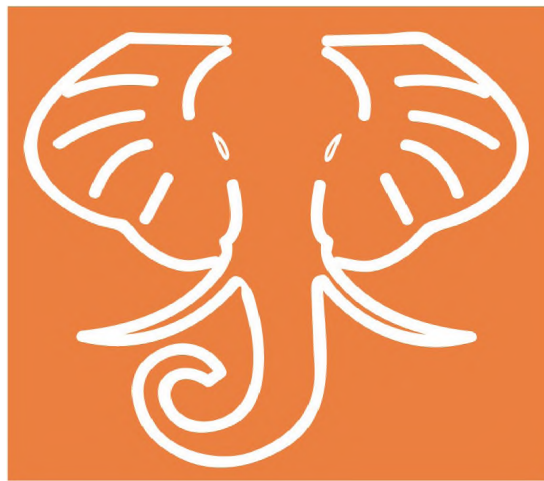


Talcs: magnesium silicate, pyrophyllite, soapstone, steatite.

Whittaker, Clark & Daniels, inc.
New York, 1957.

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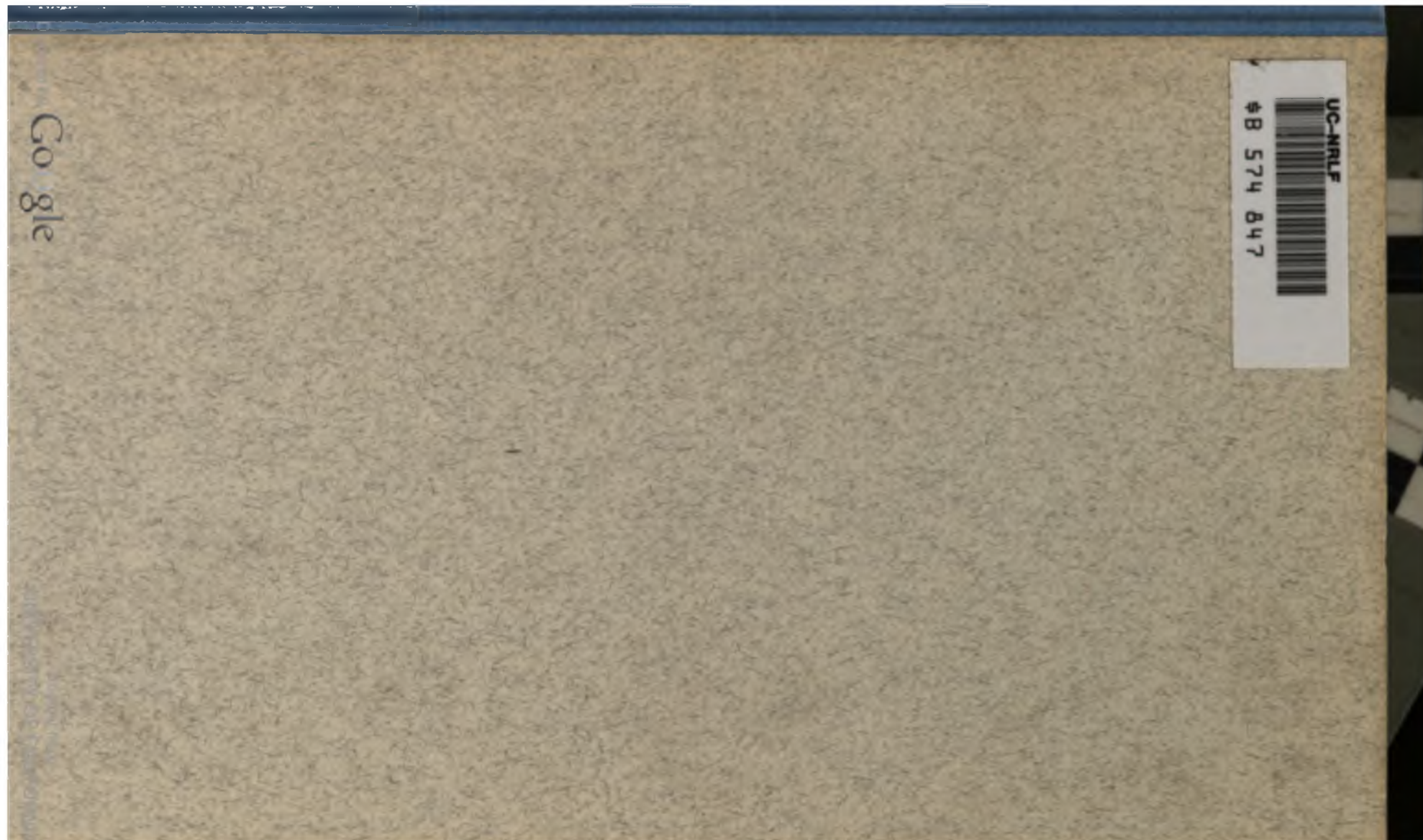
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**MAGNESIUM SILICATE
(TALC)**

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Pigments

WHITTAKER

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260 WEST BROADWAY
NEW YORK 13, N. Y.



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ARIUM SULFATE—Natural, Precipitated
ARYTES
INTONITE—Volclay, KWK, High and Low Gel, Powdered, Granular
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.ANC FIXE—By-Product, Direct Process
.UE—Phthalocyanine, Ultramarine
ALCIUM CARBONATE—Natural, Ground Calcite, Precipitated, Technical, U.S.P.
ALCIUM HYDROXIDE
ALCIUM OXIDE
ALCIUM SULFATE—Anhydrous, Natural
HALK—Lump, Pellets, Prepared, Cliffstone, Whiting, Precipitated, U.S.P., French, Natural
.AYS—Colloidal, English, Domestic, Ball, China, U.S.P.
OLORS—Natural Earth, Lo-Micron, Cosmetic, Certified D & C
OCUS MARTIS—Venetian Red
ROMIUM OXIDE GREEN
AYONS—"Clover" Brand, Metal Workers
CLONOX—Polishing Abrasive
ENTAL PLASTER
ATOMACEOUS EARTH—Powdered
LDSPAR—Powdered, Graded
ILTERING AIDS & EARTHS—Fullers Earth, Talc, Magnesium Carbonate, Pumice, Quartz
.INT—Powdered, Graded
.UORSPAR—Powdered, Graded
JLLERS EARTH—Powdered, Granular, Calcined
ISE FILLER PELLETS—Electrical
RAPHITE—Powdered
ROUND GLASS—Powdered, Graded
YPSUM—Terra Alba, Powdered
YDRATED LIME
YDRO MAGMA—Base Material for Milk of Magnesia
IFUSORIAL EARTH
ON OXIDE—Red, Black, Yellow, Electronic
AOLIN—Washed, Colloidal, Air Floated, Lump, Powdered
ESELGUHR—Powdered
ME—Powdered, Lump, Vienna
MESTONE—Ground, Agricultural, Graded
MAGNESIUM CARBONATE—Light, Heavy, U.S.P., Technical

MAGNESIUM HYDROXIDE—Medical Powdered, Paste
MAGNESIUM OXIDE—Light, Heavy, Technical
MAGNESIUM SILICATE—Lo-Micron, U.S.P. Fibrous
MAGNESITE—Powdered
MARBLE—Powdered, Granular
MAGLITE M—Magnesium Oxide for Neoprene
METALLIC SOAPS: (STEARATES)—Aluminum, Barium, Calcium, Magnesium, Zinc Palmitate
MICA—Water and Dry Ground, Scrap, Sheet
OCHRE—Domestic, French
PLASTER PARIS—Common, Gauging, Dental, Orthopedic, Potters, Casting
PUMICE STONE—All Grades, American, Italian Ground
PYROPHYLLITE—Powdered, Lump
QUARTZ—Powdered, Graded
RED OXIDE—Pure Copperas, Venetian, Spanish
ROTTENSTONE—Powdered
ROUGE—White, Red, Black, Green, Optical
SERICITE—Powdered, Micaceous
SIENNAS—Raw, Burnt
SILEX—Powdered, Granular
SILICA—Sand, Quartz, Amorphous, Diatomaceous
SLATE—Gray Powdered
SOAPSTONE—Powdered, Granular, Block, Air Floated, Lo-Micron, Crayons
SOLAR SHADE—Greenhouse Shading
STEARATES—See Metallic Soap
STEATITE—Powdered, Block (Lava)
STEARIC ACID—Impalpable Powder, U.S.P.
TALC—All Grades: U.S.P., Powdered, Lo-Micron, Fibrous, Steatite
TERRA ALBA—Domestic, English
TERRAZZO STRIPS
TITANIUM DIOXIDE—Purified, Cosmetic Grade
TRIPOLI—Powdered
UMBERS—Raw, Burnt
VENETIAN RED—Powdered
VIENNA LIME—Powdered, Lump
VOLCANIC ASH—Powdered
VOLCLAY—See Bentonite
WHITING—Chalk, Commercial, Limestone, Precipitated, Natural
YELLOW OXIDE—Natural
ZINC OXIDE—U.S.P.

TALCS

**Magnesium Silicate
Pyrophyllite
Soapstone
Steatite**



BULLETIN No. 54-1
REVISED AUGUST 1957

WHITTAKER, CLARK & DANIELS, INC.
260 WEST BROADWAY
NEW YORK 13, N. Y.

Gift to the

GIFT

TALC

TN 948
T21V4

Talc is basically a hydrous magnesium silicate mineral with the presence or absence of other chemical components creating differences in the physical characteristics of the ore itself. The terms, soapstone, magnesium silicate, steatite, fibrous talc are frequently used interchangeably with the term talc. However, in general, the term talc is more widely used than the other types of nomenclature.

The uses of talc are varied. Talc is an ingredient for use in cosmetics, paints, paper, rubber, plastics, ceramics and many insecticide preparations. Talcs are used in large volume for dusting and polishing and there are hundreds of small tonnage users. Each industry requires specific characteristics in the talc it uses, and within the industries we find that certain products require distinct types. An example is the manufacture of paint. A distinctive grade of talc (magnesium silicate) is used for outside house paints, another grade for metal primer coatings, and still other grades of talc for lacquers and cold-water paint emulsions. Similarly, in the ceramic industry, talc that is best suited for wall tile is not necessarily satisfactory for use in refractories or electrical insulators.

A mineralogically pure talc is an extreme rarity. The term "true talc" is a better phrase to use than the term "pure talc". Actually, only a very unusual manufacturer would be interested in a talc that was mineralogically pure.

Talcs from North Carolina, Montana, California, Nevada, Italy and India come close to the classification of true talcs. The talcs from these sources are characterized by being low in foreign materials such as iron oxide, calcium oxide and aluminum oxide. It is from these sources that the best grades of talc for

cosmetic, pharmaceutical and food processing uses are obtained.

There are certain industries that require a talc having an extremely soft particle, such as the textile industry. Here an abrasive particle would tend to wear the needles, or equipment during the manufacture of the end product. This same problem applies in certain types of ceramic manufacturing where dies lose their exact size quickly if the talc particles are not of extreme softness. In general, talc containing aluminum in quantities of 2 or 3% have this soft characteristic. Such talcs occur in North Carolina, Montana, Italy and France. A further characteristic of this type of talc is that it has great resistance to heat shock when incorporated in a ceramic product. These talcs, likewise, find ready acceptance in body powders and for dusting purposes due to these physical properties.

Fibrous talc is generally associated with talcs carrying 4 to 6% calcium oxide. Curiously enough, if the calcium is present in the form of calcium carbonate, the particles tend to become crypto-crystalline rather than fibrous. Variations of this phenomenon occurs in the talcs of Death Valley, in California, northern New York state, and are often classed as tremolite types. These talcs are particularly suited for use in paints and ceramic whiteware.

Talcs from Georgia, Maryland, Vermont, Virginia and Texas are characterized by the comparatively high iron content which makes them somewhat off-color; but due to their other physical properties, they are desirable and widely used in paint, rubber, foundry and similar industries.

Pyrophyllite is a hydrous aluminum silicate having somewhat similar physical properties to talc. Because of this; it has been included with the talcs in the following pages.

Whittaker, Clark & Daniels, Inc. Page T57-2

In the preparation of talc for the various industries, great care has to be used in the mining and selection of the raw material prior to grinding. Most of the mining is done underground, although in some instances there are open-pit mines which are successfully operated. Classification of the talc ore is a very important step prior to the grinding of the ore for commercial use, and in order to secure desired results, various types of roller mills and attrition mills are employed to produce a variety of talcs. In the grinding process, careful sampling of the talc is made to keep control on the chemical analysis, particle size and physical properties.

Whittaker, Clark & Daniels, over the past sixty years has been instrumental in developing various grades of talc for special uses and has available, in addition to talcs from all over the world, qualities that are granular, finely powdered and in the 10-micron particle size range. Whittaker facilities, at our plant and laboratory in South Kearny, New Jersey, make available to the varied industries stocks of most of the grades of talc mentioned in this booklet for prompt shipment. When carloads are required, these are handled direct from the various mills producing the varied grades of talcs.

Special attention is given to the preparation of talcs of specific qualities for special uses. If you have a problem where a talc could be employed, we suggest that a "Call on Whittaker", will bring service and satisfaction.



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USES

Industries consuming talc in large volume are paint, cosmetics, ceramic, rubber, paper, pharmaceutical, roofing, insecticide and foundries.

In the paint industry, formulators of exterior paints generally use the Federal or Navy Specification 52-M-2c as their standard. Type A and Type B are defined in this standard. However, due to the scarcity of Type A, Type B is the most commonly used. Originally this specification was only met by certain New York Fibrous Talcs. During World War II, with the improved milling facilities, new talc deposits were opened so that Type B could be met from sources such as North Carolina, Georgia, Vermont, Montana and California in addition to New York.

Besides exterior house paints, talc is used in many other surface coatings for many and various reasons. Specialty talcs are used for sheen control in the best types of industrial finishes. Talcs that give compact films due to particle size are used in metal primer and sanding surfacers. In sanding surfacers, talcs that have slip are also utilized for this physical characteristic.

Surface coatings for roofing and pipe covering utilize talcs that are coarser ground than those generally used in the paint industry.

Another surface coating product using talc as an ingredient is printing ink, where talcs of extreme softness and good slip determine the grade to be used in formulations.

Cosmetic and toilet powder manufacturers probably use more talc than all other ingredients in their products. These talcs are characterized by their good

color, pleasant feel and purity.

Trends in cosmetics vary in popularity from translucent talcs to opaque talcs. All cosmetic talcs must have softness and good slip while being free from "shiners".

The ceramic industry uses talc of three distinct types.

1. Wall tile, dinnerware and art pottery manufacturers generally select a talc containing calcium in quantities up to 6% because of the fired color.
2. Electronic insulator manufacturers must have as chemically pure talc as available commercially to obtain good di-electric properties.
3. Heat insulator and specialized refractory manufacturers utilize the higher aluminum bearing talcs as these give maximum resistance to thermal shock. Talcs generally reduce the tendency to craze and lower moisture expansion.

In the rubber industry talc is used for dusting finished products and as a filler ingredient. The quality of source and grind for this industry vary widely, depending upon the actual end product of the compound.

Toxics used to combat insects and other pests are often manufactured as powders and are generally carried and extended with talc. Talc is an excellent medium for this purpose, and is utilized by insecticide producers.

Foundry practice requires talc as "Soapstone" to give smooth faces to their cores and molds.

Talcs are utilized by the paper manufacturers. Here again the quality is dependent upon the final grade of paper product produced.

Talc is required by a multitude of other industries but since the actual tonnage is relatively small, they are not described in detail, but are listed in the "Use Encyclopedia".

USE ENCYCLOPEDIA

On the pages that follow we are endeavoring to list the most common uses of this versatile material, yet even this list is not complete.

We have endeavored to break down general industries to where the information can be truly applicable. An example is, in listing "paints, varnishes and lacquers" as a class, we have shown the type of talc used in cold water paints, outside house paints, lacquers; and under ceramics, we have broken down the use as steatite insulators, art pottery, and refractories. If your specific use is not listed we believe that you can turn to some similar industry for applicable talcs.

Following the "Use Encyclopedia" are individual data sheets showing the properties of each individual talc. Samples and price quotations are gladly furnished upon request.

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TALC USE ENCYCLOPEDIA

Abrasives: Even though extremely soft mineralogically, talc is used to give the final high polish to stainless steel and certain metal alloys. It is used also for tumbling soft plastics that would be marred by harder abrasives.

Typical Talcs:

Powdered: 618, 1600, 486, 3016

Granular: 2676, 2408

Adhesives: Talc is used as a filler in many types of adhesives to increase the spreading rate.

Typical Talcs: 11, 367, 399, 2407, 2426

"After-Shave" Powder (cosmetic): See "Face Powder"

Agricultural Dusting: See "Insecticides"

Art Carvings: Use massive Block or Lava Talc (white, green, gray, black) Wonderstone.

Art Pottery: Body component to increase resistance to crazing, to reduce moisture expansion and to reduce firing temperature.

Typical Talcs: 786, 783, 610, 1772

Artificial Flowers: Used to dust the stamen so as to prevent sticking and to extend the tinting colors.

Artificial Fruit: Used as a filler and for dusting surface.

Typical Talcs: 5, 618, 1600, 2401

Whittaker, Clark & Daniels, Inc. Page T57-19

Artificial Leather (plastic vinyl coating): Used
both as a filler and as a dusting agent.

Typical Talcs:

Dusting: 367, 150, 11, 1648, 2407,
2426

Filler:

Lo-Micron types: 399, 2130, 490

Powdered: 5, 130, 618, 2401

Asphalt Coatings (paint): Inert filler. Can
be supplied with guaranteed ignition loss if requested.

Typical Talcs: 367, 470, 1367, 1371

Asphalt Packing: Inert filler.

Typical Talcs: 470, 1367, 1751

Asphalt Roofing: Coarse talc for surfacing.
Powdered talc for backing.

Inert filler and parting com-
pound.

Generally processed to cus-
tomer specification.

Typical Talcs:

Granular: 943, 1751, 1769

Powdered: 367, 1768

Asphalt Shingles: Inert filler and parting com-
pound.

Typical Talcs: 1076, 1372, 1769

Asphalt Tiles: Inert filler and parting com-
pound.

Typical Talcs: 367, 470

Whittaker, Clark & Daniels, Inc. Page T57-20

Baby Powders: Used as the principal ingredient. Selected on basis of purity, softness and color.

Typical Talcs: 1, 1625, 454, 643, 1600,
1755, 2406, 647, 7, 461, 1222, 8, 618, 766, 2427,
1736.

Barber Supplies (cosmetic): Principal ingredient in powders.

Typical Talcs: 4, 5, 618, 2401

Battery Boxes: Inert filler.

Typical Pyrophyllite: 29, 15

Bituminous Coatings: Inert filler - can be supplied with a guaranteed ignition loss if requested by customer.

Typical Talcs: 9, 367, 470, 1367, 1836

Body Powders: Used as principal ingredient. Selected on basis of purity, softness and color.

Typical Talcs: 1, 1625, 454, 1606, 1602, 1755,
12, 2427, 643, 7, 232, 461, 4, 2406, 2403, 1224, 618,
766, 40 - See 15 Pyrophyllite

Boiler Coverings: Used as filler.

Typical Talcs: 367, 9, 150

Book Binders: Dusting to dry pastes and inks.

Typical Talcs: 406, 11, 1514, 2402, 637

<u>Buttons:</u>	Inert filler and tumbling.
Typical Talcs:	5, 783, 618, 1600
<u>Cable:</u>	See "Pulling Cable".
<u>Carpet Backings:</u>	Filler in paste to stiffen and extend.
Typical Talcs:	5, 1750, 1153, 637, 2402, 2425
<u>Casein Paint:</u>	See "Surface Coatings".
<u>Caulking Compounds:</u>	See "Surface Coatings".
<u>Cement:</u>	See "Refractory Cement".
Ceramics:	See "Art Pottery" "Cooking Ware" Dinnerware (semi-porcelain)" "Electrical Insulators" "Heat Insulators" "Hobbyists" "Kiln Furniture, etc." "Refractory Cements" "Saggers" "Steatite" "Wall Tile"

In general not used by manufacturers of vitrified sanitary ware, floor tile, etc.

Chemicals: Selection depends on customer specification and use.

Typical Talcs: 232, 454, 462, 618, 150, 5, 2401, 461, 11, 367, 9

Whittaker, Clark & Daniels, Inc. Page T57-22

Chewing Gum (tablets): Dusting to prevent sticking. U. S. P. is generally specified.

Typical Talcs: 1, 662, 1755

Cleaning Compounds: Filler and extender.

Typical Talcs: 160, 1751, 2402, 2425, 3016

Coated Papers and Paste Board: See "Paper".

Coated Wire: See "Wire".

Color Pigments: Inert filler and extender.

Typical Talcs: 454, 490, 399, 1625

Confectionery Products: Dusting to prevent sticking.

Typical Talcs: 1, 662, 454, 1625.

Cooking Ware (ceramic): Used as a body ingredient to increase resistance to heat shock.

Typical Talcs: 486, 11, 481, 1736

Cordage, Twine: Lubricant and filler.

Typical Talcs: 5, 367, 783, 11, 2401

Cork Products: Dusting molds, lubricating.

Typical Talcs: 406, 483, 367, 150, 9, 1, 1600, 662, 1625, 1750, 637

Cosmetics: See "After-Shave Powder"
 See "Face Powder"
 "Baby Powder"
 "Barber Supplies"
 "Body Powder"
 "Creams"
 "Face Powder"
 "Liquid Powder"
 "Lotions"
 "Pan Cake"
 "Rouge"

Crayons: CLOVER Brand for metal
marking - all standard. See "Soapstone" (Talc)
Crayons under "Specialties".

