubber sheeting.
Antimony oxide - for fire resistance in paints and textiles.
Antimony sulfide - for flare and tracer ammunitions.
Auramine Hydrochloride - for chemical warfare munitions.
Bromofluorohydrocarbons - for fire fighting material.
Calcium carbide - for manufacture of acetylene used in welding and flame cutting operations, and for chemical warfare munitions.
Calcium cyanide - for chemical warfare munitions.
Carbonyl iron - for electronic equipment.
Charcoal (activated) - for gas masks.

Miscellaneous Chemicals (continued)

Chrome chemicals and pigments (including sodium bichromate, potassium bichromate, barium chromate, sodium chromate, chromic acid, zinc chromate, chrome green oxide) - for anodizing processes, paint pigments, refractory alloys, corrosion prevention, and for chemical warfare munitions.
Cuprous oxide - for antifouling paints.
Ethylene glycol - for anitfreeze.
Glycerine - for manufacture of explosives.
Lead carbonate, basic (White Lead) - as paint pigment.
Lead Oxide (Red Lead) - as paint pigment.
Lithium and compounds - includes lithium metal, lithium hydride, chloride, carbonate and hydroxide.
Microcrystalline Wax - for packaging.
Methylamine Anthraquinone - for chemical munitions.
Phenyl Cyclohexane - for chemical munitions.
Paraffin, chlorinated - for waterproofing cotton duck.
Pentaerythritol - for manufacture of explosives.
Phosphorus, white - for chemical warfare munitions.
Phosphorus, red - for manufacture of ammunition.
Polyvinyl alcohol - for chemical warfare munitions and adhesives.
Potassium Chlorate - for chemical munitions.
Phosphorus Trichloride - for chemical munitions.
Picoline - for textile treatment.
Pyridine - for textile treatment.
Silica gel - as dessicant in packaging.
Sodium acetate, anhydrous - for chemical warfare munitions.
Silver Nitrate - for de-salting water.
Sodium phosphates (includes trisodium phosphate, sodium hexametaphosphate, tetra sodium pyrophosphate, and sodium tripoly phosphate) for cleaning and washing compounds.
Sulphur - for chemical munitions.
Trioxane - in heating pads and fuel tablets.
Triacetin - in munitions manufacture.
Titanium Dioxide - as paint pigment.
Titanium tetrachloride - for chemical smokes.
Wax, paraffin (not chlorinated) - for decontaminating ingredients,
Yellow Iron Oxide (Natural) - for treatment of cotton duck.
Zinc Oxide - as paint pigment.

Explosives and Propellants - basic materials in ammunition programs.

Alpha Cellulose Raw Materials - basic materials for smokeless powders.

Insect Repellants - in addition to this group, note that dimethyl phthalate listed under Coal Tar and Petroleum Derivatives is also used as in insect repellant.

VIII. CHEMICALS AND DRUGS (continued)

B. DRUGS

1. ANESTHETICS

88 11	Ethyl Ether	Pounds
88 12	Nitrous Oxide	Pounds
88 13	Thiopental, Sodium	Pounds
88 14	Benzocaine	Pounds
88 15	Lidocaine Hydrochloride	Pounds
88 19	Others	Pounds

2. ANTIBIOTICS

88 21	Chlortetracycline	Pounds
88 22	Erythromycin	Pounds
88 23	Bacitracin	Units
88 24	Chloramphenicol	Pounds
88 25	Dihydrostreptomycin	Pounds
88 26	Penicillin	Grams
88 27	Neomycin	Pounds
88 28	Streptomycin	Pounds
88 29	Oxytetracycline	Pounds
88 30	Polymycin	Pounds
88 31	Tyrothricin	Pounds
88 32	Tetracycline	Pounds

3. BLOOD, BLOOD DERIVATIVES AND BLOOD EXPANDERS

88 33	Whole Blood	500 cc
88 34	Dextran	Pounds
88 35	Globulin, Immune, Serum	cc
88 36	Plasma, Normal, Human	500 cc
88 37	Polyvinylpyrrolidone (PVP)	Pounds
88 38	Serum Albumen, Human	100 cc
88 39	Serum Albumen, Bovine	50 cc

