



WHITTAKER, CLARK & DANIELS, INC.
(201) 581-8100 CABLE "SLEINAD"

PRODUCT DATA

ULTRAMARINE BLUE USED IN THE RUBBER INDUSTRY

Ultramarine blue is used extensively in the rubber industry. There are several key uses. It is used to aid in the whiteness of a white rubber, example on a whitewall tire. It is also used for a full color, such as the trademark on a well known brand of basketball shoes. It could be used for hot water bottles, rubber thread, bottle stoppers, color for latex in carpeting and an assortment of mechanical rubber goods.

Generally speaking the percentage is ranged from 1/10% for whitening of the white rubber to approximately 4% for a full color.

Reasons for using ultramarine blue:

- Non Bleeding - That is, alkali resistance - especially in latex
- Heat Stability
- Easy Dispersion Characteristics
- Rich Red Clean Ultramarine Color
- Light Fastness
- Chemically Stable
- Compatibility - Except in acidic conditions
- Non Toxic

Note, comparative figures on phthalo versus ultramarine blue in rubber. In rubber 10 to 12:1 stronger than ultramarine blue whereas, normally 20:1 in some other media.

For new business the recommended ultramarine blues for Rubber Industry are the #5008 red shade #5021 for the green shade.

These are available - Stocked in South Plainfield, N.J. - Chicago, Illinois

PLAINTIFF'S
EXHIBIT
WCD-51

Not for Distribution



PRODUCT DATA

WHITTAKER METALLIC SOAPS

When a fatty acid (such as Stearic) is combined with an alkali such as caustic soda the resultant product is known as a soap. When the soap is made with Stearic Acid it is known in chemistry as a Stearate. This soap, or Stearate, is soluble in water and has been in domestic and industrial uses for years.

A number of years ago the chemists found that by replacing the sodium content with a metal such as Aluminum, Zinc, Calcium, Magnesium, or Barium the resultant product was completely insoluble in water. These new products were called Metallic Soaps or Stearates with the name of the metal used as a prefix, i.e. Aluminum Stearate.

With this discovery a whole new field of uses were opened up. By employing different methods of production it was found that different grades of metallic stearates could be made. As a result of this we have been able to make a specific Stearate for almost any purpose.

Some Stearates, for example Aluminum, were found to possess properties that were not associated with any other compounds. When treated with solvents, like petroleum oils, or for that matter any other oil, animal, vegetable or mineral, or with waxes, they formed gels. It was also found that by regulating the amount of free-fatty acid in the finished Stearate the type of gel and its durability could be controlled or changed. In this respect also the gel forming properties could also be increased or decreased by the amount of metallic base incorporated into the Stearate. Through these means we are able to make Stearates to fit almost any demand of industry.

Stearates possess remarkable waterproofing properties. They can be incorporated as a dry powder when the material is mixed; when dissolved in suitable solvents they can be applied to concrete, stucco or plaster as waterproofing.

Certain Stearates possess lubricating properties. These are used for mold lubrication in the plastic industry, artificial leather industry, rubber industry and in wire drawing mills; applied as a dry powder which can be dusted into the molds before they are filled.

U.S.P. Stearates are widely accepted in the cosmetic industry because of their adhesive or clinging characteristics and their ability to lessen sheen. Among numerous cosmetic uses, Stearates are ingredients in face powder, hand creams, lotions, body dusting powder, medicinal powders and dressings.

Continued



ESTABLISHED 1890

PRODUCT DATA

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WHITTAKER METALLIC SOAPS

Like pigments, in general Stearates are composed of clusters of individual particles whose ultimate size is one micron or less in diameter. When examined by the microscope, they appear colorless and transparent. Their refractive index ranges between 1.36-1.61. Although they are a little heavier than water with specific gravities ranging between 1.007 and 1.230, they are so water repellent that they float even in boiling water.

Some Stearates have a greasy or unctuous texture, while others feel dry and will not stick together when compressed.

The melting points reveal several interesting features of the Stearates. Some of them, like Zinc Stearate, fuse to a thin liquid within a narrow temperature range. Others, like Aluminum Stearate show an initial softening point and become viscous liquids up to a much higher temperature. Some will not fuse at all but will char and decompose.