Creams (cosmetic): Used as a filler or extender.

Typical Talcs: 1, 662, 1222, 1625

Dental Supplies: Investment casting, as a filler
and extender.

Typical Talcs: 150, 13, 486
As a dusting powder, U. S. P. 1, 662, 1222, 1755
1625

Dinnerware (semi-porcelain ceramics): Component
part of body to increase resistance to heat shock and
to decrease tendency to craze.

Typical Talcs: 786, 783, 610, 1772

Drugs: Carrier and diluent of chemicals in pills,
powders and liquids. Lubricant in tablet manufacture.

Typical Talcs: 454, 662, 1625, 12, 490,
1602, 1755, 1222, 1640, 232, 1603, 618, 2406, 2427

Dusting, Miscellaneous: Can be supplied according to customer specifications; vary widely as to use.

Typical Talcs: 1, 1625, 1600, 643, 677, 8, 1736, 399, 1153, 367, 4, 5, 1750, 160, 2401, 1367

Electrical Insulators: As a body component to improve di-electric properties.

Typical Talcs: 486, 1211, 1736, 2786, 5486

Enamel: See "Surface Coatings".

Engraving: Dusting

Typical Talcs: 643, 1603, 486, 11

Exterminating: See "Insecticides".

Fabricated Plastic Products: Used as filler.

Typical Talcs: 399, 461, 4, 1648, 2403

Face Powder: Major ingredient.

Typical Talcs: 1, 1625, 1606, 1612, 647, 2427, 1729, 1600, 7, 1640, 1153, 2406, 1603, 8, 618

Fats (edible): Filtering

Typical Talcs: 662, 1, 1755, 647

Felt: Used as a filler.

Typical Talcs: 150, 783, 367, 5.

Fertilizer: Used as carrier and diluents.

Typical Talcs: 367, 1750

Whittaker, Clark & Daniels, Inc. Pa ge T57-25

Fibre Board: Used as filler.

Typical Talcs: 367, 13, 643, 1648, 1750,
5, 1153

Fillers, Miscellaneous: Used to fill and
extend all types of products.

Typical Talcs: 1, 1625, 399, 490, 1602, 677,
1603, 1153, 5, 367, 1750, 2401, 2408, 2676, 1836

Filtration: Used to filter perfumes,
essential oils and drugs.

Typical Talcs: 454, 1625, 1, 2407, 2426

Finishing (textiles): Filler, dusting to dry inks.

Typical Talcs: 150, 677, 486, 1648, 2441,
2442

Floors, Magnesite: Used as filler.

Typical Talcs: 367, 1750, 9, 1153.

Foods: Polishing grains.

Typical Talcs: 235, 456, 1635

Dusting of confections.

Typical Talcs: 1, 662, 1625, 1755

Extenders

Typical Talcs: 1, 662, 399

Footwear (rubber and plastic): Filler and dusting.

Typical Talcs: 367, 1750, 1603, 399

Whittaker, Clark & Daniels, Inc. Page T57-26

Foundries: Used as dust mold facing,
parting compound for core and lubricant.

Typical Talcs: 367, 160, 1153

Fungicides: Carrier and diluent.

Typical Talcs: 150, 367

Graphite Crucibles: As an extender and to increase
resistance to heat shock.

Typical Talcs: 11, 486

Greases: Lubricant extender.

Typical Talcs: 367, 11, 1153, 399

Gray Iron Casting: See "Foundries".

Gutta Percha: Inert Filler.

Typical Talcs: 367, 399, 2405

Hats (felt body): See "Felt".

Heat Insulators (ceramics): Principal
component used to increase resistance to heat shock.

Typical Talcs: 11, 486, 1772, 1736

Hobbyist (ceramic): See "Art Pottery".

Hospitals: Pharmaceutical – see "Drugs".

Talcum for dusting gloves and rubber sheets.

Typical Talcs: 454, 399, 662, 1755, 2406,
2427

Whittaker, Clark & Daniels, Inc. Page T57-27

Ink (printing): Filler and extender.

Typical Talcs: 1514, 486, 399, 40, 1736,
2776

Non-offset: 4, 2403

Insecticides: Used as carrier and diluent
in airplane dusting, emulsions and hand spray dust-
ing.

Typical Talcs:

Northeastern:	1750, 29, 5, 2401
Southern:	367, 9, 2367
Central:	29, 160, 2367
Western:	29

Insulated Wire: See "Wire".

Insulation: Filler and extender.

Typical Talcs: 367, 1750

Insulators (ceramic): Major component part of body.

Typical Talcs: Block or Lava - to be machined.

Heat Insulators -

Typical Talcs: 486, 11, 481

Electronic Insulators -

Typical Talcs: 486, 1211, 1736, 2786, 5486

Jewelry: See "Precision Casting".

Semi-gems carved from compact Block
or Lava Talc (white, green, gray, black).

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Kiln Furniture: Used as a body component to
increase resistance to heat shock.

Typical Talcs: 11, 486, 461

Lacquers: See "Surface Coatings".

Latex: See "Rubber".

Lava Insulators: Used Block or Lava Talc.
Available only in limited quantities. Must be compact
and free from laminations or flaws.

Lead Pencils: Filler and lubricant.

Typical Talcs: 367, 150, 406, 8

Leather (artificial): Filler and dusting.

Typical Talcs: 150, 232, 618, 5, 2401

Leather (natural): Dusting, sizing.

Typical Talcs: 232, 367, 399, 5, 2401

Linoleum: Filler and dusting.

Typical Talcs: 1750, 367, 618

Liquid Powder (cosmetic): See "Face Powder".

Lotions (cosmetic):

Typical Talcs: 1625, 1600, 1755, 12

Lubricant:

Typical Talcs: 367, 1600, 1625, 11

Malleable Iron Casting: See "Foundries".

Medicine: See "Drugs".

Metal Finishing: See "Abrasives".

Models: Carved from compact Block
or Lava Talc. Used to carve models of intricate de-
tails. In some cases can be heat hardened.

Molds: Dusting and lubricating.

Typical Talcs: 367, 1750, 11, 5.

Monuments (polishing): See "Abrasives".

Mortician Supplies: Dusting powder.

Typical Talcs 454, 1600, 1625, 4, 2403

Nails: Lubricant in nailing machines.

Typical Talcs: 367, 150, 11, 1153

Oil Cloth: Filler and dusting.

Typical Talcs: 367, 399

Oils: See "Filtration".

Pan Cake Make-up (cosmetic): Used as princi-
pal component.

Typical Talcs: 1625, 1755, 1602, 454, 829,
1600, 1222, 1

Paints: See "Surface Coatings".

Paper (filler): Color and softness being of importance.

Typical Talcs: 399, 1731, 7, 643, 4, 1736, 2403, 367, 1750, 1153, 486

Paper Board: Filler

Typical Talcs: 367, 1750, 232, 1153

Paper and Paste Board (coated): Coating - color is generally important.

Typical Talcs: 399, 1731, 1625, 490, 1600, 1736, 2404, 2424

Parting Compounds: See "Dusting Agents".

Paste: Filler and Extender.

Typical Talcs: 367, 150, 5, 2401

Pencils: See "Lead Pencils".

Perfumes: See "Filtration".

Petroleum Refining: See "Filtration".

Pharmaceutical: See "Drugs".

Phonograph Records: Filler

Typical Talcs: 406, 677

Pitch: See "Asphalt Compounds"

Plastics: Filler, dusting, polishing.

Typical Talcs:

Filler: 367, 399, 11, 130

Dusting: 367, 1750, 2426, 2407

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Tumbling (polishing): 1600, 643, 1153,
2408, 2676

Porcelain Insulators: Body component.

Typical Talcs: 481, 1211

Pottery: Component part of body to
reduce tendency to craze.

Typical Talcs: 783, 786, 610

Precision and Centrifugal Casting Compound:
Mixed with plaster to increase resistance to heat
shock.

Typical Talcs: 380, 486, 11

Printing Inks: See "Ink".

Pulling Cable: Utility companies use soap-
stone to give added slip.

Typical Talcs: 367, 150

Putty: Improves slip under knife.

Typical Talcs: 150, 11, 1153.

Refractory Cement: Component material to increase
resistance to heat shock.

Typical Talcs: 481, 11, 486, 1772

Refractories (ceramic): Component body
material to increase resistance to heat shock.

Typical Talcs: 11, 160, 481, 1736, 486

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Rice: Polishing.

Typical Talcs: 235, 456, 1635

Roof Coatings: Filler and dusting - generally supplied according to customer specification.

Typical Talcs:

Powdered: 483, 470, 1768, 160

Granular: 1368, 1371

See "Specialties"

Rouge (cosmetic):

Typical Talcs: 399, 1731, 1625, 1606, 643,
1222, 7, 1755

Rubber: Talc is used as a filler and for dusting. The selection on the proper grade of talc depends upon the properties of the final product.

Typical Talcs:

Adhesives: 406, 11, 150, 232

Dusting: 367, 11, 1153, 150, 1836

Fabrics (sheeting): 399, 677, 406, 11

Filling: 367, 1750, 11, 5, 2401

Footwear (soft): 367, 11

Gloves: 11, 677, 399

Hard Products: 367, 1750

Heels and Soles: 367, 160, 1750, 11

Insulated Wire and Cable: 11, 406, 399,
1603

Latex: 367, 11, 486, 2 407, 2426

Mannequins and Dolls: 399, 11

Mats, Flooring: 9, 1153

Mechanical Goods: 4, 9, 367, 1750

Molds: 367, 160, 1750

Soft Products:	11, 406, 486
Sponge and Foam:	11, 677, 399
Surgical Sundries:	11, 454, 1222, 1755, 2427
Synthetic:	1603, 1153
Thread:	406, 1603, 399, 643
Tile:	367, 160, 1313, 1750
Tires:	483, 1750, 9, 367
Tubes and Tubing:	367, 1750, 11

Sagger: Used as a body component to increase resistance to heat shock.

Typical Talcs: 486, 11, 160, 1736

Sealing Compound:

Typical Talcs: 367, 150, 11, 1153

Shipbuilding: CLOVER Brand Crayons for marking metal - all standard sizes.

Shoes: Prevents white shoes from oil spotting in manufacturing process. Extender in polish.

Typical Talcs: 399, 5, 618, 2401

Silks: Delustering

Typical Talcs: 399, 1600, 643, 1731

Slide Fasteners: Tumbling

Typical Talcs: 1373, 1750, 2408, 2676

Soap: Filler and Extender

Typical Talcs: 5, 130, 2405

Statuary, Cast: Dusting of molds and filler.

Typical Talcs: 367, 1750, 677, 399

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Statues (carved): Block or Lava Talc used in a compact form and carved either by hand or by power machines. (White, green, gray, black.)

Steam Pipe and Boiler Covering: Filler

Typical Talcs: 367, 1750, 5, 2401

Steatite Insulators for Electronics: Major component of body to give di-electric properties.

Typical Talcs: 1211, 486, 1736, 2786, 5486

Steel Castings: See "Foundry".

Steel (polishing, stainless): See "Abrasives".

SURFACE COATINGS:

Asphalt Coatings: Used as a filler - generally not as finely ground as usual talcs - must have low ignition loss.

Recommended Talc: 1367

Caulking Compounds: Talc, because of the fibrous nature of its particle and the oil absorption, is a necessary ingredient to a limited extent in caulking compounds.

Typical Talcs: 367, 1836

Color in Oil: Sometimes extended with talcs for suspension purposes and for lower cost.

Typical Talcs: 2130, 648, 399, 2405

Eggshell Enamels: Used as the extending pigment for controlling the matt effect without employing agents which tend to give soft or cheesy film.

Typical Talcs: 399, 1731, 1065

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Enamel Undercoat: Talcs are used for flow control characteristics which give smooth, sandable surfaces.

Recommended Talcs: 1731, 399, 1767

Exterior House Paints (white and colored): Because of particle distribution, some talcs aid in the durability characteristics of outside house paints.

Typical Talcs: 233, 971, 2405, 463, 1060, 1065, 1104

Colored Exterior Paint: 5, 233, 1767, 2405

Glazing Compounds: These materials are similar to caulking compounds and talcs are used for their consistency characteristics.

Recommended Talcs: 462, 367, 150, 1065, 1767, 2405

Inert Filler:

Typical Talcs: 399, 1731, 1060, 2130, 462, 1065, 1767, 1641, 5, 367, 648, 1104, 2405

Interior Flat Wall Paint: Used in long oil flat wall paint of low side sheen.

Recommended Talcs: 399, 1731, 1030, 2405 - excellent sole extender used with titanium calcium flat paints.

Note: On deep tone flats, 399 reduces some mar resistance to the dry film and aids in suspension of other ingredients.

Lacquer Surfacers: Need to be sanded and therefore talcs are introduced to give slip.

Typical Talcs: 490, 406, 367, 677, 399, 1030, 1767

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Metal Primer Surfacers: Made with suitable vehicle, these need some platy talc to lend slip to the film for easy sanding and clean cutting.

Typical Talcs: 367, 677, 399, 1767, 1030

Some talcs also improve the adherence characteristics of this type material

Recommended Talcs: 1767, 399, 1768

Military Specifications: Information upon request.

Paper Lacquers: Sometimes a lower sheen than the usual glossy finish is desired - this is easily accomplished.

Typical Talcs: 399, 406, 677, 1731, 1090

Protein Emulsion: Filler and extender.

Typical Talcs: 11, 1641, 2405

Putty: Generally a small amount of talc is used in putty to hold oil in the mass to minimize bleeding and to improve knifing when applying.

Typical Talcs: 462, 367, 1090, 2405

Resin Emulsion: Filler and extender.

Typical Talcs: 11, 1104, 1641, 2405

Sanding Surfacers: Need an ingredient to give easy sanding characteristics which are found in platy talcs. Talcs are used to impart easy sanding and good cutting for the other ingredients in the formula.

Typical Talcs: 461, 462, 618, 399, 1767, 1030, 1768

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Sheen Control: Use approximately 1/4 oz.
per gallon - reduce gloss from 90 reading on 60%
Glossmeter to 75 reading.

Recommended Talcs: 399, 1731

Toy Enamel: In some toy enamels, manu-
facturers desire all ingredients to be of known purity
and therefore U. S. P. talcs are recommended for
this type of surface coating.

Recommended Talcs: 1, 1736

Wood Filler: Incorporate talc in this type
formulation for filling properties to prevent shrinking
and for clean wiping.

Recommended Talcs: 367, 461, 1060, 1767, 1768

Wrinkle Finish: Employ talc to give uniform
sheen and help control other characteristics of the
wrinkle.

Typical Talcs: 399, 1731

Surgical: Heart operations. Data on
request.

Textiles: Filler weighting.

Typical Talcs: 643, 11, 1648, 2441, 2442,
2450

Tile, Wall (ceramic): Component body
material to reduce tendency to craze.

Typical Talcs: 786, 783, 610, 463.

Tires and Tubes: Filler and dusting.

Typical Talcs: 367, 1750, 1153

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Toilet Preparations: See specific type.

Tumbling Compounds: See "Abrasives".

Vinyl Resins: Used both as a filler and for dusting.

Typical Talcs: 399, 367, 461, 2424, 2404

Wall Board: Filler

Typical Talcs: 367, 1750, 1153, 2408, 2676

Wall Tile (ceramic) See "Tile".

Welding: Soapstone Crayons to mark both cold and hot metal to lay out cutting patterns.

CLOVER Brand Metal Worker's Crayons - all popular sizes.

Whiteware (ceramics): Component body material to reduce tendency to craze.

Typical Talcs: 786, 783, 610

Wire (insulation and coating): Used as a filler in rubber and plastic coatings. Also for dusting.

Typical Talcs: 406, 677, 11, 399

Wire Drawing: Lubricant in drawing.

Typical Talcs: 367, 150, 1153

Zippers: Used to tumble.

Typical Talcs: 1373, 2408, 2676

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TALC BY SPECIAL PROPERTIES

Best Color	1625	454	1602	2427
Oil Absorption:				
High	399	1731	1446	
Low	4	5	130	
pH:				
High	4	5	130	
Low	1153	160	462	1153
Slip:				
High	1625	1602	643	454
Bulk:				
High	399	2755	1	
Low	4	5	130	
Lo-Micron				
Particle Size	2755	399	1731	
U. S. P.	1755	2755	662	
Fibrous	13	233		

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DATA

The following pages show typical physical and chemical properties for the complete listing of Whittaker Talcs.

The values reported are those which have been found typical of the materials over long periods of testing both at the points of production and in Whittaker's control laboratory. Maximum and minimum values are reported where the materials are especially suitable to fields which set specification limits.

Bulk and density values have been determined in accordance with government specified methods. These give an indication of density differences between the materials when lightly fluffed and tightly packed.

Reflectance is determined by use of a Photovolt Reflectometer adapted for use with powders. The constant reported represents the per cent reflectance based on pure magnesium carbonate as 100.

Oil absorption is reported as a constant and represents pounds of oil absorbed per 100 pounds of pigment, (Coleman Spatula Method).

Sieve finenesses have been determined by screening the material, wet, through the appropriate U. S. Standard sieves. Hegeman finenesses are reported only for fine materials for which an indication of subsieve particle size is desired.

pH has been determined for 10% dispersion in water by means of a glass electrode.

Detailed copies of Whittaker testing methods are available on request. Testing of materials for other features than those reported can be supplied by contacting our New York office.

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Among the following pages we have made available some photographs of talc mining operations which we feel might be of general interest. The mine and grinding plant pictured are from sources in France where talc is produced; some pictures of operations in the North Carolina talc area and some pictures of mining and grinding operations in Southern California and Ogden, Utah.

Following this group are photomicrographs of some of the ground and processed ores. These photomicrographs represent talc samples from most producing areas, and also photomicrographs of lo-micron Magnesium Silicate.

It might be noted that the photomicrographs show clearly the lo-micron size and uniform particle distribution in Whittaker's Magnesium Silicate, which will indicate some of the reasons for their popularity with formulators in various fields. The photomicrographs clearly indicate the various types of magnesium silicates produced and the range of particles and shapes, and also the distribution of particles, depending upon the source of the ore.

No. 1 TALC - LO-MICRON

Color: White

Brightness: 97

Description: No. 1 Talc, Lo-Micron,
ground from the finest talc available and has excellent slip.

Uses: Food processing, pharmaceuticals, cosmetics, paint specialties.

Physical Constants: (Typical)

Tapped Bulk:	
20 grams	56 c. c.
Apparent Density	22.3 lbs. /cu. ft.
Loose Bulk:	
20 grams	110 c. c.
Apparent Density	11.38 lbs. /cu. ft.
Specific Gravity	2.77
True Density	23.07 lbs. /gal.
	.0434 gal. /lb.
Ohms Resistance	20-22,000
Reflectance:	
Green Stim. Filter	97
Oil Absorption (Rub-Out)	47
Sieve Fineness:	
Thru 325 mesh	100%
Hegeman Fineness	5 1/2
pH	8.92
Slip	Excellent

continued

continued

No. 1 TALC - LO-MICRON

Chemical Composition: (Typical)

Silica	SiO ₂	59.14%
Magnesium Oxide	MgO	30.98
Calcium Oxide	CaO	1.26
Aluminum Oxide	Al ₂ O ₃	0.91
Ferric Oxide	Fe ₂ O ₃	0.59
Loss on Ignition		5.40
Non-Silica Residue		1.22

No. 4 TALC

Source: Canada

Color: White

Brightness: 85

Description: No. 4 Talc has a crypto-crystalline type particle of good color with inclusions of micaceous particles.

Uses: Paint, rubber, leather, cosmetics

Physical Constants: (Typical)

Tapped Bulk:

20 grams - 500 times

14 c. c.

Apparent Density

89.3 lbs. /cu. ft.

Loose Bulk:

20 grams

23.6 c. c.

Apparent Density

52.8 lbs. /cu. ft.

Specific Gravity

2.91

True Density

24.24 lbs. /gal.

.0413 gal. /lb.

Reflectance:

Green Stim. Filter

85

Oil Absorption (Rub-Out)

18

Sieve Fineness:

Thru 200 mesh

99.97%

Thru 325 mesh

99.37

Hegeman Fineness

3

pH

9.83

Slip

Poor

continued

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continued

No. 4 TALC

Chemical Composition: (Typical)

Silica	SiO ₂	42.0%
Magnesium Oxide	MgO	23.0
Calcium Oxide	CaO	15.0
Aluminum Oxide	Al ₂ O ₃	3.0
Carbon Dioxide	CO ₂	15.0
Water		2.0

No. 5 TALC

Source: Canada

Color: White

Brightness: 86 1/2

Description: No. 5 Talc has a cryptocrystalline type particle of good color with inclusions of micaceous particles.

Uses: Paint, rubber (dusting & filler, paper, soap tumbling.

Physical Constants: (Typical)

Tapped Bulk:

20 grams - 500 times

16 c. c.

Apparent Density

78.1 lbs. /cu. ft.

Loose Bulk:

20 grams

25.6 c. c.

Apparent Density

48.8 lbs. /cu. ft.

Specific Gravity

2.80

True Density

23.32 lbs. /gal.

.0429 gal. /lb.