4. VITAMINS

88 41	Folic Acid	Pounds
88 42	Pantothenic Acid	Pounds
88 43	Pyridoxine Hydrochloride	Pounds
88 51	Ascorbic Acid	Pounds
88 52	Nicotinamide	Pounds
88 53	Riboflavin	Pounds

VIII. CHEMICALS AND DRUGS (continued)

B. DRUGS (continued)

4. VITAMINS (continued)

88 54	Thiamine	Pounds
88 55	Vitamin A (Synthetic or Fish Liver Oils)	Billion Units
88 56	Vitamin D	Billion Units
88 57	Vitamin K	Pounds
88 58	Vitamin B_{12}	Pounds

5. VACCINES

88 45	Tetanus (and Combinations)	cc
88 46	Smallpox	Immunizations
88 47	Typhoid - Paratyphoid	cc

6. DRUGS OF ANIMAL ORIGIN

88 61	Adrenal Derivatives	Units
88 62	Adrenocorticotropic Hormone	Grams
88 65	Cortisone Acetate	Grams
88 71	Insulin	Units
88 73	Liver Extracts	Units
88 75	Pancreatic Derivatives (except Insulin)	Units
88 76	Suture Materials	Units
88 77	Thyroid Derivatives	Grams

7. MEDICINAL CHEMICALS

88 83	Bismuth (content of Bismuth in Medicinal Compounds)	Pounds
88 85	Chloroquine (Diphosphate)	Pounds
88 88	Dimercaprol (BAL)	Pounds
88 91	Halazon	Pounds
88 93	Iodine	Pounds
88 96	Potassium Iodide	Pounds
88 97	Primaquine Diphosphate	Pounds
88 98	Sulfa Drugs	Grams
88 99	Undecylenic Acid	Pounds

8. BOTANICAL DRUGS

89 01	Agar	Pounds
89 11	Atropine	Pounds

VIII. CHEMICALS AND DRUGS (continued)

B. DRUGS (continued)

8. BOTANICAL DRUGS

89 12	Belladonna	Pounds
89 13	Benzoin	Ounces
89 21	Caffeine	Pounds
89 22	Cocaine Hydrochloride	Ounces
89 28	Digitalis	Ounces
89 30	Ergonovine (Natural and Synthetic)	Pounds
89 32	Ergot	Pounds
89 33	Ergotamine	Pounds
89 41	Hematoxylin	Ounces
89 42	Hyoscine	Ounces
89 46	Ipecac	Pounds
89 54	Oil of Theobroma	Pounds
89 55	Opium	Ounces
89 56	Oil of Cloves	Ounces
89 61	Physostigmine	Ounces
89 68	Quinidine	Ounces
89 69	Quinine	Ounces
89 74	Tragacanth (Medical Use)	Pounds

IX. RUBBER AND PLASTICS

A. RUBBER MATERIALS, NATURAL & SYNTHETIC

91 01	Natural Rubber, Latex	Pounds
91 02	Natural Rubber, Dry	Pounds
91 03	Thiokols (Alkyl Polysulfides)	Pounds
91 04	Butadiene-Acrylonitriles (N-type)	Pounds
91 05	Polychloroprene (Neoprene)	Pounds
91 06	Butadiene-Styrene (SBR)	Pounds
91 07	Polyisobutylenes (Vistanex)	Pounds
91 09	Isobutylene-isoprenes (Butyl)	Pounds
91 11	Silicone Elastomers	Pounds
91 12	Stereo-Polybutadienes	Pounds
91 13	Stereo-Polyisoprenes	Pounds
	Polyacrylates (see 9201 - Acrylics)	
	Polyvinyl Elastomers (see 9259 - Polyvinyl Resins)	