WHITTAKER, CLARK & DANIELS, INC.
(201) 561-8100 CABLE "SLEINAD"

PRODUCT DATA

GLOSSARY OF WC&D METALLIC STEARATES

ALUMINUM STEARATE

A metallic soap used in paints, varnishes and lacquers to give special properties which may be summarized as follows:

1. To thicken oils and organic solvents
2. To aid in suspension and deflocculation of pigments
3. To impart water-proofness
4. To impart flatness to organic finishes
5. As a surface active agent when it is used as an oil-in-water emulsifier

USES

Waterproofing, ingredient of lubricants, cutting compounds; cements, flattening agent; cosmetics and pharmaceuticals.

GRADES AVAILABLE

908 Aluminum Stearate

"KEY" DESCRIPTION

Aluminum tri-Stearate
high in free fatty acid.
Low gel characteristics
permit use of this
material with minimum
bodying.

909 Aluminum Stearate

Hi-gel di-Stearate
for paint, ink, etc.

BARIUM STEARATE

Barium Stearate combines lubricating characteristics with good heat stabilizing properties. Its unusual melting characteristics recommend it for use where high melting points are desired.

USES

Waterproofing agent; lubricant; packing for bearings.

GRADE AVAILABLE

902 Barium Stearate

"KEY" DESCRIPTION

High melting point
lubricant for rubber
and plastics.

Continued



PRODUCT DATA

2

CALCIUM STEARATE

A metallic soap used in paints, varnishes and lacquers to accomplish the following purposes:

1. To facilitate wetting of pigments, thereby improving gloss
2. To aid in suspension properties without causing excessive bodying
3. To harden lacquers and varnishes which are used as sanding sealers

USES

Waterproofing, flattening agent in lacquers; also used in varnish, paints, enamels, plastics; lubricant; emulsions; cements; wax crayons.

GRADES AVAILABLE

"KEY" DESCRIPTION

1345 Calcium Stearate

All-purpose; exceptionally fine uniform particle size.

2284 Calcium Wettable Stearate

Water dispersible.

2307 Calcium Food Grade Stearate

High bulk material. Provides great covering power and is a most efficient conditioning agent. Can also be offered under Kosher label by special arrangement.

LITHIUM STEARATE

Lithium Stearate is considered a very efficient lubricant for powdered metal operations. In addition, its oxygen-scavenging effect promotes the sintering rate in non-ferrous parts. Extra care must be taken when using Lithium Stearate with brass parts, since an excess of stearate can cause some surface discoloration.

GRADES AVAILABLE

"KEY" DESCRIPTION

1083 Lithium Stearate

High degree of lubricity. Sometimes used in greases.

Continued



PRODUCT DATA

3

MAGNESIUM STEARATE

A metallic soap used in paints, varnishes and lacquers to give special properties. They are used to aid in suspension and deflocculation of pigments, to impart waterproofness, to form water-in-oil emulsions and to serve as an external and internal lubricant in tableting water colors.

USES

Dusting powder, flattening agent; in medicines; stabilizer and lubricant for plastics.

GRADES AVAILABLE

905 Magnesium Stearate U.S.P.

"KEY" DESCRIPTION

Standard U.S.P. material (Light Density). Highest degree of lubricity. Recommended for most uses.

2311 Magnesium Stearate U.S.P.

U.S.P. Food Grade (Heavy Density).

ZINC STEARATE

A metallic soap used in paints, varnishes and lacquers to impart special properties which may be summarized as follows:

1. To aid in suspension properties with only slight bodying
2. For hardening lacquers and varnishes which are used in sanding sealers
3. For controlling the flow of enamels formulated with rutile-type titanium pigments
4. To aid in flocculating and as an anti-settling agent in zinc chromate primers

USES

Medicine; cosmetics; drying lubricant in rubber; waterproofing agent; lacquers; plastics; powder metallurgy.

GRADES AVAILABLE

695 Zinc Stearate U.S.P.

"KEY" DESCRIPTION

Most commonly used, all purpose cosmetic grade. Has a very fine particle size and tends to be quite fluffy.