Reflectance:

Green Stim. Filter

86 1/2

Oil Absorption (Rub-Out)

22

Sieve Fineness:

Thru 200 mesh

99.99%

Thru 325 mesh

98.88

Hegeman Fineness:

1 1/2

pH

9.8

Slip

Poor

continued

Whittaker, Clark & Daniels, Inc.

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continued

No. 5 TALC

Chemical Composition: (Typical)

Silica	SiO ₂	42%
Magnesium Oxide	MgO	23
Calcium Oxide	CaO	15
Aluminum Oxide	Al ₂ O ₃	3
Carbon Dioxide	CO ₂	15
Water		2

No. 7 TALC

Source: France

Color: White

Brightness: 90

Description: No. 7 French Talc is ground from massive ore and is especially characterized by excellent slip and softness.

Uses: Baby powder, cosmetic route, paper.

Physical Constants: (Typical)

Tapped Bulk:

20 grams-500 times	21 c. c.
Apparent Density	59.5 lbs. /cu. ft.

Loose Bulk:

20 grams	39.3 c. c.
Apparent Density	31.8 lbs. /cu. ft.
Specific Gravity	2.65
True Density	22.07 lbs. /gal. .0453 gal. /lb.

Reflectance:

Green Stim. Filter	90
Oil Absorption (Rub-Out)	28

Sieve Fineness:

Thru 200 mesh	99.84%
Thru 325 mesh	96.40
pH	9.25
Slip	Excellent

continued

No. 7 TALC

Chemical Composition: (Typical)

Silica	SiO ₂	55.16 %
Magnesium Oxide	MgO	33.40
Calcium Oxide	CaO	0.19
Aluminum Oxide	Al ₂ O ₃	5.42
Ferric Oxide	Fe ₂ O ₃	0.35
Loss on Ignition		4.63

No. 8 TALC

Source: France

Color: White

Brightness: 86

Description: No. 8 French Talc is ground from massive ore, is especially characterized by excellent slip and softness.

Uses: Textiles, cosmetic powders.

Physical Constants: (Typical)

Tapped Bulk:

20 grams - 500 times	22 c. c.
Apparent Density	56.8 lbs. /cu. ft.

Loose Bulk:

20 grams	43.5 c. c.
Apparent Density	28.8 lbs. /cu. ft.
Specific Gravity	2.65
True Density	22.07 lbs. /gal. .0453 gal. /lb.

Reflectance:

Green Stim. Filter	86
Oil Absorption (Rub-Out)	29

Sieve Fineness:

Thru 200 mesh	99.88%
Thru 325 mesh	98.40
pH	8.81
Slip	Excellent

continued

continued

No. 8 TALC

Chemical Composition: (Typical)

Silica	SiO ₂	48.01 %
Magnesium Oxide	MgO	33.94
Calcium Oxide	CaO	0.43
Aluminum Oxide	Al ₂ O ₃	9.26
Ferric Oxide	Fe ₂ O ₃	1.22
Loss on Ignition		6.70

No. 9 TALC

Source: Virginia

Color: Gray

Brightness: 51

Description: No. 9 Talc is character-
istically a massive soapstone.

Uses: Asphalt and bituminous
paints, roofing, rubber, insecticide diluent,
foundries.

Physical Constants: (Typical)

Tapped Bulk:

20 grams - 500 times

18 c. c.

Apparent Density

69.4 lbs. /cu. ft.

Loose Bulk:

20 grams

31.1 c. c.

Apparent Density

40.2 lbs. /cu. ft.

Specific Gravity

2.76

True Density

22.99 lbs. /gal.

.0435 gal. /lb.

Reflectance:

Green Stim. Filter

51

Oil Absorption (Rub-Out)

22

Sieve Fineness:

Thru 200 mesh

99.62%

Thru 325 mesh

93.85

pH

9.11

Slip

Poor

continued

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continued

No. 9 TALC

Chemical Composition: (Typical)

Silica	SiO ₂	36.11%
Magnesium Oxide	MgO	26.48
Calcium Oxide	CaO	3.99
Aluminum Oxide	Al ₂ O ₃	6.78
Ferric Oxide	Fe ₂ O ₃	9.96
Titanium Dioxide	TiO ₂	0.35
Alkalies	K ₂ O & Na ₂ O	0.23
Loss on Ignition		14.87

No. 11 TALC

Source: France

Color: Off-White

Brightness: 78 1/2

Description: No. 11 French Talc is ground from massive ore and is especially characterized by excellent slip and softness.

Uses: Rubber (filler and dusting), ceramics, insulated wire, plastics, leather.

Physical Constants: (Typical)

Tapped Bulk.

20 grams - 500 times	22 c. c.
Apparent Density	56.8 lbs. /cu. ft.

Loose Bulk:

20 grams	44.6 c. c.
Apparent Density	28.0 lbs. /cu. ft.
Specific Gravity	2.65
True Density	22.07 lbs. /gal.

Reflectance:

Green Stim. Filer	78 1/2
Oil Absorption (Rub-Out)	29

Sieve Fineness:

Thru 200 mesh	99.90%
Thru 325 mesh	98.67
Hegeman Fineness	2 - 2 1/2
pH	8.5 - 9.0
Slip	Excellent

continued

continued

No. 11 TALC

Chemical Composition: (Typical)

Silica	SiO ₂	46.29%
Magnesium Oxide	MgO	31.76
Calcium Oxide	CaO	None
Aluminum Oxide	Al ₂ O ₃	13.94
Ferric Oxide	Fe ₂ O ₃	2.32
Loss on Ignition		5.41

Comments: No. 11 French Talc is recommended wherever a soft particle is desired to prevent wear on dies or machinery. In ceramic refractories it tends to increase resistance to heat shock and lower thermal expansion.

PCE (Pyrometric Cone Equivalent)
of Cone 13+ - 2430°F.

No. 12 TALC

Source: France

Color: White

Brightness: 86*

Description: No. 12 French Talc is ground from massive ore and is especially characterized by excellent slip and softness. It is made by the Cottrell Process.

Uses: Cosmetics, baby powder, pharmaceuticals, food processing.

Physical Constants: (Typical)

Tapped Bulk:

20 grams - 500 times

25 c. c.

Apparent Density

50.0 lbs. /cu. ft.

Loose Bulk:

20 grams

55.6 c. c.

Apparent Density

22.5 lbs. /cu. ft.

Specific Gravity

2.65

True Density

22.07 lbs. /gal.

.0453 gal. /lb.

Reflectance:

Green Stim. Filter

86*

Oil Absorption (Rub-Out)

31

Sieve Fineness:

Thru 200 mesh

99.97%

Thru 325 mesh

99.8

Hegeman Fineness

3 - 4

pH

8.97

Slip

Excellent

continued

Whittaker, Clark & Daniels, Inc. Page T57-59

continued

No. 12 TALC

Chemical Composition: (Typical)

Silica	SiO_2	61.60%
Magnesium Oxide	MgO	32.90
Calcium Oxide	CaO	0.18
Aluminum Oxide	Al_2O_3	1.38
Ferric Oxide	Fe_2O_3	0.87
Loss on Ignition		2.95

*Color is not controlled.

No. 13 TALC - MAGNESIUM SILICATE

Source: New York

Color: White

Brightness: 94

Description: No. 13 Talc is a Fibrous
Magnesium Silicate.

Uses: Paint, caulking compounds,
oil cloth, putty.

Physical Constants: (Typical)

Tapped Bulk:
20 grams - 500 times 19 c. c.
Apparent Density 65.7 lbs. /cu. ft.

Loose Bulk:
20 grams 50.0 c. c.
Apparent Density 24.9 lbs. /cu. ft.
Specific Gravity 2.85
True Density 23.74 lbs. /gal.

Reflectance:
Green Stim. Filter 94
Oil Absorption (Rub-Out) 25 - 30

Sieve Fineness:
Thru 200 mesh 99.8%
Thru 325 mesh 99
pH 9.2 - 9.7
Slip Poor
Hegeman 3

continued

Whittaker, Clark & Daniels, Inc. Page T57-61

continued

No. 13 TALC - MAGNESIUM SILICATE

Chemical Composition: (Typical)

Silica	SiO ₂	56.0 %
Magnesium Oxide	MgO	30.8
Calcium Oxide	CaO	6.5
Aluminum & Ferric Oxides	Al ₂ O ₃ & Fe ₂ O ₃	2.0
Loss on Ignition		4.7

Comments: Widely used as ingredient in exterior house paints because of durability characteristics of Fibrous Talcs.

No. 15 PYROPHYLLITE

Source: North Carolina

Color: White

Brightness: 85

Description: No. 15 Pyrophyllite is distinguished from a talc by the fact that it is a hydrous aluminum silicate. Pyrophyllites have better adsorption than talcs.

Uses: Cosmetics, paints.

Physical Constants: (Typical)

Tapped Bulk:

20 grams - 500 times

20 c. c.

Apparent Density

62.5 lbs. /cu. ft.

Loose Bulk:

20 grams

38.9 c. c.

Apparent Density

32.1 lbs. /cu. ft.

Specific Gravity

2.7

True Density

22.49 lbs. /gal.

.0445 gal. /lb.

Reflectance:

Green Stim. Filter

85

Oil Absorption (Rub-Out)

30

Sieve Fineness:

Thru 200 mesh

99.77%

Thru 325 mesh

97.40

pH

6.34

Slip

Poor

continued

Whittaker, Clark & Daniels, Inc.

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continued

No. 15 PYROPHYLLITE

Chemical Composition: (Typical)

Silica	SiO ₂	73.84%
Aluminum Oxide	Al ₂ O ₃	20.15
Magnesium Oxide	MgO	0.02
Calcium Oxide	CaO	0.06
Ferric Oxide	Fe ₂ O ₃	0.07
Titanium Dioxide	TiO ₂	0.15
Soda	Na ₂ O	0.20
Potash	K ₂ O	1.54
Loss on Ignition		4.00

No. 29 PYROPHYLLITE

Source: North Carolina

Color: Light Gray

Brightness: 66

Description: No. 29 Pyrophyllite is distinguished from a talc by the fact that it is a hydrous aluminum silicate. Phrophyllites have better adsorption than talcs.

Uses: Insecticides

Physical Constants: (Typical)

Tapped Bulk:

20 grams - 500 times

20 c. c.

Apparent Density

62.5 lbs. /cu. ft.

Loose Bulk:

20 grams

36.7 c. c.

Apparent Density

34.1 lbs. /cu. ft.

Specific Gravity

2.68

True Density

22.32 lbs. /gal.
.0448 gal. /lb.

Reflectance:

Green Stim. Filter

66

Oil Absorption (Rub-Out)

27

Sieve Fineness:

Thru 200 mesh

99.81%

Thru 325 mesh

95.78

pH

5.75

Slip

Poor

continued

Whittaker, Clark & Daniels, Inc.

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continued

No. 29 PYROPHYLLITE

Chemical Composition: (Typical)

Silica	SiO ₂	73.50%
Aluminum Oxide	Al ₂ O ₃	20.67
Calcium Oxide	CaO	0.10
Ferric Oxide	Fe ₂ O ₃	1.43
Alkalies	K ₂ O & Na ₂ O	0.12
Loss on Ignition		4.20

No. 40 TALC

Source: Vermont

Color: Light Gray

Brightness: 85

Description: No. 40 Talc is outstanding because of the softness of its particle which results from a flotation treatment during processing.

Physical Constants: (Typical)

Tapped Bulk:

20 grams - 500 times

28 c. c.

Apparent Density

44.5 lbs. /cu. ft.

Loose Bulk:

20 grams

76.9 c. c.

Apparent Density

16.2 lbs. /cu. ft.

Specific Gravity

2.98

True Density

24.8 lbs. /gal.

0.04032 gal. /lb.

Reflectance:

Green Stim. Filter

85

Oil Absorption (Rub-Out)

50

Sieve Fineness:

Thru 200 mesh

99.99%

Thru 325 mesh

99.98

Average Particle Size:

Micron

5.0

pH

8.5

Acid Soluble Iron

0.7

continued

Whittaker, Clark & Daniels, Inc. Page T57-69

continued

No. 40 TALC

Chemical Composition: (Typical)

Silica	SiO ₂	59.15%
Aluminum Oxide	Al ₂ O ₃	0.26
Ferric Oxide	Fe ₂ O ₃	3.36
Calcium Oxide	CaO	0.15
Magnesium Oxide	MgO	31.34
Carbon Dioxide	CO ₂	1.76
Manganous Oxide	MnO	0.03
Loss on Ignition		4.60
Consistency (Krebs Units)		83
Water Solubles		
TT-P-141A-524-1		0.52
Ohm's Resistance		9,400

No. 130 TALC

Source: Canada

Color: White

Brightness: 86

Description: No. 130 Talc has a crypto-crystalline type particle with inclusions of mica-ceous particles.

Uses: Paint, rubber, leather.

Physical Constants: (Typical)

Tapped Bulk:	
20 grams - 500 times	14 c. c.
Apparent Density	89.3 lbs. /cu. ft.
Loose Bulk:	
20 grams	23.0 c. c.
Apparent Density	53.4 lbs. /cu. ft.
Specific Gravity	2.86
True Density	23.82 lbs. /gal.
	.0420 gal. /lb.
Reflectance:	
Green Stim. Filter	86
Oil Absorption (Rub-Out)	17 1/2
Sieve Fineness:	
Thru 200 mesh	99.96%
Thru 325 mesh	99.17
Hegeman Fineness	1 1/2 - 3
pH	9.43
Slip	Poor

continued

continued

No. 130 TALC

Chemical Composition: (Typical)

Silica	SiO ₂	38.00%
Magnesium Oxide	MgO	20.00
Calcium Oxide	CaO	15.00
Aluminum Oxide	Al ₂ O ₃	1.00
Carbon Dioxide	CO ₂	24.00
Water		2.00

No. 150 TALC

Source: Vermont

Color: Gray-Green

Brightness: 67

Description: No. 150 Talc has a semi-massive type particle of extreme softness.

Uses: Rubber, putty, leather

Physical Constants: (Typical)

Tapped Bulk:

20 grams - 500 times

18 c. c.

Apparent Density

69.4 lbs. /cu. ft.

Loose Bulk:

20 grams

33.2 c. c.

Apparent Density

37.6 lbs. /cu. ft.

Specific Gravity

2.78

True Density

23.16 lbs. /gal.

.0432 gal. /lb.

Reflectance:

Green Stim. Filter

67

Oil Absorption (Rub-Out)

27

Sieve Fineness:

Thru 200 mesh

99.63%

Thru 325 mesh

96.94

pH

9.0

Slip

Good

continued

continued

No. 150 TALC

Chemical Composition: (Typical)

Silica	SiO ₂	33.74%
Magnesium Oxide	MgO	34.01
Aluminum Oxide	Al ₂ O ₃	0.77
Ferric Oxide	Fe ₂ O ₃	2.51
Ferrous Oxide	FeO	4.34
Moisture		0.18
Carbon Dioxide	CO ₂	17.20
Solubility in HCl		37.22
Loss on Ignition		17.42

No. 160 TALC

Source: Maryland

Color: Tan

Brightness: 59

Description: No. 160 Talc, a massive type talc, approaches a true soapstone as to mineral characteristics.

Uses: Insecticides, rubber, roofing, dusting, filling.

Physical Constants: (Typical)

Tapped Bulk:

20 grams - 500 times

18 c. c.

Apparent Density

69.4 lbs. /cu. ft.

Loose Bulk:

20 grams

28.0 c. c.

Apparent Density

44.6 lbs. /cu. ft.

Specific Gravity

2.70

True Density

22.49 lbs. /gal.

.0445 gal. /lb.

Reflectance:

Green Stim. Filter

59

Oil Absorption (Rub-Out)

27

Sieve Fineness:

Thru 200 mesh

94.87%

pH

7.65

Slip

Good

continued

continued

No. 160 TALC

Chemical Composition: (Typical)

Silica	SiO ₂	57.12%
Magnesium Oxide	MgO	18.31
Calcium Oxide	CaO	Trace
Aluminum Oxide	Al ₂ O ₃	17.09
Ferric Oxide	Fe ₂ O ₃	4.71
Loss on Ignition		2.77

Comments: This Talc has an unusually low pH.

No. 232 TALC

Source: California and Montana

Color: White

Brightness: 89

Description: No. 232 Talc is ground from semi-massive ore.

Uses: Leather, cosmetics, rubber.

Physical Constants: (Typical)

Tapped Bulk:

20 grams - 500 times	23 c. c.
Apparent Density	54.4 lbs. /cu. ft.

Loose Bulk:

20 grams	45.3 c. c.
Apparent Density	27.6 lbs. /cu. ft.
Specific Gravity	2.71
True Density	22.57 lbs. /gal.
	.0443 gal. /lb.

Reflectance:

Green Stim. Filter	89
Oil Absorption (Rub-Out)	28

Sieve Fineness:

Thru 200 mesh	99.88%
Thru 325 mesh	99.48
Hegeman Fineness	1 1/2 - 3
pH	9.72
Slip	Fair

continued

No. 232 TALC

Chemical Composition: (Typical)

Silica	SiO ₂	58.16
Magnesium Oxide	MgO	31.44
Calcium Oxide	CaO	3.31
Aluminum Oxide	Al ₂ O ₃	2.09
Ferric Oxide	Fe ₂ O ₃	0.27
Loss on Ignition		4.08
Non-Silica Residue		0.42

No. 233 TALC - CAL-FIBRE

Source: California

Color: White

Brightness: 90

Description: No. 233 Cal-Fibre Talc has a long tremolitic type of particle giving the fibrous characteristics often sought by paint manufacturers.

Uses: Protective coatings.

Physical Constants: (Typical)

Tapped Bulk:

20 grams - 500 times

20 c. c.

Apparent Density

62.40 lbs. /cu. ft.

Loose Bulk:

Scott Volumeter

Apparent Density

23.5 lbs. /cu. ft.

Specific Gravity

2.70

True Density

22.51 lbs. /gal.

Reflectance:

Green Stim. Filter

90.0

Oil Absorption (Rub-Out)

30 - 32

Moisture

Less than 1%

Hegeman Fineness

2.5 - 3.0

Sieve Fineness:

Thru 325 mesh

99.5%

pH

9.25

continued

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continued

No. 233 TALC - CAL-FIBRE

Total Water Solubles:

Less than 0.5%

Particle Size Distribution:

Finer than 20.0 microns 84.0

Finer than 10.0 microns 65.0

Finer than 5.0 microns 40.0

Finer than 2.5 microns 15.0

Consistency:

Krebs Units 60 - 65

(Stormer 40% Linseed oil suspension)

Chemical Composition: (Typical)

Silica	SiO ₂	56.80
Magnesium Oxide	MgO	32.12
Calcium Oxide	CaO	4.90
Aluminum Oxide	Al ₂ O ₃	1.54
Ferric Oxide	Fe ₂ O ₃	0.30
Loss on Ignition		3.74
Non-Silica Residue		0.44

No. 235 TALC

Source: North Carolina

Color: White

Brightness: 89 1/2

Description: No. 235 Talc is ground from one of the highest quality talc deposits in the United States.

Uses: Rice polishing.

Physical Constants: (Typical)

Tapped Bulk:	
200 grams - 500 times	20 c. c.
Apparent Density	62.5 lbs. /cu. ft.

Loose Bulk:	
20 grams	42.4 c. c.
Apparent Density	29.5 lbs. /cu. ft.
Specific Gravity	2.69
True Density	22.41 lbs. /gal.

Reflectance:	
Green Stim. Filter	89 1/2
Oil Absorption (Rub-Out)	27

Sieve Fineness:	
Thru 100 mesh	99.97%
Thru 200 mesh	96.71
pH	8.40
Slip	Excellent

continued

continued

No. 235 TALC

Chemical Composition: (Typical)

Silica	SiO ₂	58.5 - 62
Magnesium Oxide	MgO	31.5 - 32.5
Calcium Oxide	CaO	1.0 - 1.8
Aluminum Oxide	Al ₂ O ₃	0.7 - 0.8
Ferric Oxide	Fe ₂ O ₃	0.6 - 1.0
Loss on Ignition		5.5 - 6.5

No. 253 SYNTHETIC FORSTERITE

Description: No. 253 Synthetic Forsterite is produced by the Marine Magnesium Division of Merck & Company. The No. 253 Synthetic Forsterite has the same X-ray defraction pattern of a true Forsterite. This product is being developed for the electronic industry and the specialized refractory fields which normally use a natural talc and a form of Magnesium Oxide to obtain a Forsterite crystal development.

Additional experimental work is continuing to produce the highest possible pure Forsterite.

PROGRESS REPORT - SUBJECT TO REVISION

Physical Constants: (Typical)

Molecular Weight	140.7
Formula	2 MgO - SiO ₂
Loose Bulk:	
Apparent Density	23 lbs. /cu. ft.
Specific Gravity	3.16
Sieve Fineness:	
Thru 200 mesh	99.0%
Thru 325 mesh	96.0
pH	10.3
<u>Particle Size</u>	
Average	19 microns
Larger than	40 microns 7.3%
	30-40 " 1.8
	20-30 " 15.0
	15-20 63.1
	10-15 9.0
	5-10 2.6
Less than	5 1.2

continued

Whittaker, Clark & Daniels, Inc. Page T57-83

continued

No. 253 Synthetic Forsterite

Chemical Composition: (Typical)

Silica	SiO_2	41.25
Aluminum Oxide	Al_2O_3	0.28
Ferric Oxide	Fe_2O_3	0.04
Calcium Oxide	CaO	0.36
Magnesium Oxide	MgO	57.01
Chloride	Cl	0.06
Sulfate	SO_3	0.19
Loss On Ignition		0.38

No. 282 SYNTHETIC TALC

Description: No. 282 Synthetic Talc is a product of the Marine Magnesium Division of Merck & Company. The No. 282 Synthetic Talc was developed primarily to meet the ever growing demand of the electronic industry for higher purity base materials.