Note: Include oil content

B. PLASTIC MATERIALS, NON-RUBBER
(Excluding Fiber and Textile Materials)

92 00	Plastic Materials	Pounds
92 01	Acrylics	Pounds

IX. RUBBER AND PLASTICS (continued)

B. PLASTIC MATERIALS, NON-RUBBER (continued)

92 02	Alkyds	Pounds
92 12	Cellophane	Pounds
92 13	Cellulose Acetate	Pounds
92 14	Cellulose Acetate-Butyrate	Pounds
92 16	Diallylphthalate	Pounds
92 18	Epoxy Resins	Pounds
92 21	Ethyl Cellulose	Pounds
92 28	Fluorohydrocarbons	Pounds
92 35	Melamine Resins	Pounds
92 40	Nylon Plastic Materials (excluding fabrics, cordage and bristles)	Pounds
92 55	Phenolic Base Plastics	Pounds
92 56	Polyethylene (irradiated and non-irradiated)	Pounds
92 57	Polystyrene	Pounds
92 58	Polyester Resins	Pounds
92 59	Polyvinyl Resins	Pounds
92 70	Resorcinol Resins	Pounds
92 81	Urea Resins	Pounds

INSTRUCTIONS AND DEFINITIONS

RUBBER MATERIALS

Butadiene-Acrylonitriles - include N-type rubbers, Butaprene N Series, Chemigum N, Hycar, Perbunan.

Butadiene-Styrene - includes the GR-S and Buna-S types of rubbers and those copolymers with less than 75 percent styrene.

Polyacrylates (see Acrylics)

Polyisobutylene - includes Vistanex.

Polyisobutylene-Isoprene - includes Butyl and Butyl B.

Polyvinyl Elastomers (see Polyvinyl Resins)

Synthetic latex - is to be included under the respective synthetic rubber with which it is associated.

PLASTICS MATERIALS

The best guide to the new and widely increasing applications of the synthetic plastics materials is their identification in terms of the trade name designations.

Acrylics - Polymethyl methacrylate, other poly methacrylates and polyacrylates, including lactoprene. Trade names "Plexiglas","Lucite".

Alkyds - Phthalic anhydride base, maleic anhydride base, higher aliphatic polybasic acid base. Trade names "Amberlac", "Beckasol", "Carbic", "Dyal", "Glyptal", "Mirasol", "Pentalyn", Rezyl", "Plaskon Coating Compounds", "Syntex".

Cellulose Acetate - Butyrate - Trade name "Tenite II".

Fluorohydrocarbons - Polytetrafluoroethylene, polychlorotrifluoroethylene. Trade names "Teflon", "Kel-F".

Melamine Resins - Melamine-formaldehyde. Trade names "Melmac", "Melantine", "Resimene", "Plaskon Melamine".

INSTRUCTIONS AND DEFINITIONS (continued)

PLASTIC MATERIALS (continued)

Phenolic Base Plastics - Phenol-formaldehyde, cresol-formaldehyde, phenol-furfural, para phenylphenol-formaldehyde, para tertiary butyl phenol-formaldehyde. About 28 companies manufacture these materials under various trade names.

Polyethylene - Trade names "Polythene", "Bakelite polyethylene".

Polystyrene - About 16 companies manufacture or sell this material under 26 trade names. "Polystyrene" is the common generic term.

Polyester resins - Various combinations of acids (such as maleic, fumaric or phthalic) with alcohols (such as allyl or ethylene glycol) and unsaturated hydrocarbons (such as styrene or cyclopentadiene). Trade names "Laminac", "MR-Resins", "Paraplex", "Phoresin", "Selectron", "Vibrin".

Polyvinyl resins - Include trade names such as "Vinylite", "Koroseal", "Korogal", "Koron", "Gelva", "Geon", "Marvinol", "Formvar", "Saran", and "Butvar".

Urea Resins - Urea-formaldehyde. Trade names "Beetle", "Plaskon Urea", "Sylplast", "Catalin Urea", "Ronite".

Resorcinol-formaldehyde - Trade names "Bostik", "CD Cement", "Cordo-Bond", "Lotol", "Penacolite", "Resinox", "Resorsabond", and "Rezoform".

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