Continued



PRODUCT DATA

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903 Zinc Stearate	Recommended "lacquer grade."
904 Zinc Rubber Grade Stearate	Standard lubricant and dusting agent for rubber application.
1349 Zinc Stearate	All purpose grade.
2271 Zinc Wettable Stearate	Aqueous products.
2288 Zinc Stearate	Stir-in grade developed for lacquer manufacturers.
2302 Zinc Heat Stable Stearate	Heat-stable grade. Especially developed for polystyrene.
2304 Zinc Hi Temp Stearate	Used where a lower bulking material is desired or where ease of dispersion is important. Special "non-agglomerating" product for surface treatment applications and for rubber if 904 not satisfactory.
2310 Zinc Stearate	Non-blooming stir-in grade for sealer lacquers. Shows excellent suspension.
2313 Zinc Stearate	Higher apparent density (lower bulk value) than 904. Freer-flowing and useful where it is desirable to apply a thicker, but uniform, zinc stearate coating to uncured rubber sock.

STEARATES FOR PAINT, LACQUER AND PRINTING INK

ALUMINUM STEARATE

Historically, Aluminum Stearates have been used for suspension in oleo resinous paints. While there are other types of suspension aids now on the market, there is still application. A recommendation is 0.25% of Aluminum Stearate based on the weight of pigment is the recommended level.

MAGNESIUM STEARATE

Magnesium Stearate is used as a flattening agent for paints, varnishes and lacquer. You would use it in place of the Aluminum where there was a concern as to the increase in viscosity in aging. In other words, the Calcium does not increase viscosity as much as the Aluminum Stearate. Calcium Stearate can be used as a suspension agent. Again, it is not as effective as the Aluminum Stearate.

PUTTY

Aluminum Stearate is an ingredient of putty. As an ingredient in putty, it prevents bleeding and separation of the oils from the solids in the finished canned product. Paint and varnish removers - as you know, are both liquid and paste or cream consistency. Remover - is the Aluminum Stearate can be used to body the paint remover and retard the evaporation. Printing inks - you will find here that there is a bigger potential per gallon usage for the use of Aluminum Stearate as a bodying agent. Also used as water proofing aids in this area.

LACQUERS

Zinc Stearates are used extensively in sanding sealers in the lacquer industry. Zinc Stearates assist in the penetration of wet pores. It is colorless and we particularly recommend our #2310 - this is a non-blooming zinc stearate, stir in grade.

Phenolics

Calcium Stearate

#1345

Zinc Stearate

#904

Polystyrene

Polyethylene

There is very little usage of Stearates here, occasionally some Zinc for lubricity.

Polypropylene

Calcium Stearate

#1345

Zinc Stearate

#2304 - recommended to improve pigment dispersion

ABS resins

Polyesters Zinc Stearate #904

Calcium Stearate

#2286

Vinyl

This is a very specialized area of Stearates. I am going to list below recommendations, however, you will find with most vinyl manufacturers that they use what are known as vinyl stabilizers. Vinyl stabilizers are in actuality metallic soaps both in liquid and powdered form. In practically all cases they are blends of several metals. Primarily, Barium, Cadmium and Zincs with some use of leads and some of Calcium. While these are technically Stearates, they are marketed as vinyl stabilizers and it is a very, very specialized area. In many cases the stabilizers are custom mixed by the manufacturer for the specific requirements of the particular vinyl plastic manufacturer. Your competition in this particular field would be Nuodex, Argus, division of Witco, Ferro, and Advance - division of Carlyle Chemical, however, for the record, here again is a rundown of possible recommendations.

In rigid vinyls:

Calcium Stearate

#1345

Plastisols

Aluminum Stearate

#907 - used as a viscosity modifier

Aluminum Stearate

#914 - used as a pre-gel in DOP Plasticizers

Vinyl Film

#2314 Cadmium Stearate serves as a light stabilizer

Barium

#902 for long term heat

Zinc

#2304 for early color hold

As I mentioned earlier by and large these are blended by the chemical manufacturers. I trust this will give you a start on your Stearate program.