By controlling the calcining temperatures the crystal formation is crypto-crystalline and heterogeneous. It is felt that this will tend to decrease differential shrinkages in fired steatite insulators.

Additional experimental work is being continued on the No. 282 Synthetic Talc for other uses such as pharmaceutical, encapsulation, etc.

Progress report subject to revision.

Physical Constants: (Typical)

Formula	$3 \text{ MgO} - 4 \text{ SiO}_2 - x\text{H}_2\text{O}$
Molecular Weight	361 approx.
Loose Bulk:	
Apparent Density	21 lbs. /cu. ft.
Specific Gravity	2.52
Sieve Fineness:	
Thru 200 mesh	100%
Thru 325 mesh	99.8

continued

continued

No. 282 SYNTHETIC TALC

Particle Size

Average - 8 microns	
Larger than 40 microns	1.6
Larger than 30 - 40	1.5
Larger than 20 - 30	0.1
Larger than 15 - 20	2.1
Larger than 10 - 15	17.3
Larger than 5 - 10	32.6
Larger than 4 - 5	24.9
Larger than 3 - 4	10.3
Less than 3	9.6

Chemical Composition (Typical)

Silica	SiO ₂	66.62 %
Aluminum Oxide	Al ₂ O ₃	0.44
Ferric Oxide	Fe ₂ O ₃	0.04
Calcium Oxide	CaO	0.14
Magnesium Oxide	MgO	29.44
Chloride	Cl	0.01
Sulfate	SO ₃	0.15
Loss on Ignition		1.27

No. 367 TALC

Source: Georgia

Color: Gray

Brightness: 65

Description: No. 367 Talc has a semi-massive particle and can be recommended for most uses where an economical off-color talc can be used.

Uses: Rubber, asphalt composition, insecticides, paint, dusting, filler.

Physical Composition: (Typical)

Tapped Bulk:
20 grams - 500 times 16.5 c. c.
Apparent Density 75.6 lbs. /cu. ft.

Loose Bulk:
20 grams 38.09 c. c.
Apparent Density 32.77 lbs. /cu. ft.
Specific Gravity 2.90
True Density 24.16 lbs. /gal.

Reflectance:
Green Stim. Filter 65
Oil Absorption (Rub-Out) 36

Sieve Fineness:
Thru 200 mesh 99.63%
Thru 325 mesh 98.28
pH 9.60
Slip Good
Hegeman 22

continued

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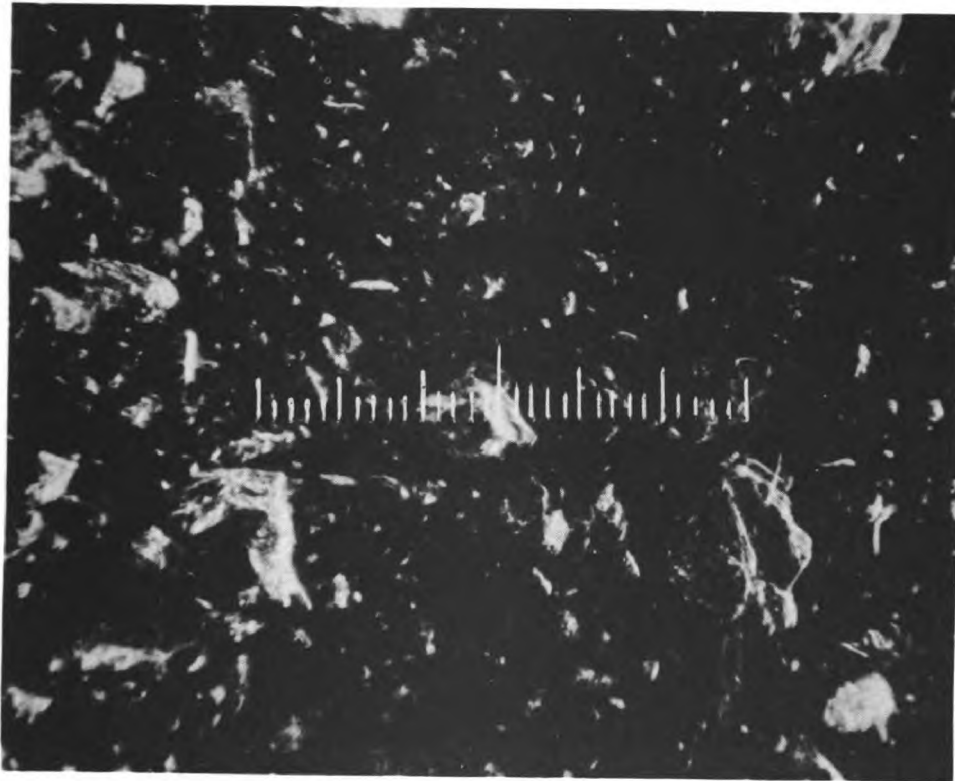
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No. 367 TALC

Chemical Composition: (Typical)

Silica	SiO ₂	41.09%
Magnesium Oxide	MgO	27.91
Calcium Oxide	CaO	4.06
Aluminum Oxide	Al ₂ O ₃	3.78
Ferric Oxide	Fe ₂ O ₃	7.07
Manganous Oxide	MnO	0.16
Titanium Dioxide	TiO ₂	0.19
Potash	K ₂ O	0.11
Soda	Na ₂ O	0.06
Loss on Ignition and Moisture		15.01

GEORGIA TALC



WHITTAKER, CLARK & DANIELS, INC.

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No. 399 MAGNESIUM SILICATE

Color: White

Brightness: 90

Description: No. 399 Magnesium Silicate
is especially processed from selected material to
have lo-micron particles.

Uses: Paint, ink, rubber, paper.

Physical Constants: (Typical)

Tapped Bulk:

20 grams - 500 times	54 c. c.
Apparent Density	19.56

Loose Bulk:

Scott Volumeter

Apparent Density	10.26 lbs. / cu. ft.
Specific Gravity	2.71
True Density	22.57 lbs. / gal.
	.0443 gal. / lb.

Reflectance:

Green Stim. Filter	90
Oil Absorption (Rub-Out)	55 - 59

Sieve Fineness:

Thru 325 mesh	100%
Hegeman Fineness	6 1/4
pH	9.7
Slip	Fair

continued

continued

No. 399 MAGNESIUM SILICATE

Chemical Composition: (Typical)

Silica	SiO ₂	57.06%
Magnesium Oxide	MgO	28.68
Calcium Oxide	CaO	3.07
Aluminum Oxide	Al ₂ O ₃	0.81
Ferric Oxide	Fe ₂ O ₃	1.25
Loss on Ignition		7.93
Non-Silica Residue		0.45

Particle Size Distribution:

Less than 15 microns	98.7%
Less than 10 microns	97.5
Less than 5 microns	90
Less than 2.5 microns	40
Less than 1.0 microns	25

No. 399 MAGNESIUM SILICATE

Special Properties:

Good White Color.

Ability to stay in suspension and effect the suspension of other pigments.

Slow to settle, usually easily restirred as the settlement is generally soft.

Inert chemically, that is essentially a non-reactive pigment with the acids of the coating vehicles.

Fineness, being lo-micron requires less grinding than other inert materials, in some cases can be simply stirred into batch.

Enhances paint film characteristics of toughness and adhesion.

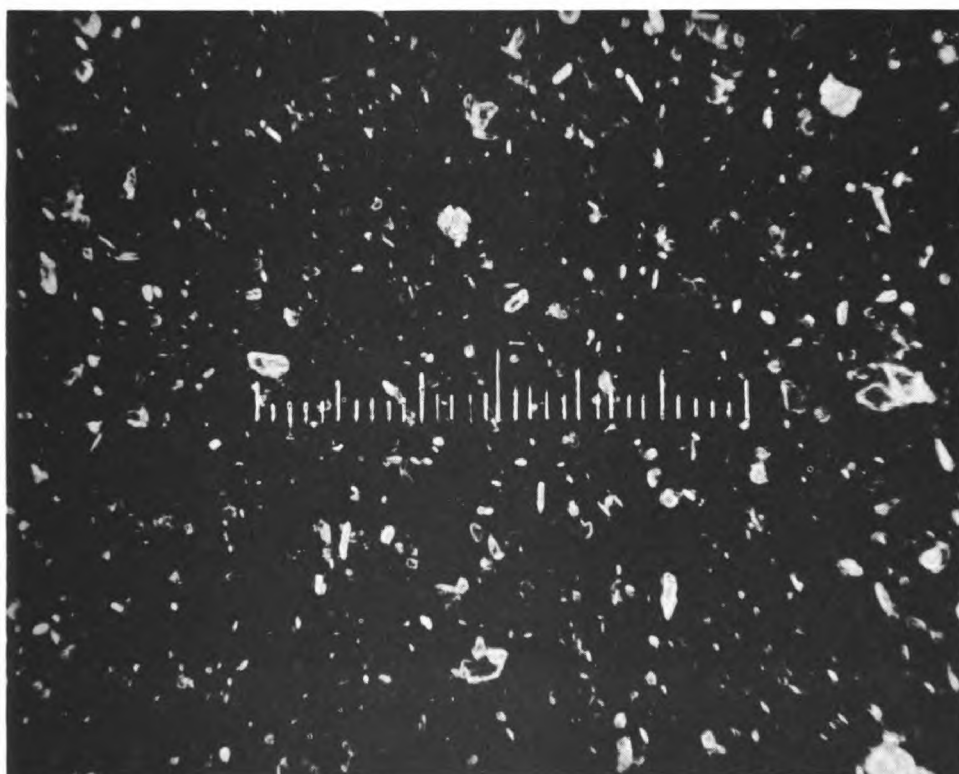
Gives control of the lustre or lack of gloss of films within which used.

Tends to develop thixotropic consistency when such is desirable feature of a paint.

Decreases tendency to chip when scratched.

Gives improved sanding properties.

MONTANA TALC - LO-MICRON



WHITTAKER, CLARK & DANIELS, INC.

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Original from
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No. 406 TALC

Source: Georgia

Color: Gray*

Brightness: 65*

Description: No. 406 Talc is an air-floated product from semi-massive talc of good slip.

Uses: Paint, rubber, insulated wire.

Physical Constants: (Typical)

Tapped Bulk:

20 grams - 500 times

28 c. c.

Apparent Density

44.6 lbs. /cu. ft.

Loose Bulk:

20 grams

60.5 c. c.

Apparent Density

20.7 lbs. /cu. ft.

Specific Gravity

2.90

True Density

24.16 lbs. /gal.

.0414 gal. /lb.

Reflectance:

Green Stim. Filter

65*

Oil Absorption (Rub-Out)

30 1/2

Sieve Fineness:

Thru 325 mesh

99.91%

Hegeman Fineness

3 - 4

pH

9.60

Slip

Good

continued

continued

No. 406 TALC

Chemical Composition: (Typical)

Silica	SiO ₂	34.74%
Magnesium Oxide	MgO	30.45
Calcium Oxide	CaO	5.60
Aluminum & Ferric Oxides		
	Al ₂ O ₃ & Fe ₂ O ₃	5.68
Manganous Oxide	MnO	0.11
Sulfur Dioxide	SO ₂	Trace
Loss on Ignition		23.57

* The color of air float talc is not constant.

No. 453 BLOCK TALC

The earliest use of talc was for making cooking utensils from soapstone. When placed over the fire this stone would harden and not crack as other stones did.

The use of block or lava talc as it came to be known, changed from cooking utensils to gas burner tips to electronic insulators. Small amounts have been used for sculpturing.

The supply of high grade block talc is almost non-existent at present. The highest quality of block talc for electronic use has been found mainly in India. Grades suitable for burner tips and similar applications where lower dielectric properties can be used, come from Italy.

Odd qualities of block talc have been produced in the United States, but from all presently known sources in the world the supply of high quality block talc is so limited that its use is not recommended.

African Wonderstone is an available mineral that can be machined or carved as block talc. It is suggested that while African Wonderstone is not a substitute for block talc its use can be considered wherever possible.

Please see No. 921 Wonderstone for a description of African Wonderstone.

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No. 454 TALC

Source: India

Color: White

Brightness: 93

Description: No. 454 Talc, having the structure of a pure talc, is obtained from the world famous mines of India.

Uses: Cosmetics, pharmaceuticals.

Physical Constants: (Typical)

Tapped Bulk:

20 grams - 500 times

24 c. c.

Apparent Density

52.1 lbs. /cu. ft.

Loose Bulk:

20 grams

48.1 c. c.

Apparent Density

26.0 lbs. /cu. ft.

Specific Gravity

2.67

True Density

22.24 lbs. /gal.

.0450 gal. /lb.

Reflectance:

Green Stim. Filter

93

Oil Absorption (Rub-Out)

29

Sieve Fineness:

Thru 200 mesh

99.44%

Thru 325 mesh

92.38

pH

8.30

Slip

Excellent

continued

continued

No. 454 TALC

Chemical Composition: (Typical)

Silica	SiO ₂	59.02%
Magnesium Oxide	MgO	32.3
Calcium Oxide	CaO	0.3
Aluminum & Ferric Oxides	Al ₂ O ₃ & Fe ₂ O ₃	3.6
Loss on Ignition		5.5

No. 456 TALC

Source: India
Color: White
Brightness: 92 1/2

Description: No. 456 Talc, having the general structure of a pure talc, is obtained from the world famous mines of India. No. 456 Talc is recommended wherever a coarse, white, free-flowing talc is required.

Uses: Rice polishing.

Physical Constants: (Typical)

Tapped Bulk:	
20 grams - 500 times	19 c. c.
Apparent Density	65.9 lbs. /cu. ft.
Loose Bulk:	
20 grams	36.2 c. c.
Apparent Density	34.5 lbs. /cu. ft.
Specific Gravity	2.67
True Density	22.24 lbs. /gal.
	.0450 gal. /lb.
Reflectance:	
Green Stim. Filter	92 1/2
Oil Absorption (Rub-Out)	25
Sieve Fineness:	
Thru 100 mesh	99.6%
Thru 200 mesh	90
pH	8.30
Slip	Excellent

continued

continued

No. 456 TALC

Chemical Composition: (Typical)

Silica	SiO ₂	59.02%
Magnesia	MgO	32.3
Calcium Oxide	CaO	0.3
Aluminum & Ferric Oxides	Al ₂ O ₃ & Fe ₂ O ₃	3.6
Loss on Ignition		5.5

No. 461 TALC

Source: California

Color: White

Brightness: 88

Description: No. 461 Talc is processed from carefully selected semi-massive talc ore.

Uses: Paint, linoleum, chemicals.

Physical Constants: (Typical)

Tapped Bulk:
20 grams 500 times 17 c. c.
Apparent Density 73.4 lbs. /cu. ft.

Loose Bulk:
20 grams 42.1 c. c.
Apparent Density 29.6 lbs. /cu. ft.
Specific Gravity 2.71 lbs. /gal.
True Density 22.57 gal. /lb.
.0443

Reflectance:
Green Stim. Filter 88
Oil Absorption (Rub-Out) 34.2

Sieve Fineness:
Thru 200 mesh 99.36
Thru 325 mesh 90.25
pH 9.52
Slip Fair
Hegeman Fineness 2

continued

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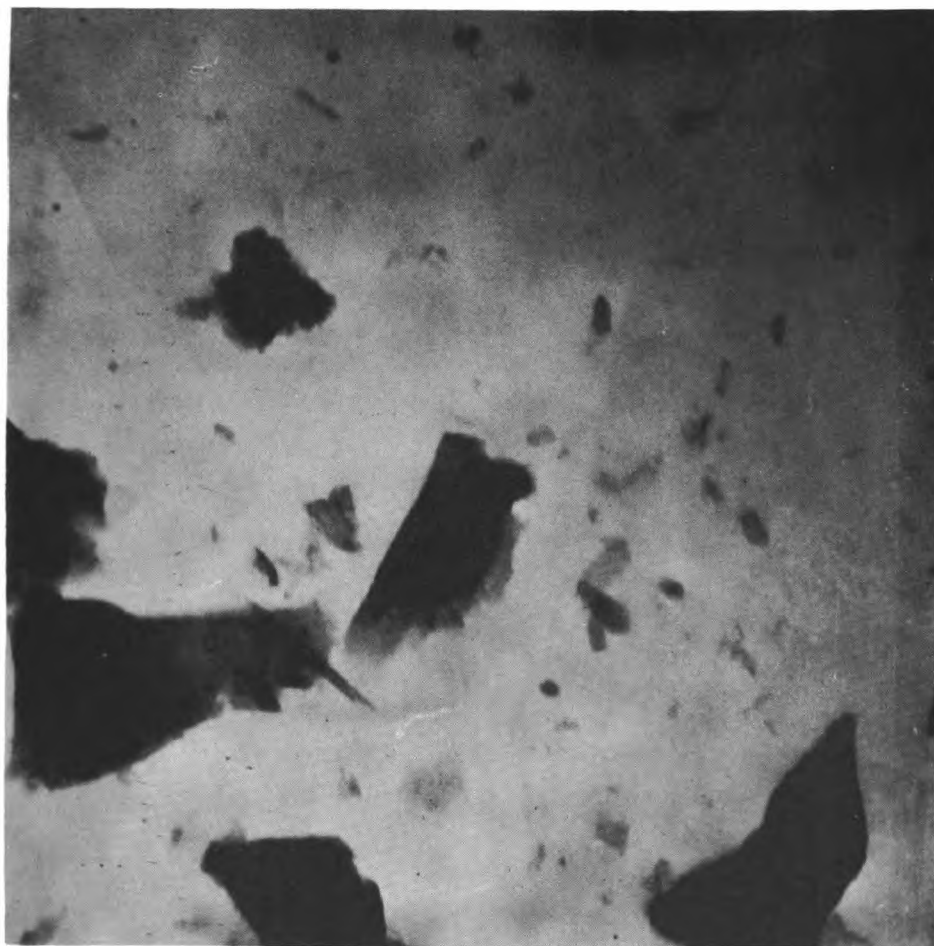
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No. 461 TALC

Chemical Composition: (Typical)

Silica	SiO ₂	58.16%
Magnesium Oxide	MgO	31.44
Calcium Oxide	CaO	3.31
Aluminum Oxide	Al ₂ O ₃	2.09
Ferric Oxide	Fe ₂ O ₃	0.27
Loss on Ignition		4.08
Non-Silica Residue		0.42

SUPERIOR MINE TALC



WHITTAKER, CLARK & DANIELS, INC.

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No. 462 TALC

Source: Vermont

Color: Off- White

Brightness: 83

Description: No. 462 Talc is finely ground from high grade talc particles selected by water flotation.

Uses: Paint, putty, glazing compounds.

Physical Constants: (Typical)

Tapped Bulk:

20 grams - 500 times

24 c. c.

Apparent Density

52.1 lbs. /cu. ft.

Loose Bulk:

20 grams

43.8 c. c.

Apparent Density

28.6 lbs. /cu. ft.

Specific Gravity

2.85

True Density

23.7 lbs. /gal.

.042 gal. /lb.

Reflectance:

Green Stim. Filter

85

Oil Absorption (Rub - Out)

31

Sieve Fineness:

Thru 200 mesh

99.9%

Thru 325 mesh

99.0

pH

8.45

Slip

Good

Water Solubles

0.44

Ohms Resistance

15,500

continued

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continued

No. 462 TALC

Chemical Composition: (Typical)

Silica	SiO ₂	56.42 %	Min.
Magnesium Oxide	MgO	30.20	Min.
Calcium Oxide	CaO	0.11	Max.
Aluminum Oxide	Al ₂ O ₃	1.33	Max.
Total Iron as	FeO	3.48	Max.
Manganous Oxide	MnO	0.046	Max.
Carbon Dioxide	CO ₂	3.08	Approx.
Combined Water		0.70	Approx.
Loss on Ignition		7.49	

No. 470 TALC

Source: Virginia

Color: Gray

Brightness: 47

Description: No. 470 Talc has a typical soapstone particle.

Uses: Rubber, roofing, asphalt products.

Physical Constants;(Typical)

Tapped Bulk:

20 grams - 500 times	15 c. c.
Apparent Density	83.3 lbs. /cu. ft.

Loose Bulk:

20 grams	27.3 c. c.
Apparent Density	45.8 lbs. /cu. ft.
Specific Gravity	2.76
True Density	22.99 lbs. /gal.
	.0435 gal. /lb.

Reflectance:

Green Stim. Filter	47
Oil Absorption (Rub-Out)	19

Sieve Fineness:

Thru 200 mesh	85.8%
pH	9.11
Slip	Poor

continued

continued

No. 470 TALC

Chemical Composition: (Typical)

Silica	SiO ₂	36.11%
Magnesium Oxide	MgO	26.48
Calcium Oxide	CaO	3.99
Aluminum Oxide	Al ₂ O ₃	6.78
Ferric Oxide	Fe ₂ O ₃	9.96
Titanium Dioxide	TiO ₂	0.35
Alkalies	Na ₂ O & K ₂ O	0.23
Loss on Ignition		14.87

No. 486 TALC

Source: Montana

Color: White

Brightness: 85

Description: No. 486 Talc is processed from massive ore which gives an extremely soft particle.

Uses: Ceramic insulators, ceramic refractories, printing inks.

Physical Constants: (Typical)

Tapped Bulk:

20 grams - 500 times

22 c. c.

Apparent Density

56.8 lbs. /cu. ft.

Loose Bulk:

20 grams

43.3 c. c.

Apparent Density

29.0 lbs. /cu. ft.

Specific Gravity

2.78

True Density

23.16 lbs. /gal.

.0432 gal. /lb.

Reflectance:

Green Stim. Filter

85

Oil Absorption (Rub-Out)

27

Sieve Fineness:

Thru 200 mesh

98.80%

Thru 325 mesh

96.68

continued

continued

No. 486 TALC

Particle Size Distribution: (Typical)

% Finer than -	
70 microns	95.0
40 microns	66.0
20 microns	36.0
10 microns	17.0
5 microns	8.0
Particle Shape - Platey	

Chemical Composition: (Typical)

Silica	SiO ₂	57.94%
Magnesium Oxide	MgO	33.35
Calcium Oxide	CaO	0.36
Aluminum Oxide	Al ₂ O ₃	1.69
Ferric Oxide	Fe ₂ O ₃	0.77
Loss on Ignition		5.36

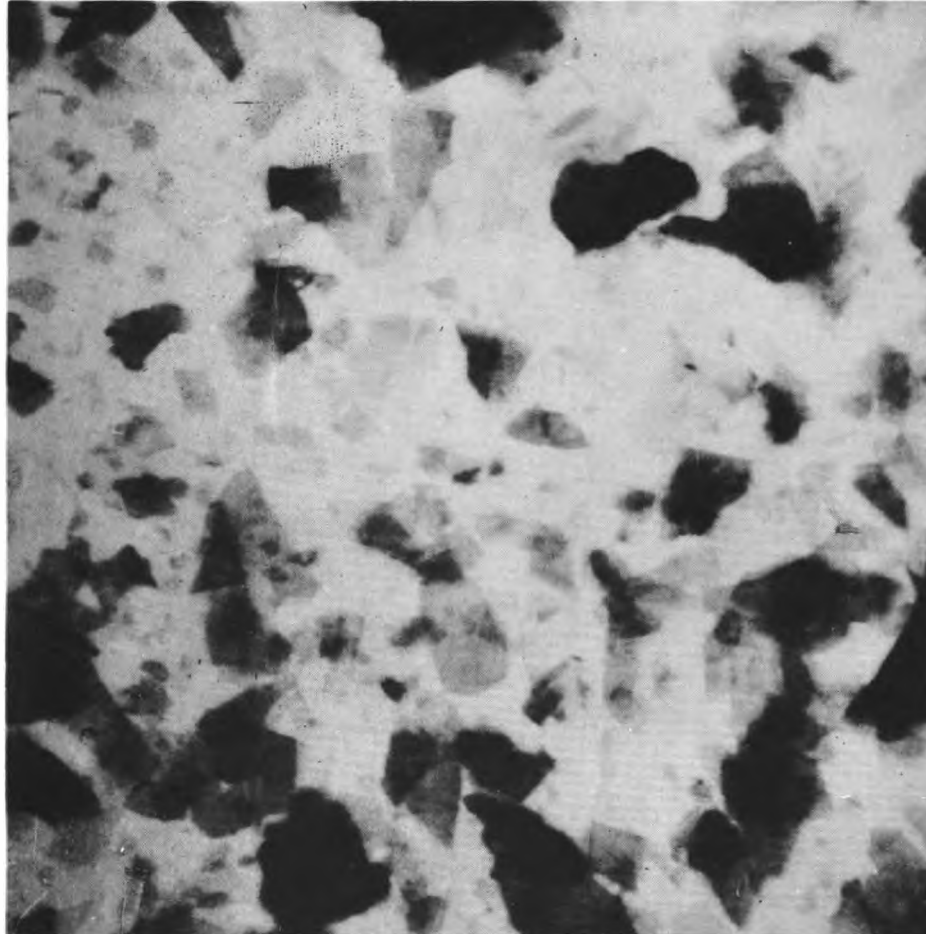
Firing Properties: (Typical)

Diameter Shrinkage	4.9%
Length Shrinkage	5.2
Volume Shrinkage	19.3
Absorption	1.7
Vitrification Temperature -- Cone	12 - 14

Fires White

No deformation at cone 16 (2642°F.)

SMITH-DILLON TALC



WHITTAKER, CLARK & DANIELS, INC.

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continued

No. 677 TALC - LO-MICRON

Chemical Composition: (Typical)

Silica	SiO ₂	50.13 %
Magnesium Oxide	MgO	25.17
Calcium Oxide	CaO	4.05
Aluminum Oxide	Al ₂ O ₃	5.91
Ferric Oxide	Fe ₂ O ₃	4.03
Manganous Oxide	MnO	0.12
Titanium Dioxide	TiO ₂	0.30
Potash	K ₂ O	0.14
Soda	Na ₂ O	0.12
Ignition Loss		9.51

No. 750 AIR FLOAT WESTERN TALC

Source: California

Color: White

Brightness: 88 1/2

Description: No. 750 Talc is air floated of high purity.

Uses: Lacquer surfacers, cosmetics, rubber, plastics, printing ink.

Physical Constants: (Typical)

Tapped Bulk:	
20 grams - 500 times	54 c. c.
Apparent Density	23.15 lbs. /cu. ft.
Loose Bulk:	
20 grams	100 c. c.
Apparent Density	12.5 lbs. /cu. ft.
Specific Gravity	2.71
True Density	22.57 lbs. /gal.
	.0443 gal. /lb.
Reflectance:	
Green Stim. Filter	88 1/2
Oil Absorption (Rub-Out)	43
Sieve Fineness:	
Thru 200 mesh	99.99%
Thru 325 mesh	99.97
Hegeman Fineness	5 1/4
pH	9.57
Slip	Fair

continued

continued

No. 750 AIR FLOAT WESTERN TALC

Chemical Composition: (Typical)

Silica	SiO ₂	57.06%
Magnesium Oxide	MgO	28.68
Calcium Oxide	CaO	3.07
Aluminum Oxide	Al ₂ O ₃	0.81
Ferric Oxide	Fe ₂ O ₃	1.25
Loss on Ignition		7.93
Non-Silica Residue		0.45

No. 766 TALC

Source: California

Color: White

Brightness: 90

Description: No. 766 has a semi-massive particle with a tendency toward a needle-like structure.

Uses: Cosmetics, pharmaceuticals.

Physical Constants: (Typical)

Tapped Bulk:
20 grams - 500 times 23 c. c.
Apparent Density 54.4 lbs. /cu. ft.

Loose Bulk:
20 grams 47.2 c. c.
Apparent Density 26.5 lbs. /cu. ft.
Specific Gravity 2.79
True Density 23.24 lbs. /gal.
.0430 gal. /lb.

Reflectance:
Green Stim. Filter 90
Oil Absorption (Rub-Out) 27

Sieve Fineness:
Thru 200 mesh 99.86%
Thru 325 mesh 99.60
pH 9.51
Slip Good

continued

continued

No. 766 TALC

Chemical Composition: (Typical)

Silica	SiO ₂	56.80%
Magnesium Oxide	MgO	32.12
Calcium Oxide	CaO	4.90
Aluminum Oxide	Al ₂ O ₃	1.54
Ferric Oxide	Fe ₂ O ₃	0.30
Loss on Ignition		3.74
Non-Silica Residue		0.44

No. 783 TALC

Source: Western

Color: White

Brightness: 87

Description: No. 783 Talc is a blend of two talc ores, carefully selected to give a high quality product.

Uses: Ceramic, filler.

Physical Constants: (Typical)

Tapped Bulk:	
20 grams - 500 times	21 c. c.
Apparent Density	59.5 lbs. /cu. ft.

Loose Bulk:	
20 grams	39.4 c. c.
Apparent Density	31.8 lbs. /cu. ft.
Specific Gravity	2.73
True Density	22.74 lbs. /gal.
	.0440 gal. /lb.

Reflectance:	
Green Stim. Filter	87
Oil Absorption (Rub-Out)	26

Sieve Fineness:	
Thru 200 mesh	98.71%
Thru 325 mesh	92.17
pH	9.45
Slip	Fair

continued

continued

No. 783 TALC

Chemical Composition: (Typical)

Silica	SiO ₂	57.82%
Magnesium Oxide	MgO	31.99
Calcium Oxide	CaO	0.52
Aluminum Oxide	Al ₂ O ₃	1.98
Ferric Oxide	Fe ₂ O ₃	1.50
Loss on Ignition		5.69

No. 786 TALC

Source: California

Color: White

Brightness: 89

Description: No. 786 Talc is processed from ore selected to have good wetting properties which are required for ceramic casting slips.

Uses: Ceramics (especially recommended for casting bodies).

Physical Constants: (Typical)

Tapped Bulk:	
20 grams - 500 times	20 c. c.
Apparent Density	62.5 lbs. /cu. ft.

Loose Bulk:	
20 grams	38.8 c. c.
Apparent Density	32.2 lbs. /cu. ft.
Specific Gravity	2.71
True Density	22.82 lbs. /gal.
	.0438 gal. /lb.

Reflectance:	
Green Stim. Filter	89 1/2
Oil Absorption (Rub-Out)	26

Sieve Fineness:	
Thru 200 mesh	94.0%
Thru 325 mesh	89.0
pH	9.3
Slip	Fair

continued

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continued

No. 786 TALC

Chemical Composition: (Typical)

Silica	SiO ₂	54.50 %
Magnesium Oxide	MgO	28.02
Calcium Oxide	CaO	6.60
Aluminum Oxide	Al ₂ O ₃	1.58
Ferric Oxide	Fe ₂ O ₃	0.05
Soda	Na ₂ O	0.20
Potash	K ₂ O	0.70
Sulfur Trioxide	SO ₃	Trace
Loss on Ignition		8.80

Firing Characteristics: (Typical)

Fires White

Fuses approx. at cone 14 (2534°F)



SUPERIOR MINE

WHITTAKER, CLARK & DANIELS, INC.

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continued

No. 637 GEORGIA TALC

Chemical Composition: (Typical)

Silica	SiO ₂	41.09%
Magnesium Oxide	MgO	27.91
Calcium Oxide	CaO	4.06
Aluminum Oxide	Al ₂ O ₃	3.78
Ferric Oxide	Fe ₂ O ₃	7.07
Manganous Oxide	MnO	0.16
Titanium Dioxide	TiO ₂	0.19
Potash	K ₂ O	0.11
Soda	Na ₂ O	0.06
Water & Ignition Loss		15.01

No. 618 TALC

Source: North Carolina

Color: White

Brightness: 86

Description: No. 618 Talc is one of the few true talcs produced in the world.

Uses: Cosmetics, baby powder, pulling cable.

Physical Constants: (Typical)

Tapped Bulk:

20 grams 500 times	20.5 c. c.
Apparent Density	60.2 lbs. /cu. ft.

Loose Bulk:

20 grams	48.8 c. c.
Apparent Density	25.6 lbs. /cu. ft.
Specific Gravity	2.69
True Density	22.41 lbs. /gal.

Reflectance:

Green Stim. Filter	86.5
Oil Absorption (Rub-Out)	27

Sieve Fineness:

Thru 200 mesh	99.28 Min.
Thru 325 mesh	93.56 Min.
pH	8.40
Slip	Excellent

continued

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continued

No. 643 TALC

Chemical Composition: (Typical)

Silica	SiO_2	48.0 - 54.0 %
Magnesium Oxide	MgO	31.5 - 32.5
Calcium Oxide	CaO	1.5 - 3.0
Aluminum Oxide	Al_2O_3	5.0 - 7.5
Ferric Oxide	Fe_2O_3	1.0 - 2.0
Loss on Ignition		7.0 - 8.0

No. 921 WONDERSTONE

No. 921 African Wonderstone is a distinctive mineral in that it occurs in such massive form it can be handled or worked without first pulverizing. The No. 921 Wonderstone is mined in large blocks often weighing several hundred pounds each.

As mined the Wonderstone is dark gray to blackish in color. It can be machined with high-speed wood working tools into any shape desired. The Wonderstone actually machines easier than wood.

When fired at approximately 1800°F the Wonderstone becomes a hard ceramic. The fired color is a buff color in oxidizing atmospheres. The absorption on the fired Wonderstone is low and the over-all dimensions will be slightly larger as it expands during firing.

The No. 921 Wonderstone differs from block talc in that it is an aluminum Silicate whereas block or lava talc is a Magnesium silicate. The electrical properties of Wonderstone are inferior to those of block talc. On the other hand the resistance to thermal shock is greater. Because of its resistance to thermal shock and low co-efficient of thermal expansion Wonderstone is used for highly specialized purposes such as model making, heat insulators and in certain precision equipment where its properties particularly fit.

Chemical Composition: (Typical)

Silica	54.20 - 56.84
Aluminum	32.39 - 34.94
Ferric Oxide	0.75 - 1.54
Titanium Oixde	2.25 - 2.80
Lime	0.07 - 0.25
Magnesia	0.13 - 0.31
Loss on Ignition	6.15 - 7.63
Power Factor	.0373
Dielectric Constant	4.93
Loss Factor	.184

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No. 943 TALC

Source: Georgia

Color: Gray

Brightness: 54

Description: No. 943 Talc is an inexpensive material used for roofing.

Uses: Roofing

Physical Constants: (Typical)

Tapped Bulk:

20 grams - 500 times

12.5 c. c.

Apparent Density

99.8 lbs. /cu. ft.

Loose Bulk:

20 grams

17.09 c. c.

Apparent Density

73.04 lbs. /cu. ft.

Reflectance:

Green Stim. Filter

54

Oil Absorption (Rub-Out)

15.3

Sieve Fineness:

Thru 200 mesh

55.47

Thru 325 mesh

25.50

pH

9.2

Slip

Poor

continued

continued

No. 943 TALC

Chemical Composition: (Typical)

Silica	SiO ₂	41.09%
Magnesium Oxide	MgO	27.91
Calcium Oxide	CaO	4.06
Aluminum Oxide	Al ₂ O ₃	3.78
Ferric Oxide	Fe ₂ O ₃	7.07
Manganous Oxide	MnO	0.16
Titanium Dioxide	TiO ₂	0.19
Potash	K ₂ O	0.11
Soda	Na ₂ O	0.06
Loss on Ignition & Moisture		15.01

No. 971 MAGNESIUM SILICATE

Source: Montana

Color: White

Brightness: 86 1/2

Description: No. 971 Magnesium Silicate is produced in the west coast to meet Navy specification 52-M-2c Type B. Medium oil also meets ASTM specification 605-42.

Uses: Paints

Physical Constants: (Typical)

Tapped Bulk:

20 grams - 500 times

20.75 c. c.

Apparent Density

58.04 lbs. /cu. ft.

Loose Bulk:

Scott Volumeter

6.410 grams/cu. ft.

Apparent Density

25.44 lbs. /cu. ft.

Specific Gravity

2.70

True Density

22.51 lbs. /gal.

0.04442 gal. /lb.

Reflectance:

Green Stim. Filter

87

Oil Absorption (Rub-Out)

30 - 32

Moisture

Less than 1%

Hegeman Fineness:

3.5 - 4.0

Sieve Fineness:

Thru 325 mesh

99.5%

pH

9.1

Total Water Solubles

Less than 0.5%

continued

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continued

No. 1030 TALC - VISCO

Total Water Solubles:

Less than 0.5%

Particle Size Distribution:

Finer than 20.0 microns 83.0%

Finer than 10.0 microns 57.0

Finer than 5.0 microns 36.0

Finer than 2.5 microns 20.0

Consistency:

Krebs Units 60 - 65

(Stormer - 40% Linseed oil suspension)

Chemical Composition: (Typical)

Silica	SiO ₂	56.80%
Magnesium Oxide	MgO	32.12
Calcium Oxide	CaO	4.90
Aluminum Oxide	Al ₂ O ₃	1.54
Ferric Oxide	Fe ₂ O ₃	0.30
Loss on Ignition		3.74
Non-Silica Residue		0.44

No. 1060 TALC - BH-99

Source: Montana

Color: White

Brightness: 87

Description: No. 1060 Talc is especially ground pigment for durability characteristics in exterior paints.

Uses: Exterior Paints

Physical Constants: (Typical)

Tapped Bulk:

20 grams - 500 times	20.75 c. c.
Apparent Density	58.04 lbs. /cu. ft.

Loose Bulk:

Scott Volumeter	6.410 grams/cu. ft.
Apparent Density	25.44 lbs. /cu. ft.
Specific Gravity	2.70
True Density	22.51 lbs. /gal.

Reflectance:

Green Stim. Filter	87
Oil Absorption (Rub-Out)	30 - 32
Hegeman Fineness	3.5 - 4.0

Sieve Fineness:

Thru 325 mesh	99.5%
pH	9.1
Total Water Solubles:	Less than 0.5%

continued

continued

No. 1153 TALC

Chemical Composition: (Typical)

Silica	SiO ₂	58.5%
Magnesium Oxide	MgO	30.4
Calcium Oxide	CaO	0.07
Aluminum Oxide	Al ₂ O ₃	1.0
Ferric Oxide	Fe ₂ O ₃	2.3
Loss on Ignition		8.0

No. 1168 TALC - U. S. P.

Source: California

Color: White

Brightness: 93

Description: No. 1168 Talc U. S. P. is of exceptional quality and softness.

Physical Constants: (Typical)

Tapped Bulk:

20 grams - 500 times

17 c. c.

Apparent Density

73.4 lbs. /cu. ft.

Loose Bulk:

20 grams

43.3 c. c.

Apparent Density

29.3 lbs. /cu. ft.

Specific Gravity

2.75

True Density

22.91 lbs. /gal.

0.04365 gal. /lb.

Reflectance:

Green Stim. Filter

93

Oil Absorption (Rub-Out)

27

Sieve Fineness:

Thru 200 mesh

99.7%

Thru 325 mesh

95.8

Hegeman Fineness

2

pH

9.9

continued

continued

No. 1168 TALC - U. S. P.

Chemical Composition: (Typical)

Silica	SiO_2	52.00%
Aluminum Oxide	Al_2O_3	8.27
Ferric Oxide	Fe_2O_3	.13
Calcium Oxide	CaO	2.00
Magnesium Oxide	MgO	30.61
Sulfite	SO_3	.04
Potash	K_2O	.08
Soda	Na_2O	.15
Loss on Ignition		6.05

No. 1211 TALC

Source: Montana

Color: White

Brightness: 90

Description: No. 1211 Talc is processed from massive ore which gives an extremely soft particle.

Uses: Ceramic insulators, ceramic refractories, wall tile, steatite insulators, textiles.

Physical Constants: (Typical)

Tapped Bulk:	
20 grams - 500 times	22 c. c.
Apparent Density	56.8 lbs. /cu. ft.

Loose Bulk:	
20 grams	43.5 c. c.
Apparent Density	28.8 lbs. /cu. ft.
Specific Gravity	2.78
True Density	23.16 lbs. /gal.
	.0432 gal. /lb.

Reflectance:	
Green Stim. Filter	90
Oil Absorption (Rub-Out)	28

Sieve Fineness:	
Thru 200 mesh	99.76%
Thru 325 mesh	97.62
pH	8.89
Slip	Good

continued

continued

No. 1211 TALC

Chemical Composition: (Typical)

Silica	SiO ₂	57.94%
Magnesium Oxide	MgO	33.35
Calcium Oxide	CaO	0.36
Aluminum Oxide	Al ₂ O ₃	1.69
Ferric Oxide	Fe ₂ O ₃	0.77
Loss on Ignition		5.36

No. 1222 TALC

Source: Montana

Color: White

Brightness: 89 1/2

Description: No. 1222 Talc is processed from especially high grade semi-massive ore.

Uses: Pharmaceuticals, cosmetics, foods.

Physical Constants: (Typical)

Tapped Bulk:

20 grams - 500 times

23 c. c.

Apparent Density

54.4 lbs. /cu. ft.

Loose Bulk:

20 grams

42.2 c. c.

Apparent Density

29.6 lbs. /cu. ft.

Specific Gravity

2.75

True Density

22.91 lbs. /gal.

.0437 gal. /lb.

Reflectance:

Green Stim. Filter

89 1/2

Oil Absorption(Rub - Out)

28

Sieve Fineness:

Thru 200 mesh

99.93%

Thru 325 mesh

98.65

pH

8.67

Slip

Good

continued

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continued

No. 1222 TALC

Chemical Composition: (Typical)

Silica	SiO ₂	60.94 %	Min.
Magnesium Oxide	MgO	31.81	Min.
Calcium Oxide	CaO	0.20	Max.
Aluminum Oxide	Al ₂ O ₃	1.16	Max.
Ferrous Oxide	FeO	0.14	Max.
Loss on Ignition		4.95	Max.

No. 1224 TALC

Source: France

Color: Off-White

Brightness: 83

Description: No. 1224 French Talc is ground from massive ore and is especially characterized by excellent slip and softness.

Uses: Rubber specialties.

Physical Constants: (Typical)

Tapped Bulk:

20 grams - 500 times	22 c. c.
Apparent Density	56.8 lbs. /cu. ft.

Loose Bulk:

20 grams	44.9 c. c.
Apparent Density	27.8 lbs. /cu. ft.
Specific Gravity	2.65
True Density	22.07 lbs. /gal. .0453 gal. /lb.