STEARATES

The people making Stearates would be Parsons-Plymouth, division of Corn Products, Witco Chemical, Harshaw, Mallinckrodt, Nopco trade name Metasap, Nuodex division of Tenneco and American Cyanamid. I would imagine the ~~strongest competition in your territory would be Nuodex who has a regional~~ office and warehouse facilities throughout the Southeast and Nopco, who make some of their Stearates in Cedartown, Georgia. Overall, Witco is probably the strongest on a national basis. You will find the other people popping up in various areas. American Cyanamid is probably the smallest and generally make very little effort on their Stearate marketing. There is one other Synpron, from Cleveland, who are known primarily as price cutters. Whittaker Stearates are manufactured to our specifications in Newark, New Jersey.

I have put together a cross-index showing the Whittaker Stearates and the competitive numbers.

~~You asked specifically for general rundown on usage in the plastic industry;~~
the following should give you a good starting base.

~~All of the metallic Stearates find extensive use in plastics. Zinc, Calcium and Aluminum are used as internal and external lubricants. They act as mold release agents, general processing aids, catalysts, scavengers, flatting agents, stabilizers and gelling agents.~~

The main usage is as a lubricant; to improve melt flow but more important to aid in mold release. Calcium, Magnesium and Zinc Stearates serve these purposes. Zinc is used because of its inherent high lubricity. One would use Magnesium or Calcium when the need for higher melting point justifies a sacrifice in lubricating efficiency.

The point of lubricity is not only for better finished plastic product but to minimize wear on the metal molds. The Stearates are added to the mix in most cases and is usually about 1% Stearate based on the weight of the resin, however, this can vary from 3/4 to 1% to 2 1/2% depending on demands. I will list below the various types of plastics and suggested Stearates to be used.



PRODUCT DATA

Product Number	Dry Brightness	Oil Absorption (Rub-Out)	Through 325 Mesh	Hegman Fineness	pH	Specific Gravity	Descriptions	Applications
5	86	22	98.00	1.5	9.8	2.80	Crypto Crystalline	G-1-2
123	91	32	96.00		7.7	2.70	U.S.P. Lo-Soluble Salts	G- Pencil & Toy Coatings
128	89	29	89.00		7.7	2.70	U.S.P. Lo-Soluble Salts	
141	92 +	38	100.00	5.0	7.7	2.70	U.S.P. Lo-Soluble Salts	
150	67	29	95.00	2.5	9.0	2.78	Feathering-Sanding	8-9
367	60	24	96.00	2	9.6	2.90	Low Cost-Off Color	8-9
399	92 +	50	100.00	6.0	8.7	2.70	Easy Dispersing	G-4-6-7
462	84	35	99.00	3.5	8.5	2.85	Lo-Soluble Salts	G-8-9
505	88	26	99.00	2.5	9.5	2.80	Crypto-Crystalline	G-2
971	87	26	99.00	3.0	8.7	2.76	Platey	G-1
1196	87	36	100.00	5.5	8.5	2.65	Low-Micron	G-3-4
1313	92 +	34	99.00	3.5	9.0	2.88	Soft - Platey	G-1-5
1726	90	42	100.00	4.5	8.0	2.65	Soft-Platey	G-1-5-7
1731	91	38	100.00	6.0	8.6	2.70	Easy Dispersing	G-1-3-4-6
1767	60	27	99.00	2.0	9.3	2.80	Platey Low Color	G-1-3-6-7
2131	87	26	99.00	3.0	8.3	2.70	Platey	G-1
2610	92	51	100.00	6.5	8.8	2.70	Platey - Low Micron	G-4-6-7
2620	84	28	100.00	4.0	9.0	2.70	Fine White	G-1
2755	92	50	100.00	6.0	8.5	2.70	U.S.P. Low Micron	G-4-6-7
2789	89	29	98.00	3.5	8.5	2.76	Easy Dispersing	
2794	92	27	99.99	4.0	8.3	2.70	Platey	G-
2798	92	39	100.00	5.5	9.5	2.70	Platey	G-1-3-6
4404	88	40	99.80	5.5	9.5	2.70	Low-Micron	G-1-3-6
4416	86	40	99.90	6.5	9.5	2.70	Platey	G-1-5-7
							Platey	G-1-5-7

CODE FOR APPLICATIONS

G GENERAL

- 1 EXTERIOR PAINTS
- 2 CAULKING - PUTTY
- 3 PRIMER - SURFACER

- 4 VISCOSITY AND GLOSS CONTROL
- 5 INTERIOR EMULSION PAINTS
- 6 SEALER AND UNDERCOATS

- 7 INTERIOR PAINTS
- 8 AUTO PATCHING COMPOUNDS
- 9 ASPHALT EMULSIONS

The above information has been carefully prepared and we believe it to be entirely correct.
However, it is furnished gratis for your guidance only and is without guarantee.



WHITTAKER, CLARK & DANIELS, INC.
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PRODUCT DATA

MAGNESIUM SILICATE TALC

The designation "talc" covers a wide range of natural products. The given theoretical formula for talc mineral (hydrated magnesium silicate) corresponds to a weight ratio of magnesia (MgO) to silica (SiO₂) of about 1:2 but in actual practice this ratio may reach or exceed 1:1.

For reporting purposes, talc, soapstone, steatite and Asbestine are considered as a group. Soapstone refers to a talclike material of variable composition containing sufficient impurities to prevent its use in applications requiring white color or chemical purity. Steatite refers to a particularly massive compact form of talc and differs from soapstone in terms of its relative purity (Soapstone may only contain 50% talc). To qualify as a steatite grade talc, it must contain less than 1.5% CaO, 1.5% Fe₂O₃, and 4% Al₂O₃. Asbestine is a fibrous form of talc that is mined in the northern section of New York State

In view of the many composition variables associated with talc, it is understandable the talc of commerce may not always contain the mineral talc a major constituent although this is usually the case. It also explains many grades of talc that are offered as commercial pigments to industry.

The types and amount of mineral impurities associated with talc are more less indicative of the areas from which they are mined. Montana deposits very nearly pure talc. New York talcs commonly contain only about 20% to of mineral talc. Vermont talcs are high in magnesite, Texas talcs run high dolomite, and California talcs vary in associated mineral content depending their relative softness or hardness.

The five principal United States talc mining districts are California, Nevada, Montana, New York and Vermont. Texas, North Carolina, Georgia and Alabama, although not listed among the top five, are significant in talc mining.

The purest talcs that approach theoretical purity, are characterized by the whitest color, and command the highest price. Pure talc is the softest known mineral, exhibits hydrophobic surface properties, and has a slippery feel. Although pure talc is the standard for softness of 1 on the moh scale (diamond=10) commercial products may be less soft due to the presence of impurities or associated minerals such as calcite, tremolite and silicious materials.

Magnesium is the eighth most abundant element in the earth's crust, the sixth most abundant element in the sun's atmosphere, and in the form of magnesium silicate is the second most important component of meteorites.



CF-BALL-2

continued....



ESTABLISHED 1892

PRODUCT DATA

Magnesium Silicate Talc (continued)

Page 2

The color of natural talc is white, gray, yellow, or a greenish shade and is characterized by a silvery or pearllike luster. It occurs in veins and/or masses formed from preexisting mineral aggregates. The entire talc vein can seldom be completely extracted because of ore dilution with detrimental adjacent rock.

Discounting minor yearly fluctuations the consumption of talc domestically¹ produced has grown at an annual rate of 4% since 1960 and this trend is expected to continue.

About 40% of the talc sold in the past has been low cost and low quality product. Industry is looking more and more to the better grades of talc and their controlled physical and chemical characteristics.

Talc is probably used in a wider variety organic coatings than any other single extender pigment. This widespread utilization of talc pigment is well justified. Talc pigments are normally self-suspending in paint vehicles. Moreover, they assist in keeping associated pigments also suspended. Whatever settling occurs is generally soft and readily redispersed (platy talcs are especially effective for antissettling behavior).

Talcs disperse with relative ease in most paint vehicles. Certain grades are especially useful for incorporation in aqueous systems.

Since talcs chalk more readily than most extenders, they are frequently used in a compromise pigment combination (for instance with ground limestone) to provide controlled chalking (self cleaning exterior paints).

Most paint-grade talcs possess both a high specific surface area and a fairly high oil absorption capacity. Although these properties limit the amount of talc that can be incorporated in a paint, their presence in moderate amounts contribute to improved rheological properties (antissettling, brushability, satisfactory leveling and antisag).