Reflectance:

Green Stim. Filter	83
Oil Absorption (Rub-Out)	28

Sieve Fineness:

Thru 200 mesh	98.5% Min.
Thru 325 mesh	96.0 Min.
pH	8.98
Slip	Excellent

continued

continued

No. 1224 TALC

Chemical Composition: (Typical)

Silica	SiO ₂	51.22%
Magnesium Oxide	MgO	32.73
Calcium Oxide	CaO	0.84
Aluminum Oxide	Al ₂ O ₃	7.35
Ferric Oxide	Fe ₂ O ₃	1.38
Loss on Ignition		5.72

No. 1313 Talc

Source: Canada

Color: White

Brightness: 92

Description: No. 1313 Talc is outstanding for protective coatings because of its soft fibrous texture without any abrasive characteristics.

Uses: Protective coatings, oil cloth.

Chemical Composition:(Typical)

Tapped Bulk:

20 grams - 500 times

18.5 c. c.

Apparent Density

67.4 lbs. /cu. ft.

Loose Bulk:

20 grams

46.5 c. c.

Apparent Density

26.8 lbs. /cu. ft.

Specific Gravity

2.75

True Density

22.91 lbs. /gal.

.04365 gal. /lb.

Reflectance:

Green Stim. Filter

92

Oil Absorption (Rub-Out)

33.3

Sieve Fineness:

Thru 325 mesh

98.5%

Hegeman Fineness

3.5 - 4.0

pH

9.85

Slip

Poor

continued

Whittaker, Clark & Daniels, Inc.

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continued

No. 1313 Talc

Chemical Composition: (Typical)

Silica	SiO ₂	47.55%
Magnesium Oxide	MgO	35.21
Calcium Oxide	CaO	6.62
Aluminum Oxide	Al ₂ O ₃	2.37
Ferric Oxide	Fe ₂ O ₃	0.8
Loss on Ignition		5.87
Moisture at 85° C		0.2
Arsenic		6 - 7 ppm
Reaction and Soluble Substances		1 mg.
Water Soluble Iron		None

No. 1314 TALC

Source: Canada
Color: White
Brightness: 88.5
Description: No. 1314 Talc is a finer
grind of No. 5 Talc.

Physical Constants: (Typical)

Tapped Bulk:	
20 grams - 500 times	16.5 c. c.
Apparent Density	75.6 lbs. /cu. ft.
Loose Bulk:	
20 grams	37.7 c. c.
Apparent Density	33.08 lbs. /cu. ft.
Reflectance:	88.5
Oil Absorption (Rub-Out)	30.6
Visual Color	White
Hegeman	4.0
Slip	Fair
Sieve Fineness:	
Thru 200 mesh	99.99%
Thru 325 mesh	99.6
pH	9 - 10

continued

continued

No. 1314 TALC

Chemical Composition: (Typical)

Silica	SiO ₂	42%
Magnesium Oxide	MgO	23
Calcium Oxide	CaO	15
Aluminum Oxide	Al ₂ O ₃	3
Carbon Dioxide	CO ₂	15
Water		2

No. 1367 TALC

Source: Georgia

Color: Light Olive

Brightness: 42

Description: No. 1367 Talc is mined selectively to have a controlled ignition loss; ground 90% thru 200 mesh.

Uses: Asphalt products, filler, insecticides.

Physical Constants: (Typical)

Tapped Bulk:

20 grams - 500 times

16 c. c.

Apparent Density

78.1 lbs. /cu. ft.

Loose Bulk:

20 grams

31.8 c. c.

Apparent Density

39.3 lbs. /cu. ft.

Specific Gravity

2.86

True Density

22.41 lbs. /gal.

.0420 gal. /lb.

Reflectance:

Green Stim. Filter

42

Oil Absorption (Rub-Out)

22

Sieve Fineness:

Thru 100 mesh

99.92%

Thru 200 mesh

95.0%

pH

8.49

Slip

Good

continued

continued

No. 1367 TALC

Chemical Composition: (Typical)

Silica	SiO ₂	49.02%
Magnesium Oxide	MgO	20.58
Calcium Oxide	CaO	3.13
Aluminum Oxide	Al ₂ O ₃	10.06
Ferric Oxide	Fe ₂ O ₃	7.92
Manganous Oxide	MnO	0.11
Titanium Dioxide	TiO ₂	0.36
Alkalies	K ₂ O & Na ₂ O	0.38
Phosphorous Pentoxide	P ₂ O ₅	0.02
Sulfur	S	Trace
Loss on Ignition		8.02

No. 1514 SOFTEX FILLER

Color: White (Not Controlled)

Brightness: 86

Description: No. 1514 Softex Filler was developed at the specific request of printing ink manufacturers for a filler that would not abrade type.

Use: Printing Inks.

Physical Constants: (Typical)

Tapped Bulk:
20 grams - 500 times 25 c. c.
Apparent Density 50.0 lbs. /cu. ft.

Loose Bulk:
20 grams 55.6 c. c.
Apparent Density 22.5 lbs. /cu. ft.
Specific Gravity 2.65
True Density 22.07 lbs. /gal.
.0453 gal. /lb.

Reflectance:
Green Stim. Filter 86
Oil Absorption (Rub-Out) 31

Sieve Fineness:
Thru 325 mesh 100%
Hegeman Fineness 5 1/2 - 6
pH 8.9
Slip Excellent

continued

continued

No. 1514 SOFTEX FILLER

Chemical Composition: (Typical)

Silica	SiO ₂	61.60%
Magnesium Oxide	MgO	32.90
Calcium Oxide	CaO	0.18
Aluminum Oxide	Al ₂ O ₃	1.38
Ferric Oxide	Fe ₂ O ₃	0.87
Loss on Ignition		2.95

No. 1600 TALC

Source: Italy

Color: White

Brightness: 90

Description: No. 1600 Talc is ground from ore that mineralogically approaches a true talc.

Uses: Baby powder, cosmetics, dusting powder.

Physical Constants: (Typical)

Tapped Bulk:

20 grams - 500 times

22 c. c.

Apparent Density

56.8 lbs. /cu. ft.

Loose Bulk:

20 grams

46.3 c. c.

Apparent Density

27.6 lbs. /cu. ft.

Specific Gravity

2.68

True Density

22.32 lbs. /gal.

.0448 gal. /lb.

Reflectance:

Green Stim. Filter

90

Oil Absorption (Rub-Out)

29

Sieve Fineness:

Thru 200 mesh

99.47%

Thru 325 mesh

91.28

pH

8.51

Slip

Excellent

continued

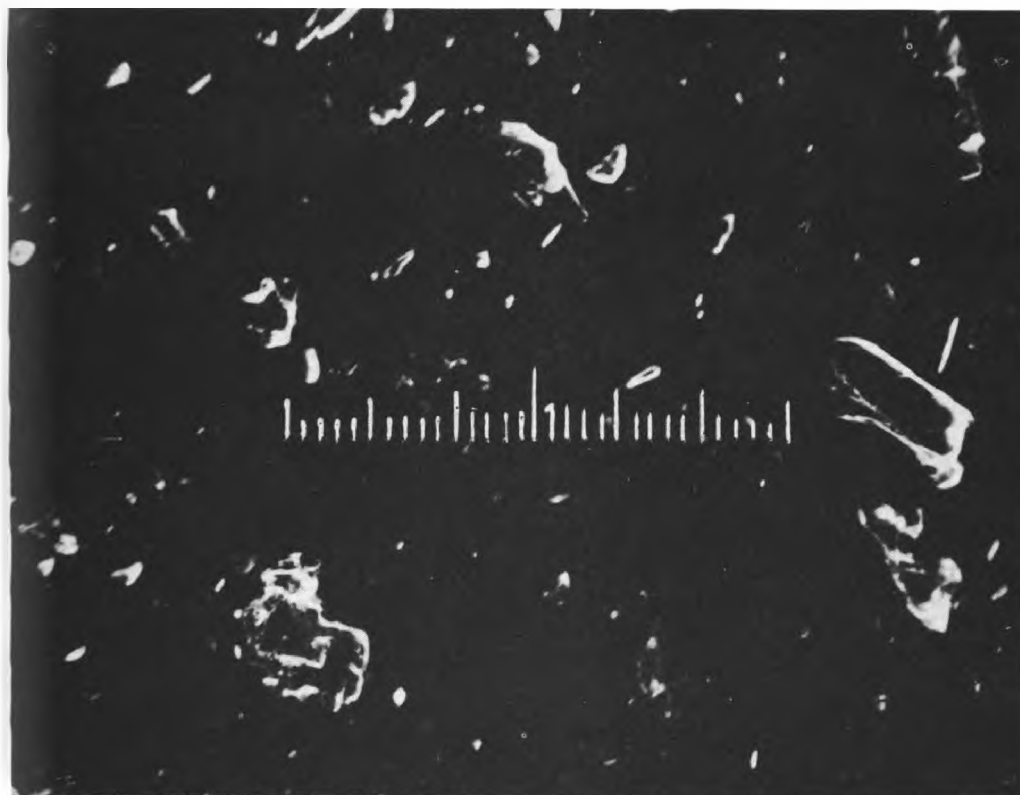
continued

No. 1602 TALC

Chemical Composition: (Typical)

Silica	SiO ₂	60.4%
Magnesium Oxide	MgO	30.6
Calcium Oxide	CaO	0.9
Aluminum & Ferric Oxides	Al ₂ O ₃ & Fe ₂ O ₃	2.0
Loss on Ignition		5.42

ITALIAN TALC



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continued

No. 1625 TALC

Chemical Composition: (Typical)

Silica	SiO ₂	58.5 - 62.0%
Magnesium Oxide	MgO	31.5 - 32.5
Calcium Oxide	CaO	1.0 - 1.8
Aluminum Oxide	Al ₂ O ₃	0.7 - 0.8
Ferric Oxide	Fe ₂ O ₃	0.6 - 1.0
Loss on Ignition		2.0 - 4.0

No. 1635 TALC

Source: North Carolina

Color: White

Brightness: 92

Description: No. 1635 Talc is ground from selected ore that has the general mineralogical structure of a pure talc. It is recommended where free-flowing qualities are desired.

Uses: Rice polishing.

Physical Constants: (Typical)

Tapped Bulk:

20 grams - 500 times

17 c. c.

Apparent Density

73.5 lbs. /cu. ft.

Loose Bulk:

20 grams

31.7 c. c.

Apparent Density

39.5 lbs. /cu. ft.

Specific Gravity

2.77

True Density

23.07 lbs. /gal.

.0434 gal. /lb.

Reflectance:

Green Stim. Filter

92

Oil Absorption (Rub-Out)

24

Sieve Fineness:

Thru 60 mesh

95%

Thru 80 mesh

90

Thru 100 mesh

88

pH

8.95

Slip

Excellent

continued

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continued

No. 1635 TALC

Chemical Composition: (Typical)

Silica	SiO ₂	59.14%
Magnesium Oxide	MgO	30.98
Calcium Oxide	CaO	1.26
Aluminum Oxide	Al ₂ O ₃	0.91
Ferric Oxide	Fe ₂ O ₃	0.59
Loss on Ignition		5.40
Non-Silica Residue		1.22

No. 1640 TALC

Source: North Carolina

Color: White

Brightness: 90 - 92

Description: No. 1640 Talc is a blend of two high quality ores selected to have certain desirable characteristics.

Uses: Cosmetics, pharmaceuticals.

Physical Constants: (Typical)

Tapped Bulk:

20 grams - 500 times

21 c. c.

Apparent Density

59.5 lbs. /cu. ft.

Loose Bulk:

20 grams

45.3 c. c.

Apparent Density

27.6 lbs. /cu. ft.

Specific Gravity

2.74

True Density

22.82 lbs. /gal.

.0438 gal. /lb.

Reflectance:

Green Stim. Filter

90 - 92

Oil Absorption (Rub-Out)

30

Sieve Fineness:

Thru 200 mesh

99.78%

Thru 325 mesh

93.56

pH

8.78

Slip

Excellent

continued

continued

No. 1640 TALC

Chemical Composition: (Typical)

Silica	SiO ₂	57.34%
Magnesium Oxide	MgO	30.2
Calcium Oxide	CaO	1.2
Aluminum Oxide	Al ₂ O ₃	4.0
Ferric Oxide	Fe ₂ O ₃	0.5
Loss on Ignition		5.8
Non-Silica Residue		0.7

No. 1648 TALC

Source: North Carolina

Color: White

Brightness: 80

Description: No. 1648 Talc is ground from carefully selected ore having the general mineralogical structure of a pure talc.

Uses: Textiles

Physical Constants: (Typical)

Tapped Bulk:

20 grams - 500 times

22 c. c.

Apparent Density

56.7 lbs. /cu. ft.

Loose Bulk:

20 grams

51.4 c. c.

Apparent Density

24.8 lbs. /cu. ft.

Specific Gravity

2.80

True Density

23.32 lbs. /gal.

.0429 gal. /lb.

Reflectance:

Green Stim. Filter

80

Oil Absorption (Rub-Out)

45

Sieve Fineness:

Thru 200 mesh

99.28%

Thru 325 mesh

92.80

pH

9.08

Slip

Excellent

continued

continued

No. 1648 TALC

Chemical Composition: (Typical)

Silica	SiO ₂	46.90%
Magnesium Oxide	MgO	30.72
Calcium Oxide	CaO	2.0
Aluminum Oxide	Al ₂ O ₃	11.3
Ferric Oxide	Fe ₂ O ₃	0.64
Loss on Ignition		8.22

No. 1718 FIBROUS MINERAL FILLER

Source: Canada

Color: Gray

Brightness: 60

Description: No. 1718 Fibrous Mineral Filler as a hydrous magnesium silicate is half way between a talc and an asbestos. It is suggested for use where a fibrous particle is desired and color is not important.

Physical Constants; (Typical)

Tapped Bulk:

20 grams - 500 times

36 c. c.

Apparent Density

34.7 lbs. /cu. ft.

Loose Bulk:

20 grams

49 c. c.

Apparent Density

17.3 lbs. /cu. ft.

Specific Gravity

2.56

True Density

.0469 gal. /lb.

Reflectance:

Green Stim. Filter

60

Oil Absorption (Rub-Out)

37.8

pH

9.3 - 9.7

Sieve Fineness:

On 20 mesh

2.5%

On 40 mesh

17.5

On 60 mesh

12.5

On 80 mesh

7.5

On 100 mesh

5.0

Thru 100

55.0

continued

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continued

No. 1718 FIBROUS MINERAL FILLER

Chemical Composition: (Typical)

Silica	SiO ₂	40.60 %
Aluminum Oxide	Al ₂ O ₃	1.79
Ferric Oxide	Fe ₂ O ₃	4.56
Calcium Oxide	CaO	Nil
Magnesium Oxide	MgO	38.84
Manganese	Mn	Less than 0.10
Loss on Ignition		14.31

No. 1731 MICRO TALC

Source: California and Montana

Color: White

Brightness: 89

Description: No. 1731 Micro Talc is a carefully selected talc, finely ground for all uses requiring a talc with fine particle size.

Uses: Paint, Paper.

Physical Constants: (Typical)

Tapped Bulk:

20 grams - 500 times

29 c. c.

Apparent Density

43.1 lbs. /cu. ft.

Loose Bulk:

20 grams

73.0

Apparent Density

16.8 lbs. /cu. ft.

Specific Gravity

2.70

True Density

22.51 lbs. /gal.

.0444

Reflectance:

Green Stim. Filter

89

Oil Absorption (Rub-Out)

41 - 43

Sieve Fineness:

Thru 400 mesh

100%

Hegeman Fineness

6 - 7

pH

8.7

Slip

Fair

Moisture

Less than 1%

Total Water Solubles

Less than 0.5%

continued

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continued

No. 1731 MICRO TALC

Consistency:

Krebs Units 66 -70

(Stormer - 40% Linseed oil suspension)

Particle Size Distribution:

Finer than 20. 0 microns 100%

Finer than 10. 0 microns 96.

Finer than 5. 0 microns 75

Finer than 2. 5 microns 45

Chemical Composition: (Typical)

Silica	SiO ₂	60. 94
Magnesium Oxide	MgO	31. 81
Calcium Oxide	CaO	0. 20
Aluminum Oxide	Al ₂ O ₃	1. 16
Ferric Oxide	Fe ₂ O ₃	0. 14
Loss on Ignition		4. 95
Non-Silica Residue		. 46

No. 1735 TEXTILE TALC

Source: Montana

Color: White

Brightness: 89

Description: No. 1735 Textile Talc is one of the softest and finest talcs available for the textile industry.

Physical Constants: (Typical)

Tapped Bulk:

20 grams - 500 times

20.75 c. c.

Apparent Density

60.09 lbs. /cu. ft.

Loose Bulk:

Scott Volumeter

6.410 grams/cu. in.

Apparent Density

24.40 lbs. /cu. ft.

Specific Gravity

2.70

True Density

22.51 lbs. /gal.

0.04442 gal. /lb.

Reflectance:

Green Stim. Filter

89.0

Oil Absorption (Rub-Out)

44 - 48

Sieve Fineness:

Thru 325 mesh

99.5%

Thru 400 mesh

94.0

Hegeman Fineness

5.0

pH

8.5

Slip

Excellent

Acid Soluble Lime

0.25

continued

continued

No. 1735 TEXTILE TALC

Chemical Composition: (Typical)

Silica	SiO_2	57.94 %
Aluminum Oxide	Al_2O_3	1.69
Ferric Oxide	Fe_2O_3	0.60
Calcium Oxide	CaO	0.36
Magnesium Oxide	MgO	33.35
Loss on Ignition		5.36

No. 1736 TREASURE TALC

Source: Montana

Color: White

Brightness: 90

Description: No. 1736 Talc is particularly suited for use in steatite insulators and has a higher Q factor, lower loss factor and whiter fired color than other Montana Talc. It is slightly more refractory and requires corresponding adjustment in maturing temperatures.

Uses: Electronics, refractories, cosmetics.

Physical Constants: (Typical)

Tapped Bulk:

Apparent Density	60.0 lbs. /cu. ft.
------------------	--------------------

Loose Bulk:

Apparent Density	24.5 lbs. /cu. ft.
Specific Gravity	2.69

Reflectance:

Green Stim. Filter	90
--------------------	----

Sieve Fineness:

Thru 200 mesh	98.0 %
---------------	--------

Particle Size Distribution

% Finer than	
70 microns	96.0
40 microns	67.0
20 microns	45.0
10 microns	27.0
5 microns	15.0

continued

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continued

No. 1736 TREASURE TALC

Firing Properties:

Fires White

No deformation at cone 16 (2642°F.)

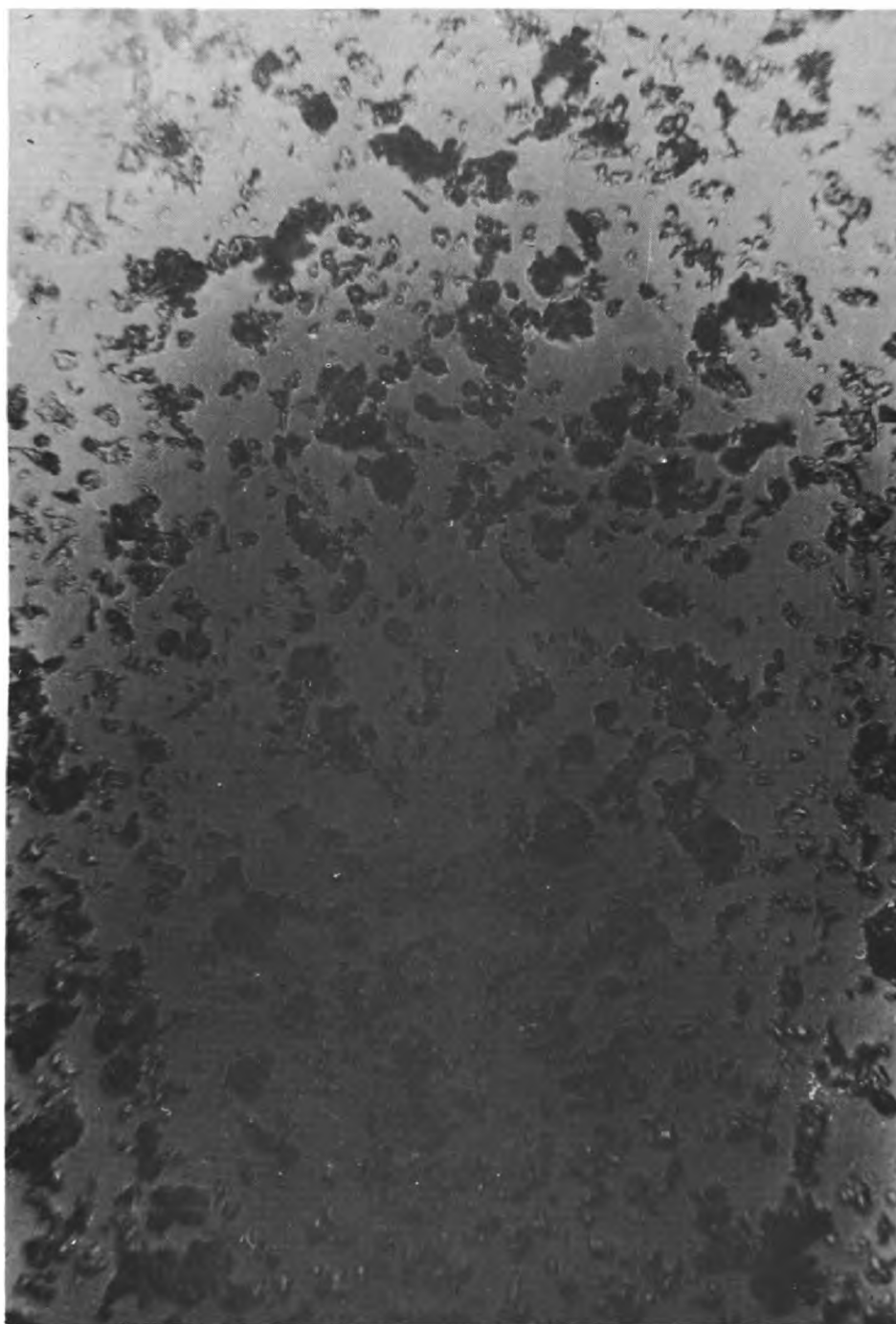
Particle Shape

Platey

Chemical Composition: (Typical)

Silica	SiO ₂	60.90 %
Magnesium Oxide	MgO	30.28
Calcium Oxide	CaO	0.16
Aluminum Oxide	Al ₂ O ₃	3.20
Ferric Oxide	Fe ₂ O ₃	0.20
Loss on Ignition		4.75
Non-Silica Residue		0.37

TREASURE STATE TALC



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No. 1750 VERMONT TALC

Source: Vermont

Color: Gray-Green

Brightness: 65 - Approx.