Certain talcs impart a flattening effect that can be used to control the gloss of enamels (high-purity Montana talc is reported as ideal for this purpose). These talcs are generally 10-micron grades with a top size below 25 microns and readily dispersible stir-in extender pigments producing Hegman fineness values of 5 and above in high-speed paint mixing equipment. In wall paint formulations their use results in improved brushability and clean-up. The finest 10-micron talcs produce excellent flattening, good low-angle sheen, and good resistance to burnishing. In primers they exhibit excellent suspension, holdout, and sanding properties.

continued....



PRODUCT DATA

Magnesium Silicate Talc (continued)

Page 3

Both acicular and platy talcs improve the bonding properties, film toughness and durability of paints. Of the two, the platy talcs are claimed as more effective in upgrading the physical properties of a paint. Platy talcs also appear superior to fibrous talcs in improving the water and humidity resistance of a paint film (less permeable due to physical configuration). On the other hand fibrous talcs are preferred for imparting better blister resistance.

It is stated that talcs are equal or somewhat superior to other extenders in resisting corrosion influences.

The platy and granular talcs like the 10-micron grades are especially prized in metal primers due to their excellent sanding properties and in top coats due to their contribution to burnish resistance and good scrubability. All talcs exhibit outstanding holdout properties. However, the platy grades are by far superior.

The relatively coarse grades are utilized where residual surface roughness (tooth) is desirable such as for wall primers, undercoaters, and texture paints.

Talc is commonly used in white linseed oil house paints, traffic paints, latex paints, industrial undercoats, and structural steel primers.

Talcs tend to be commodity pigments in that products from different manufacturers are frequently used interchangeably. However in view of the many grades of talcs offered, the formulator should carefully evaluate the effect of the replacement talc on the performance of the end compositions before committing himself to this substitution.

Talcs are supplied in a broad range of particle sizes and distributions. Further diversifications arise from the fact that, depending on the talc source, talcs vary greatly in particle shape. Thus the talc pigment may be predominantly acicular, fibrous, granular, or platy. The method of reducing the crude ore to pigment particle size has little to do with the talc particle configuration, the origin of the talc being all important.

In view of this situation, it is understandable that a talc manufacturer may stock as many as 70 standard grades of talc for sale to industry, all of which are designed for definite end uses. It also suggests that consultation with the technical personnel of a talc manufacturer is in order when a customer introduces talc pigment into his product.

It is the policy of Whittaker, Clark & Daniels to make available talc products especially designed for use by the paint industry at strategic points throughout the country. Thus industry can have the advantage of not only a ready supply of a selected product, but also a product that is economically desirable.



PRODUCT DATA

399 MAGNESIUM SILICATE S.F.

No. 399 Magnesium Silicate is a low micron magnesium silicate (talc) which has been produced by Whittaker, Clark & Daniels for a number of years. This talc has gradually grown to become the standard of comparisons for all low micron talcs.

No. 399 Magnesium Silicate is ground from a Montana ore and is extremely white in color. It is used in various ways in the paint and printing ink industries.

The popularity of No. 399 Magnesium Silicate S.F. has increased considerably with the increased popularity in the use of new manufacturing facilities for paint products.

No. 399 Magnesium Silicate S.F. is an ideal pigment, not only for its original intent of use in production enamels and other paints for sheen control, but because of its fine particle size and particle size distribution uniformity from lot to lot, bag to bag, No. 399 Lo-Micron Magnesium Silicate is an ideal pigment for formulations which are processed on high speed dispersors and/or sand mills.

No. 399 Lo-Micron Magnesium Silicate still retains its popularity as a formulating tool for sheen control where the sheen of the finished enamel must be uniform on all parts of assembled item. Representative of this type of work would be metal cabinets, bicycles, various heavy toys and any and all sundry items which are produced in individual pieces and assembled on any assembly line.

The reason for this is that most paint batches of enamels when they come down for final inspection vary somewhat in the degree of gloss and the item which is to be coated with this enamel must naturally have and maintain a uniform gloss or when the assembled parts were finally put together in the finished product, it would be rather a sorry looking manufactured piece because of variations in gloss from part to part.