Description: No. 1750 Talc has a semi-massive particle of extreme softness.

Uses: Rubber, filler, dusting.

Physical Constants: (Typical)

Tapped Bulk:
20 grams - 500 times 18 c. c.
Apparent Density 69.4 lbs. /cu. ft.

Loose Bulk:
20 grams 33.2 c. c.
Apparent Density 37.6 lbs. /cu. ft.
Specific Gravity 2.78
True Density 23.16 lbs. /gal.
.0432 gal. /lb.

Reflectance:
Green Stim. Filter 65 - Approx.
Oil Absorption (Rub-Out) 27

Sieve Fineness:
Thru 200 mesh 98.5% Min.
Thru 325 mesh 96.0 Min.
pH 9.0
Slip Good

continued

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continued

No. 1750 VERMONT TALC

Chemical Composition: (Typical)

Silica	SiO ₂	33.74%
Magnesium Oxide	MgO	34.01
Aluminum Oxide	Al ₂ O ₃	0.77
Ferric Oxide	Fe ₂ O ₃	2.51
Ferrous Oxide	FeO	4.34
Moisture		0.18
Carbon Dioxide	CO ₂	17.20
Solubility in HCL		37.22
Loss on Ignition		17.42

No. 1755 TALC

Source: Montana

Color: White

Brightness: 90

Description: No. 1755 Talc is processed from carefully selected massive ore which gives a fine, soft particle.

Uses: Pharmaceuticals, cosmetics.

Physical Constants: (Typical)

Tapped Bulk:

20 grams - 500 times	18 c. c.
Apparent Density	60.0 lbs. /cu. ft.

Loose Bulk:

20 grams	41.6 c. c.
Apparent Density	24.5 lbs. /cu. ft.

Reflectance:

Green Stim. Filter	90
Oil Absorption (Rub-Out)	37.8

Sieve Fineness:

Thru 200 mesh	99.96%
Thru 325 mesh	98.17
Hegeman Fineness	2
pH	9.1
Slip	Fair

continued

continued

No. 1755 TALC

Particle Size Distribution:

% Finer than	
70 microns	96.0
40 microns	67.0
20 microns	45.0
10 microns	27.0
5 microns	15.0

Chemical Composition: (Typical)

Silica	SiO ₂	60.90 %
Magnesium Oxide	MgO	30.28
Calcium Oxide	CaO	0.16
Aluminum Oxide	Al ₂ O ₃	3.20
Ferric Oxide	Fe ₂ O ₃	0.20
Loss on Ignition		4.75
Non-Silica Residue		0.37

No. 1766 GEORGIA TALC

Source: Georgia

Color: Gray-Green

Brightness: 65

Description: No. 1766 Talc is processed from selected ore to give improved adherence to metal in the surfacers and primer surfacers.

Uses: Paint

Physical Constants: (Typical)

Tapped Bulk:	
20 grams - 500 times	20 c. c.
Apparent Density	62.5 lbs. /cu. ft.

Loose Bulk:	
20 grams	40.6 c. c.
Apparent Density	31.6 lbs. /cu. ft.
Specific Gravity	2.82
True Density	23.49 lbs. /gal.
	.0426 gal. /lb.

Reflectance:	
Green Stim. Filter	65
Oil Absorption (Rub-Out)	35.1

Sieve Fineness:	
Thru 325 mesh	99.9%
pH	9.34
Slip	Good

continued

continued

No. 1767 TALC

Chemical Composition: (Typical)

Silica	SiO ₂	50.13%
Magnesium Oxide	MgO	25.17
Calcium Oxide	CaO	4.05
Aluminum Oxide	Al ₂ O ₃	5.91
Ferric Oxide	Fe ₂ O ₃	4.00
Titanium Dioxide	TiO ₂	0.30
Soda	Na ₂ O	0.12
Potash	K ₂ O	0.14
Manganous Oxide	MnO	0.12
Loss on Ignition		9.51

Note: Ore contains chromium oxide which gives a light gray-green color. This talc tends to impart excellent adhesion characteristics to films in which it is incorporated.

No. 1767 TALC

Source: Georgia

Color: Gray-Green

Brightness: 65

Description: No. 1767 Talc is processed from selected ore to give improved adherence to metal in surfacers and primer surfacers.

Uses: Paint

Physical Constants: (Typical)

Tapped Bulk:

20 grams - 500 times

20 c. c.

Apparent Density

62.5 lbs. /cu. ft.

Loose Bulk:

20 grams

40.6 c. c.

Apparent Density

31.6 lbs. /cu. ft.

Specific Gravity

2.82

True Density

23.49

.0426 gal. /lb.

Reflectance:

Green Stim. Filter

65

Oil Absorption (Rub-Out)

28

Sieve Fineness:

Thru 200 mesh

99.93%

Thru 325 mesh

98.00

pH

9.34

Slip

Good

continued

continued

No. 1772 GEORGIA TALC - CERAMIC GRADE

Chemical Composition: (Typical)

Silica	SiO ₂	46.13%
Magnesium Oxide	MgO	25.17
Calcium Oxide	CaO	4.05
Aluminum Oxide	Al ₂ O ₃	5.91
Ferric Oxide	Fe ₂ O ₃	8.03
Titanium Dioxide	TiO ₂	0.30
Manganous Oxide	MnO	0.12
Alkalies	Na ₂ O & K ₂ O	0.26
Loss on Ignition		9.51

No. 1772 GEORGIA TALC - CERAMIC GRADE

Source: Georgia

Color: Gray-Green

Brightness: 62

Description: No. 1772 Georgia Talc is an inexpensive red burning talc recommended for use where fired color due to high iron content is not important.

Uses: Ceramics, red burning.

Physical Constants: (Typical)

Tapped Bulk:

20 grams - 500 times

18 c. c.

Apparent Density

69.4 lbs. /cu. ft.

Loose Bulk:

20 grams

33.6 c. c.

Apparent Density

37.2 lbs. /cu. ft.

Specific Gravity

2.82

True Density

23.49 lbs. /gal.

.0426 gal. /lb.

Reflectance:

Green Stim. Filter

62

Oil Absorption (Rub-Out)

24

Sieve Fineness:

Thru 200 mesh

98.00%

pH

9.34

Slip

Good

continued

continued

No. 1836 VERMONT TALC

Chemical Composition: (Typical)

Silica	SiO_2	52.24%
Aluminum Oxide	Al_2O_3	2.13
Ferric Oxide	Fe_2O_3	3.88
Calcium Oxide	CaO	0.70
Manganese Oxide	Mn	0.05
Magnesium Oxide	MgO	30.20
Combined Water		5.07
Carbon Dioxide		5.81

No. 1838 TALC

Source: Vermont

Color: White

Brightness: 84

Description: No. 1838 Vermont Talc is
an extremely soft Talc produced by water separation.

Physical Constants: (Typical)

Tapped Bulk:

20 grams - 500 times

25 c. c.

Apparent Density

49.9 lbs. /cu. ft.

Loose Bulk:

20 grams

65.5 c. c.

Apparent Density

19.0 lbs. /cu. ft.

Specific Gravity

2.76

True Density

22.99 lbs. /gal.

.04350 gal. /lb.

Reflectance:

Green Stim. Filter

84

Oil Absorption (Rub-Out)

43.2

Sieve Fineness:

Thru 200 mesh

100%

Thru 325 mesh

99.4

Hegeman Fineness

5

pH

9.35

Slip

Good

continued

continued

No. 1838 TALC

Chemical Composition: (Typical)

Silica	SiO ₂	52.97%
Aluminum Oxide	Al ₂ O ₃	1.73
Ferric Oxide	Fe ₂ O ₃	3.86
Calcium Oxide	CaO	0.41
Magnesium Oxide	MgO	30.20
Manganese Oxide	MnO	.046
Potash	K ₂ O	.05
Soda	Na ₂ O	.39
Loss on Ignition		6.28

No. 2130 TALC - LO-MICRON

Color: White

Brightness: 86

Description: No. 2130 Talc is finely ground from crypto-crystalline type particles.

Uses: Paint, artificial leather, colors in oil.

Physical Constants: (Typical)

Tapped Bulk:	
20 grams - 500 times	22 c. c.
Apparent Density	56.8 lbs. /cu. ft.

Loose Bulk:	
20 grams	39 c. c.
Apparent Density	31.6 lbs. /cu. ft.
Specific Gravity	2.86
True Density	23.82 lbs. /gal.
	.0420 gal. /lb.

Reflectance:	
Green Stim. Filter	86
Oil Absorption (Rub-Out)	29

Sieve Fineness:	
Thru 325 mesh	100%
Hegeman Fineness	5 - 5 1/2
pH	9.43
Slip	Poor

continued

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continued

No. 2130 TALC - LO-MICRON

Chemical Composition: (Typical)

Silica	SiO ₂	38.0%
Magnesium Oxide	MgO	20.0
Calcium Oxide	CaO	15.0
Aluminum Oxide	Al ₂ O ₃	1.0
Carbon Dioxide	CO ₂	24.0
Water		2.0

No. 2214 CHINCHILLA TALC

Source: Georgia

Color: Gray

Brightness: 55

Description: No. 2214 Talc is a granular
Talc suitable for dusting and bathing chinchillas.

Physical Constants: (Typical)

Tapped Bulk:

20 grams - 500 times

12 c. c.

Apparent Density

102.0 lbs. /cu. ft.

Loose Bulk:

20 grams

20.3 c. c.

Apparent Density

61.49 lbs. /cu. ft.

Reflectance:

Green Stim. Filter

55

Oil Absorption (Rub-Out)

15.3

Sieve Fineness:

Thru 200 mesh

50.70

pH

9.69

Slip

Fair

continued

continued

No. 2214 CHINCHILLA TALC

Silica	SiO ₂	46.13%
Aluminum Oxide	Al ₂ O ₃	5.91
Ferric Oxide	Fe ₂ O ₃	8.03
Calcium Oxide	CaO	4.05
Magnesium Oxide	MgO	25.17
Titanium Dioxide	TiO ₂	0.30
Potash	K ₂ O	0.14
Soda	Na ₂ O	0.12
Manganous Oxide	MnO	0.12
Loss on Ignition		9.51

No. 2367 TALC

Source: Georgia

Color: Gray

Brightness: 60

Description: No. 2367 Talc has a semi-massive particle and can be recommended as an economical off-color Talc.

Uses: Insecticides

Physical Constants: (Typical)

Tapped Bulk:

20 grams - 500 times

17 c. c.

Apparent Density

73.4 lbs./cu. ft.

Loose Bulk:

20 grams

37.03 c. c.

Apparent Density

33.7 lbs./cu. ft.

Reflectance:

63

Oil Absorption:

32.4

Sieve Fineness:

325 mesh

94.82

200 mesh

99.76

Hegeman Fineness

2

pH

9.64

Slip

Fair

continued

continued

No. 2367 TALC

Chemical Composition: (Typical)

Silica	SiO ₂	41.09%
Magnesium Oxide	MgO	27.91
Calcium Oxide	CaO	4.06
Aluminum Oxide	Al ₂ O ₃	3.78
Ferric Oxide	Fe ₂ O ₃	7.07
Manganous Oxide	MnO	0.16
Titanium Dioxide	TiO ₂	0.19
Potash	K ₂ O	0.11
Soda	Na ₂ O	0.06
Loss on Ignition and Moisture		15.01

No. 2441 TALC

Source: North Carolina

Color: White

Brightness: 88

Description: No. 2441 Talc is one of the few true talcs produced in the world.

Uses: Cosmetics, rouge, pharmaceuticals.

Physical Constants: (Typical)

Tapped Bulk:	
20 grams - 500 times	33 c. c.
Apparent Density	37.83 lbs. /cu. ft.
Loose Bulk:	
20 grams	45.3 c. c.
Apparent Density	24.97 lbs. /cu. ft.
Specific Gravity	2.69
True Density	22.41 lbs. /gal.
	.0446 gal. /lb.
Reflectance:	
Green Stim. Filter	88
Oil Absorption (Rub-Out)	21.6
Sieve Fineness:	
Thru 200 mesh	99.97
Thru 325 mesh	98.87
pH	8.12
Slip	Satin Smooth

continued

Whittaker, Clark & Daniels, Inc. Page T57-237

continued

No. 2441 TALC

Chemical Composition: (Typical)

Silica	SiO ₂	48.0 - 54.0%
Magnesium Oxide	MgO	31.5 - 31.5
Calcium Oxide	CaO	1.5 - 3.0
Aluminum Oxide	Al ₂ O ₃	5.0 - 7.5
Ferric Oxide	Fe ₂ O ₃	1.0 - 2.0
Loss on Ignition		7.0 - 8.0

No. 2442 NORTH CAROLINA TALC

Source: North Carolina

Color: White

Brightness: 87

Description: No. 2442 Talc is one of the few true talcs produced in the world.

Uses: Textiles

Physical Constants: (Typical)

Tapped Bulk:	
20 grams - 500 times	21 c. c.
Apparent Density	59.5 lbs. /cu. ft.
Loose Bulk:	
20 grams	44.7 c. c.
Apparent Density	27.9 lbs. /cu. ft.
Specific Gravity	2.69
True Density	22.41 lbs. /gal.
	.0446 gal. /lb.
Reflectance:	
Green Stim. Filter	87
Oil Absorption (Rub-Out)	27
Sieve Fineness:	
Thru 325 mesh	99%
pH	8.40
Slip	Excellent

continued

continued

No. 2442 NORTH CAROLINA TALC

Chemical Composition: (Typical)

Silica	SiO ₂	48.0 - 54.0%
Magnesium Oixde	MgO	31.5 - 31.5
Calcium Oxide	CaO	1.5 - 3.0
Aluminum Oxide	Al ₂ O ₃	5.0 - 7.5
Ferric Oxide	Fe ₂ O ₃	1.0 - 2.0
Loss on Ignition		7.0 - 8.0

No. 2450 TALC U. S. P.

Source: North Carolina

Color: White

Brightness: 92

Description: No. 2450 Talc is one of the few true talcs produced in the world.

Uses: Cosmetics, rouge, pharmaceuticals.

Physical Constants: (Typical)

Tapped Bulk:	
20 grams - 500 times	33 c. c.
Apparent Density	37.83 lbs. /cu. ft.
Loose Bulk:	
20 grams	45.3 c. c.
Apparent Density	24.97 lbs. /cu. ft.
Specific Gravity	2.69
True Density	22.41 lbs. /gal.
	.0446 gal. /lb.
Reflectance:	
Green Stim. Filter	92
Oil Absorption (Rub-Out)	21.6
Sieve Fineness:	
Thru 200 mesh	99.97
Thru 325 mesh	98.87
pH	8.12
Slip	Satin Smooth

continued

continued

No. 2450 TALC U. S. P.

Chemical Composition: (Typical)

Silica	SiO ₂	48.0 - 54.0%
Magnesium Oxide	MgO	31.5 - 31.5
Calcium Oxide	CaO	1.5 - 3.0
Aluminum Oxide	Al ₂ O ₃	5.0 - 7.5
Ferric Oxide	Fe ₂ O ₃	1.0 - 2.0
Loss on Ignition		7.0 - 8.0

No. 2486 TALC

Source: Montana

Color: White

Brightness: 90

Description: No. 2486 Lo-Micron Talc is especially produced to act as a lubricant for metal powders. No. 2486 Lo-Micron Talc will also give some fluxing action and help in the sintering of the powdered metal.

Physical Constants: (Typical)

Tapped Bulk:	
20 grams - 500 times	28. c. c.
Apparent Density	44.5 lbs. /cu. ft.

Loose Bulk:	
20 grams	80.0 c. c.
Apparent Density	15.6 lb. cu. ft.
Specific Gravity	2.78
True Density	23.16 lb. /gal.
	.04318

Reflectance:	
Green Stim. Filter	90
Oil Absorption (Rub-Out)	35.1
Sieve Fineness:	
Thru 200 mesh	98.2
Thru 325 mesh	99.7
Hegeman Fineness	3
pH	8.8
Slip	Fair

continued

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continued

No. 2486 TALC

Chemical Composition: (Typical)

Silica	SiO ₂	58.34%
Magnesium Oxide	MgO	32.57
Calcium Oxide	CaO	0.45
Aluminum Oxide	Al ₂ O ₃	1.59
Ferric Oxide	Fe ₂ O ₃	0.88
Loss on Ignition		5.75

No. 2778 TALC

Source: California

Color: White

Brightness: 90

Description: No. 2778 Talc is ground from ore selected especially for the ceramic industry.

Uses: Ceramics, wall tiles, art pottery.

Physical Constants: (Typical)

Tapped Bulk:

20 grams - 500 times

18 c. c.

Apparent Density

56.16 lbs. /cu. ft.

Loose Bulk:

Scott Volumeter

7.804 grams/cu.in.

Apparent Density

29.74 lbs. /cu. ft.

Specific Gravity

2.70

True Density

22.51 lbs. /gal.

0.04442 gal. /lb.

Reflectance: (Dry)

Green Stim. Filter

90

Moisture

Less than 1%

Sieve Fineness:

Thru 200 mesh

94%

Fire Color

White

continued

continued

No. 2778 TALC

Chemical Composition: (Typical)

Silica	SiO ₂	50.90%
Magnesium Oxide	MgO	23.77
Calcium Oxide	CaO	10.80
Aluminum Oxide	Al ₂ O ₃	1.13
Ferric Oxide	Fe ₂ O ₃	0.27
Loss on Ignition		11.75
Sodium Oxide		.98
Potassium Oxide		.22
Sulfur Trioxide		.07

No. 2783 CROWN TALC

Source: Montana

Color: White

Brightness: 87

Description: No. 2783 Crown Talc has good softness of particle.

Physical Constants: (Typical)

Tapped Bulk:

20 grams - 500 times

19 c. c.

Apparent Density

65.7 lbs. /cu. ft.

Loose Bulk:

20 grams

47.6 c. c.

Apparent Density

26.2 lbs. /cu. ft.

Specific Gravity

2.78

True Density

23.16 lbs. /gal.
.0432 gal. /lb.

Reflectance:

Green Stim. Filter

87

Oil Absorption (Rub-Out)

30

Sieve Fineness:

Thru 200 mesh

99.9%

Thru 325 mesh

99.4

Hegeman Fineness

3

pH

9.6

Slip

Fair

continued

continued

No. 5486 REGAL TALC

Chemical Composition: (Typical)

Silica	SiO_2	59.60
Aluminum Oxide	Al_2O_3	1.22
Ferric Oxide	Fe_2O_3	0.40
Calcium Oxide	CaO	0.38
Magnesium Oxide	MgO	32.86
Sulfur Trioxide	SO_3	0.02
Potash	K_2O	0.04
Soda	Na_2O	0.04
Loss on Ignition		5.25

SPECIALTIES

No. 424 Soapstone

Blue Bolted Soapstone is used in rubber-coated wire dusting. It is treated to give excellent water repellance.

No. 1076 Talc

This talc is a special grind for the roofing industry (13% to 20% on 100 mesh).

No. 1363 Talc

This talc, ground to 98%/200 mesh, has a reflectance of 70 for the rubber industry.

No. 1364 Talc

This talc, ground to 98%/325 mesh, has a reflectance of 70 for the rubber industry.

No. 1365 Talc

This talc, ground to 98%/200 mesh, with a reflectance of 60 to 65 for the rubber industry.

No. 1368 Talc

This talc is ground to 40 mesh and has a reflectance of 60 to 65 for use as a rubber and asphalt filler.

No. 1371 Talc

Talc granules for asphalt and bituminous products. It is ground 15% on 100 mesh with no color control.

No. 1372 Talc

Talc granules for asphalt and bituminous products. It is ground 15% on 100 mesh with no color control.

No. 1373 Talc

Talc granules for asphalt and bituminous products. It is ground 30% to 50% on 100 mesh with no color control

No. 1374 Talc

Talc granules for asphalt and bituminous products. It is ground 15% to 30% on 100 mesh with no color control.

No. 1375 Talc

Talc granules for asphalt and bituminous products. It is ground 30% to 70% on 100 mesh with no color control.

No. 1377 Talc

Talc granules for asphalt and bituminous products. It is ground 85% minimum on 100 mesh with no color control.

No. 1379 Soapstone

Blue Soapstone used for filler and extending purposes.

No. 1482 Talc

Talc ground to 91% pass 200 mesh without color control for the rubber industry.

No. 1637 Talc

Talc ground to 98% pass 200 mesh with a color of 65 plus for rubber industry.

No. 1751 Talc

Off-colored talc available on the West Coast at an economical price. It is recommended for use as an insecticide carrier and as a filler in asphalt and bituminous products.

No. 1769 Talc

Talc granules for asphalt and bituminous products. It is ground 15% on 100 mesh with no color control.

No. 2140 Talc

This talc has a coarse grind and low ignition loss for use in asphalt and bituminous products on the West Coast.

No. 2755 Talc

This talc can be supplied to meet U. S. P. standards and is the No. 1755 micronized to produce a super-fine, soft-particle magnesium silicate.

No. 2676 Talc

This is a coarse material produced in Canada, often referred to as grain talc.

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SOAPSTONE (TALC) CRAYONS

METALWORKER'S CLOVER BRAND

CLOVER Brand Crayons are cut from blocks of soapstone (talc) ore. These crayons are used to mark all types of metal surfaces. These crayons leave a fine clear mark, not destroyed by the heat from welding torches.

CLOVER Brand Crayons are available in three grades as follows:

No. 1 CLOVER SELECT CRAYONS are of the highest quality. They are cut with the grain from inspected, carefully selected soapstone. Hard spots and impurities eliminated.

<u>SIZE - INCHES</u>	<u>Code</u>	<u>Gross - Case</u>
5 x 1/4 Round	1032	24
5 x 1/4 x 1/4 Square	1030	24
5 x 1/2 x 1/16 Thin Flat	1035	48
5 x 1/2 x 1/4 Flat	1182	24
5 x 1/2 x 3/16 Flat	1031	24
5 x 1/2 x 1/8 Flat	1425	24
5 x 1/2 x 1/2 Large Square	1034	12
5 x 1 1/4 x 3/16 Wide Flat	1033	12
4 x 1/4 x 1/4 Square	1184	24
4 x 1/2 x 3/16 Flat	1185	24
4 x 1/4 Round	1026	24

No. 2 CLOVER REGULAR CRAYONS sharpen to a fine, long wearing marking edge. They do not feather or flake.

continued

continued

SOAPSTONE (TALC) CRAYONS

METALWORKER'S CLOVER BRAND

No. 2 CLOVER REGULAR CRAYONS

5 x 1/4 Round	1042	24
5 x 1/4 x 1/4 Square	1040	24
5 x 1/2 x 3/16 Flat	1041	24
5 x 1/2 x 1/4 Flat	1424	24
4 x 1/4 x 1/4 Square	1052	24
4 x 1/2 x 3/16 Flat	1053	24
4 x 1/4 Round	1037	24

No. 3 CLOVER THRIFT GRADE meets the need for a high quality low-price rough marking crayon.

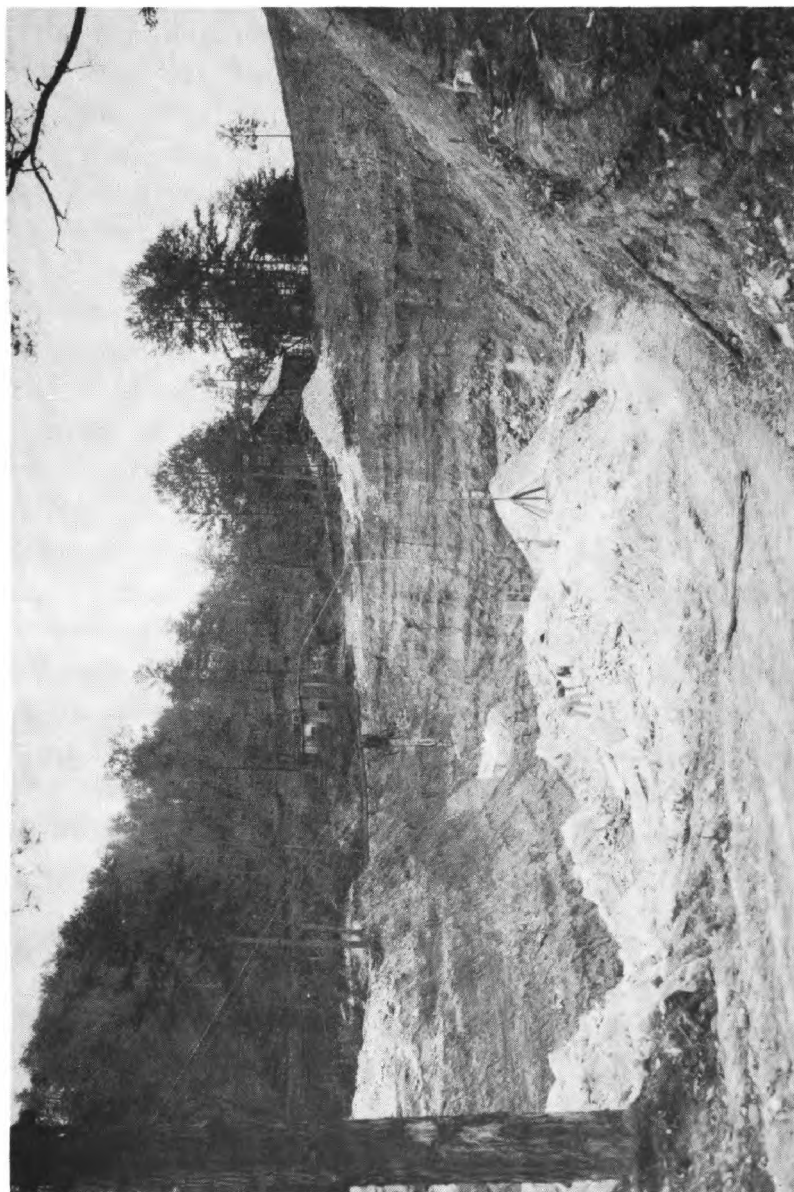
5 x 1/4 x 1/4 Square	1176	24
5 x 1/2 x 3/16 Flat	1177	24



BLOCK CUTTING IN NORTH CAROLINA FOR CRAYON STOCK

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AN OPEN TALC QUARRY IN NORTH CAROLINA

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MINING OPERATIONS IN CALIFORNIA

Southern California Minerals Company desert mining operations are located in the Death Valley area near Shoshone and Tecopa. Headquarters are at Shoshone where the geologist, mining engineer and mine superintendent are in residence. Talc mines are 26 to 80 miles from Shoshone and consist of the Superior, White Cap, Pongo, Acme, Panamint, Excelsior, Saratoga, Bonnie and Monarch properties. These operate all year round in one of the hottest areas in the United States. Miners are well adjusted to this extreme heat and most of them would not be happy in what would be termed a pleasant climate.

In the search for and development of the talc deposits of the region, Southern California Minerals Company pioneered many of the back roads which opened previously inaccessible areas. These roads are now being used by the general public and are maintained and improved by our own modern road building equipment. Approximately a half million feet of road have been built privately at costs ranging up to \$1.00 per foot.

The largest operation is at the Superior Mine Group, which includes the nearby White Cap and Pongo Mines, all located on the east edge of Death Valley near Saratoga Springs at elevations of 400 to 1000 feet above sea level. The Pongo is the lowest operation in Death Valley area, the depth of the shaft being close to sea level. Fifteen miners board and bunk at Superior where a dozen buildings are located. Drinking water is hauled 35 miles from Shoshone. The ore is trucked by the Mojave Corporation in 22 ton loads to Old Dunn Siding on the U. P., which is about 75 miles distant.

Superior is the deepest talc mine in the entire region, having been mined continuously down the dip for over 500 feet. The ore body consists of two parallel veins separated by a hard tremolitic zone. The deposit is formed on the lower contact of a diabase sill. Recent

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exploration work has developed a new ore body at Superior which promises to add many more years of talc production from the mine. A complete exploration and development program under the direction of a trained geologist and engineer is being vigorously pursued.

Since the first shipment in 1940 the Superior Mine Group has yielded 135,000 tons of fine talc ores. This has been consumed principally by the ceramic and paint industries.

Because of the unusual character of this talc deposit, the Division of Mines for the State of California has prepared a 22 page report, titled "The Superior Talc Area" (their Special Report No. 20), and this is available at the Division of Mines, Ferry Building, San Francisco 11, California.

Properties at this time (1957) under development are Saratoga, a medium lime bearing talc, located near Saratoga Springs. Monarch, a soft high lime talc, near Ibex Pass and Excelsior Claim 6, a very hard tremolitic talc located in the Kingston Mountains.

The Excelsior talc mine is one of the first properties operated by Southern California Minerals Company. It is located at an elevation of 4,000 feet in the Kingston Mountains where water is plentiful and the climate is ideal. The potential ore reserves here are probably one of the largest in the entire Death Valley Region. The talc vein outcrops for a distance of two miles on the surface. Actually only a small portion has been mined with 32,000 tons having been produced since 1936. The present limited crew at Excelsior is capable of mining 300 tons per month. Enlargement of the crew would permit a much greater production from this property if necessary.

The Acme mine is located in the Alexander Hills near Sperry Wash. which is about 15 miles southeast of

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Tecopa at an altitude of 2,000 feet. This mine was opened in 1939 and possible ore reserves appear to be very extensive but have not been completely determined because of heavy overburden. Very little stoping has been done and timbering is necessary only in rare cases. At the present rate of production there is ample ore for many years. Present crew can produce 300 tons per month.

The Panamint mine is on the west side of Death Valley in the Panamint Mountains at an altitude of 2,000 feet. Water must be hauled five miles from Warm Springs. The first talc ore was shipped from here in 1952. The property consists of several claims and is being mined from two separate openings. To date, the results of the development work have been very satisfactory and this work will continue because indications point to a large deposit of fine talc.

A recent purchase in the Panamints, where surface indications are excellent, will be opened as soon as practical. At least five miles of road improvement will be required before any preliminary work can be done.

In about June of 1953 a new talc discovery, known as the Bonnie Mine, was acquired by S. C. M. C. The Bonnie is located in the Panamint Mountains near the Warm Springs deposits and in the area of their Panamint Mine. Bonnie talc is a high lime, very soft and extremely white talc with medium oil absorption and without question will mill easily and make a good paint grade talc.

The production and engineering departments of Southern California Minerals Company are constantly working on the problems of the talc industry by making every effort to improve the grade and purity of our product with adequate quality control, both at the mines and at the mills.

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MONTANA MINING OPERATIONS

The history of Southern California Minerals Company mining operations in Montana are lengthy, covering extensive properties and developments over a period of approximately twelve years. To explain as briefly as possible; Southern California Minerals' first operation in Montana was in the spring of 1942 at the Johnny Gulch properties near Ennis, Montana, where at the suggestion of the Federal Government to mine block talc, they commenced mining operations. Because of previous faulty and bad mining practices on this property, the State of Montana forced them to go underground. They tunneled into the main talc outcrop and found the talc badly broken up and faulted due to previous earth temblors. Many weeks were spent during abnormal cold weather conditions in working this property, however, because the mine was not actually for sale and because of the excessive royalties demanded and the unreasonableness of the owner, Southern California Minerals ceased operations.

The following spring in 1943, Southern California Minerals Company, began mining high grade steatite talc at the Smith-Dillon mine near Dillon, Beaverhead County, Montana, where excellent steatite and paint grade talc is still produced in large quantities. A washing plant was set up on the property and all talc was washed before sending to rail head at Barratts, 12 miles distant.

In 1944 the Keystone properties were fully explored and an extensive development program started but due to the scarcity of skilled mining labor at that time no large tonnage was mined there. Later that same year the Crescent properties were acquired and then the Liberty mine at Twin Bridges was taken over. Because of a surface graphite contamination the Crescent properties were not worked, however, Keystone, Crescent and Liberty mines indicate large potential ore reserves

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and when needed can be fully developed.

In 1951 the Stone Creek mines were acquired (sold as Treasure State Talc) located about 20 miles out of Dillon and by 1952 development work was going full steam ahead because a deposit of extra pure talc was promised and did materialize. In 1953 commercial quantities of Treasure State talc were mined, washed, stockpiled and shipped for the first time.

Latest of the firm's progress-marking steps is a new talc grinding mill, at Barratts, Montana, now in operation by Tri-State Minerals Company, a wholly-owned division of Southern California Minerals Company. The mill installation was begun in the fall of 1955, was completed and began operation on January 24, this year.

The building housing the new grinding plant is of all concrete block construction, 200 feet long and 50 feet wide. Equipment comprises the latest type Raymond roll mill, capable of producing 40 to 50 cars of ground and processed talc per month.

The mill, incidentally, again chalks up an SCMC "first" in that it is entirely operated by electricity, even to the heating and drying processes. First such in the West, if not in the nation, for processing such material by all-electric power, the Barratts mill is probably the most modern talc grinding plant in the nation today. That important material in today's national ceramic manufacture, steatite talc, is, by the way, occupying a goodly portion of the new grinding capacity, assuring the ceramic manufacturer that highest quality of this type talc will flow uniformly from Southern California Minerals Company.

The new mill at Barratts is located at a company-owned siding eight miles south of Dillon, Montana, on the mainline of the Union Pacific railroad, where the firm has operated a talc washing plant for several

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years and where talc from many SCMC owned mines is beneficiated. The talc producing properties are located from 14 to 30 miles from the rail siding.

The new Raymond mill is a five-roll type and is coupled with a complete crushing and dust collecting system of advanced design. Citing the feature of electric drying and heating, Walter Skeoch, owner of SCMC states that previously and more common to this operation was the use of gas or oil fired kilns. The low winter temperatures at Barratts to an extent dictated the use of electric power, since pre-heating and activating of the oil, plus maintenance of a boiler 365 days a year, can be costly. Savings in time and elimination of inconveniences are the bonuses gained through use of the electric power.

The mill, incidentally, is totally enclosed, including the central 70 foot high steel tower, protecting all equipment from the rigors of weather - wind, snow and the frigid outside temperatures encountered.

Extremely large reserves of what is regarded as the world's purest talc have been developed by SCMC and at Barratts the firm retains large stockpiles of the material at the rail siding, especially during the winter to eliminate the mining hazards encountered in the coldest months.

Tri-State Minerals Co. operates another grinding plant at Ogden, Utah, where talc from Montana also goes to be ground along with talc from company owned mines in California. A Raymond roll mill is operated at this plant, plus another very important piece of equipment, a Hi-Speed vertical mill for producing "Lo-Micron" sizes of talc, linked into a new process for producing the lowest known micron sizes of talc by fluid energy milling. Installed in 1953, this process is the only such of its kind, excepting that of its original pilot plant in New Jersey. The method employs superheated steam. The micron particled material thus produced meets important needs in the paint industry for Whittaker, Clark & Daniels, Inc. Page T57-293

finest ground extender pigments.

SCMC, through Tri-State Minerals, serves the nation's largest steatite and ceramic manufacturers from stocks carried in New York and New Jersey by their distributor, Whittaker, Clark & Daniels, Inc.

Southern California Minerals Company's Mine Locations in Montana.

The SCMC talc mining operations all lie relatively near Dillon, Beaverhead County, Montana. These Montana talcs are the pure, compact, micro-crystalline type to which the term "steatite" may be applied. Porcelain enamel manufacturers use it as a source of magnesium oxide and producers of high-frequency electronic insulators have found that these talcs "fire" or "burn" with or without a binder and with low shrinkage, into pieces with low heat and electrical conductivity.

SCMC talc ore is trucked to Barratts siding (just south of Dillon) where it is washed of its clay impurities and then loaded aboard box cars for their grinding mill in Ogden, Utah (Tri-State Minerals Company).

TALC BY ORIGIN

Alabama	2952, 2953, 2955, 2961
California	232, 233, 461, 490, 610, 766, 783, 786, 1030, 1065, 1090, 1222, 2140, 1168
Canada	4, 5, 130, 1314, 2676, 1313
France	7, 8, 11, 12, 1224
Georgia	367, 406, 637, 943, 1076, 1363, 1364, 1365, 1367, 1368, 1371, 1372, 1373, 1374, 1375, 1377, 1379, 1637, 1751, 1766, 1767, 1768, 1769, 1772, 2367, 3367, 4553, 4554, 4555, 4557,
India	454, 456
Italy	1600, 1602, 1603, 1606
Lo-Micron	1, 399, 677, 1731, 2130, 2486, 2755, 3016.
Maryland	160
Miscellaneous	253, 282, 424, 453, 662, 750, 921, 1514, 1718, 2214, 3250
Montana	481, 486, 971, 1060, 1104, 1211, 1735, 1736, 1755, 2778, 2783, 2786, 2787, 2789, 5486
New York	13
North Carolina	235, 618, 643, 829, 1153, 1625, 1635, 1640, 1648, 2440, 2441, 2442, 2450

Pyrophyllite	15, 16, 29
Vermont	40, 150, 462, 648, 1750, 1836, 1837, 1838
Virginia	9, 470, 483, 1482

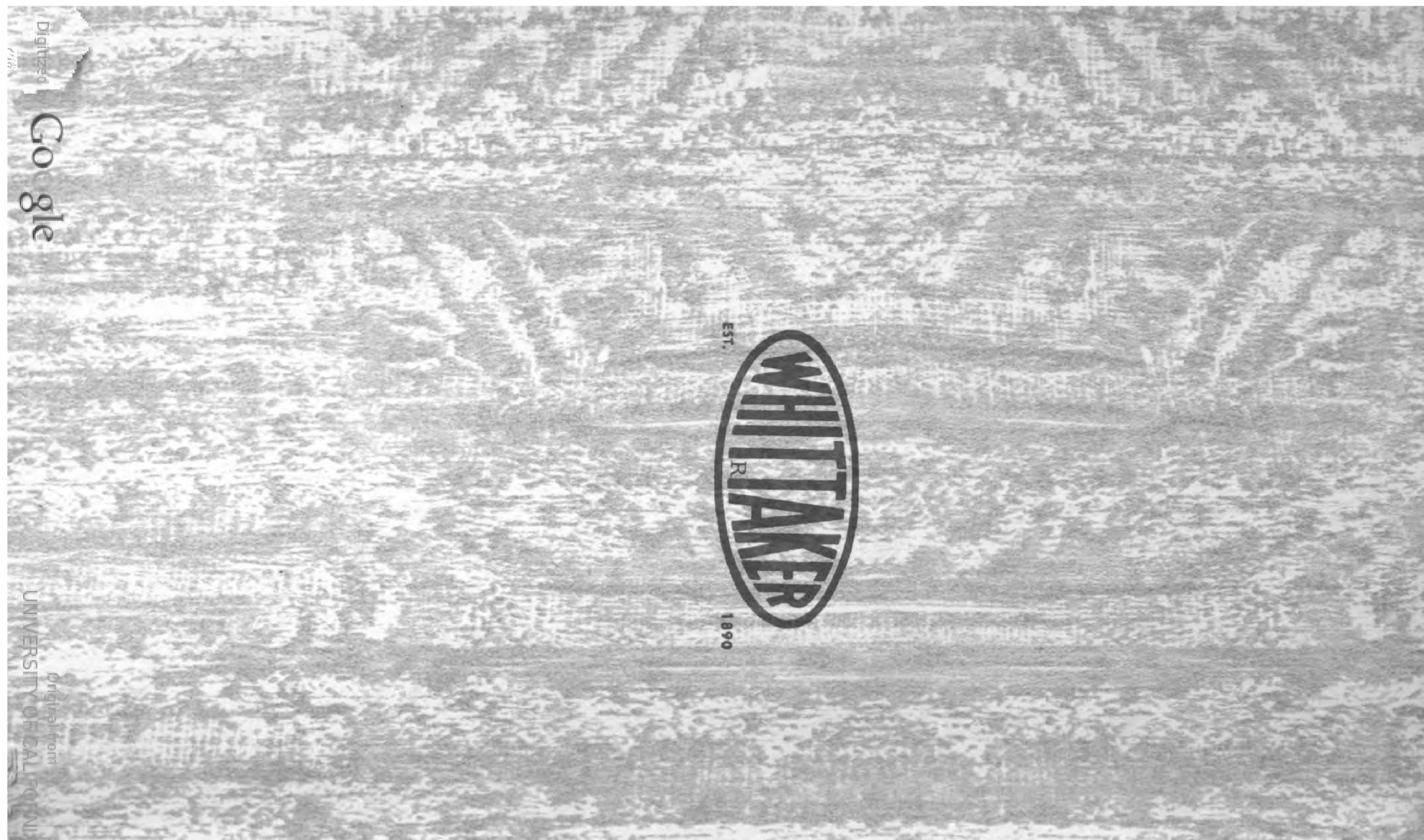
QUALITY IS OUR FIRST CONSIDERATION

For over sixty years, Whittaker, Clark & Daniels, Inc., a dependable source for minerals, colors and chemicals, have rigidly adhered to their slogan "Quality of material with service to customers."

Whittaker minerals, colors and pigments are used by the majority of America's Industries. This diversification and perspective gives a comprehensive experience with many industries, contributing immeasurably to Whittaker's ability to serve YOU.

Whittaker, Clark & Daniels' products serve the following industries:

Agricultural	Electric Plating
Cosmetic	Paint
Drug	Lacquer
Rubber	Glass
Foundry	Ceramic
Steel	Paper
Soap	Roofing
Chemical	Food
Floricultural	Optical
Insecticide	Monument
Metalworking	Printing Ink
Dentistry	Jewelry
Orthopedic	Instrument
Art	Medical
Leather	Porcelain
Electrical	Shipbuilding
Textile	Welding
Plastic	Steel Fabricating
Furniture	Construction
Linoleum	Brick





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