No. 399 Magnesium Silicate S.F. is used at this point in the manufacture of enamels to bring the gloss to a uniform standard and is introduced by the paint manufacturer either by sprinkling into the finished batch and dispersing under the mixing paddles or by having the No. 399 Magnesium Silicate pre-wet in some diluent or solvent that is already in the formula and introducing it at the end of the batch make-up in this form so that there are no possible opportunities for any talc particles to agglomerate and cause trouble either in the straining or in the final finish by showing speckiness.

continued....

WHITTAKER, CLARK & DANIELS, INC.

(201) 581-6100 CABLE "ELEINAD"



ESTABLISHED 1908

PRODUCT DATA

399 Magnesium Silicate S.F. (continued)

There are several talcs which are sold in this category, but No. 399 Magnesium Silicate S.F. is by far the most efficient both from a standpoint of the reducing of the gloss of the paint by the nonsettling characteristics and also by the ease of dispersion and the slight increase in viscosities attributed to the introduction of Magnesium Silicate S.F. to the formula.

There are some specialized purposes for some of the competitive low micron materials which might act as substitutes for No. 399 Magnesium Silicate, but in general use none of the competitive materials make a satisfactory overall substitute for No. 399.

No. 399 Magnesium Silicate S.F. is also widely used in plants where it has been introduced (first as a sheen control item) as a formulating tool in the manufacture of quality satin egg shell and flat enamel paints for general trade sales. One reason for this is that formulations made with No. 399 never lose nor change the gloss readings which were obtained on the dried films when the enamel was first made. This is really quite a problem in the manufacture of this type of trade sales goods because on standing, egg shell and flat enamels generally increase in sheen unless No. 399 Magnesium Silicate is used as the sheen control item.

399 MAGNESIUM SILICATE S.F.

<u>Material</u>	<u>Hegman Test</u>	<u>Viscosity</u>			<u>Glossmeter Reading</u>		
399	6+	<u>1/4#</u>	<u>1/2#</u>	<u>1#</u>	<u>1/4#</u>	<u>1/2#</u>	<u>1#</u>
		100 KU	105 KU	120 KU	78	50	37
1731	6	99	101	112	84	70	54

1000 COOLIDGE STREET

SOUTH PLAINFIELD, N. J. 07080



PRODUCT DATA

BARYTES

Functional Applications

Paints - A major utilization of barytes in paints is in the formulation of industrial undercoats and especially industrial primers. The nodular structure of the barytes particles and their low oil absorption or oil demand permit the formulations of primers possessing good leveling and excellent build properties with associated good enamel holdout. As a result, subsequent top coats exhibit outstanding gloss.

The chemical inertness of barytes also recommends its use in designing chemically resistant coatings that must withstand the attack of acids, alkalis and corrosive gases.

Due to its high index of refraction (for an extender pigment), barytes functions as a weak white pigment in water paints and provide a moderate degree of hiding power. In oil paints it is essentially transparent, but because of its low tinting strength, it offers a good extender base for the incorporation of both white and colored pigments.

Barytes is occasionally employed to improve the dispersion properties of certain inorganic pigments.

In floor coatings it densifies the coating and imparts wear resistance.

Barytes is also used in flat interior wallpaints. Barytes in some formulations effects the speed of dry semigloss latex paints, imparts a harder film without loss of gloss.

Flooring - Barytes is commonly used in the manufacture of linoleum and composition flooring. It readily disperses in most binder systems to yield flooring products that are highly resistant to abrasives and heavy traffic conditions.

Rubber - High loadings of barytes can be readily incorporated with elastomers to provide dense elastomeric products. Such heavy rubber of reasonable toughness are occasionally desirable where weighting is necessary.

Ceramics - A coarse grade of barytes is used in the glass industry where the fluxing action of the barium sulphate is utilized to reduce the melting point of the glass melt. The high index of refraction of the barite also imparts a degree of sparkle to the glass.

Well Drilling - A fine grade of barytes is used in the formulation of oil well slurries and drilling muds. During the drilling operations the ground rock and debris that accumulates must be removed. This is done by first suspending this accumulated material in a slurry of barytes. The high density of the slurry prevents the settling of the rock particles. The suspension of the drillings or residual in the barite slurry is removed by pumping. Also the addition of barytes tends to sufficiently weigh the water slurry above the drill to prevent gases from blowing out through the casing walls.

2 pg.



CF-BALL-3