

METALLIC STEARATE RECOMMENDATIONS

APPLICATION	MATERIAL	PRODUCTS
PLASTICS PVC POLYOLEFINS POLYSTYRENE POLYESTERS ABS PHENOLICS MELAMINE	Barium Stearate Calcium Stearate Zinc Stearate Calcium Stearate Calcium Pelargonate Zinc Stearate Zinc Laurate Zinc Stearate Calcium Stearate Zinc Stearate Magnesium Stearate Calcium Stearate Zinc Stearate Zinc Stearate	Barium Stearate 12B, 15, 15F, CP-11, CP-22G GP, ZN 41 114-36, 114-40 Calcium Pelargonate 8, 44HS Zinc Laurate 8, 44HS 15, S-1244, 24-46 ABG, ACF, D, S-1058, S-1200, XRP 90 12B, 15, CP-11 GP, 25 GP, ZN 41
COLOR CONCENTRATES	Aluminum Stearate Calcium Stearate Zinc Stearate	404 12B, 15, CP-11 GP, 8, 44HS
PAPER COATINGS	Calcium Stearate	Wettable, CW-1250
POWDERED METALS	Lithium Stearate Sodium Stearate Zinc Stearate	Lithium Stearate Sodium Stearate ACF, D, H
FOUNDRY	Calcium Stearate	Wettable, 12B, 15, 24-46, CP-11
DEFOAMERS	Aluminum Stearate	Hi Gel I
RUBBER COMPOUNDING DUSTING SLAB DIP	Zinc Stearate Zinc Stearate Zinc Stearate	GP, ZN 41 ACF, GP, ZN 41 ACF, Zinclud
PAINT PIGMENT SUSPENSION FLATTENING	Aluminum Stearate Calcium Stearate	303, R 24-46
LACQUER	Zinc Stearate	L, DLG-10, DLG-20
INK	Aluminum Stearate	404

MARKETED BY
HARWICK STANDARD
DISTRIBUTION CORPORATION
 60 S. Seiberling Street • Akron, Ohio 44305

Polymer Additives Division

FERRO CORPORATION

7050 Krick Road • Walton Hills, Ohio 44146-4494
 Phone (216) 641-8580 • Fax (440) 439-7686

The information contained in this data sheet has been determined through the application of accepted engineering practice and is believed to be reliable. Since the conditions of application and use of our products are beyond our control, no warranty is expressed or implied regarding accuracy of this information, the results to be obtained from the use of the product, or that such use will not infringe on any patent. This information is furnished with the express condition that you will make your own tests to determine the suitability of the product for your particular use.

METALLIC STEARATE RECOMMENDATIONS

APPLICATION	MATERIAL	PRODUCTS
GREASE	Aluminum Stearate Barium Stearate Lithium Stearate	598, GM, 303 Barium Stearate Lithium Stearate
DRILLING MUDS	Aluminum Stearate	R, Lo Gel II
INDUSTRIAL CLEANERS	Calcium Stearate	12B
WIRE DRAWING COMPOUNDS	Aluminum Stearate Calcium Stearate	303 12B
MASONRY & CEMENT	Aluminum Stearate Calcium Stearate	303 12B, Wettable
WATERPROOFING	Aluminum Stearate Calcium Stearate Zinc Stearate	Non-Gel, 303 15, 24-46, CP-11, Wettable Wettable
FOOD	Calcium Stearate Magnesium Stearate	Food Grade (Kosher) Food Grade (Kosher)
COSMETICS	Aluminum Stearate Sodium Stearate Zinc Stearate	NF Sodium Stearate USP
PHARMACEUTICALS	Calcium Stearate Magnesium Stearate Zinc Stearate	NF NF USP

METALLIC STEARATES - TYPICAL PROPERTIES

PRODUCT	ASH, %	WATER SOLUBLE SALTS, %	FREE FATTY ACID, %	MOISTURE, %	SOFTENING POINT, °C	FINENESS SIEVE % THRU/MESH
ALUMINUM STEARATES						
505	15.2	0.3	2.8	1.5	235	98/200
303	8.4	0.2	6.0	0.5	155	98/200
404	7.0	0.2	15	1.0	125	98/200
R	7.4	0.2	13	1.0	145	98/200
598	9.7	0.2	3.4	0.7	165	98/200
NON-GEL	9.8	0.1	8.0	0.9	145	98/200
NF	15.2	0.3	2.8	1.5	230	98/200
GM	9.3	0.3	3.3	0.6	155	98/200
NON-GEL II	7.0	0.2	15	0.9	125	98/200
HI GEL I	8.4	0.2	6.0	0.5	155	98/200
MAGNESIUM STEARATES						
90	8.6	-	0.5	3.0	157	-
NF	7.9	-	0.5	3.4	155	99/200
FOOD GRADE (Kosher)	8.0	0.2	0.5	1.0	155	99/200
SPECIALTY STEARATES						
BARIUM STEARATE	28.5	-	0.2	0.3	250	98/325
CALCIUM PELARGONATE	15.1	-	0.4	3.7	-	99/200
CALCIUM/ZINC 1580	Ca-2.9 Zn-7.1	-	-	0.6	105	100/80
LITHIUM STEARATE	5.4	-	0.5	0.3	212	92/200
SODIUM STEARATE	10.7	-	0.2	1.8	205	90/80
ZINC LAURATE	17.8	-	1.0	0.1	125	99/200

Polymer Additives Division

FERRO CORPORATION

7050 Krick Road • Walton Hills, Ohio 44146-4494
Phone (216) 641-8580 • Fax (440) 439-7686

The information contained in this data sheet has been determined through the application of accepted engineering practice and is believed to be reliable. Since the conditions of application and use of our products are beyond our control, no warranty is expressed or implied regarding accuracy of this information, the results to be obtained from the use of the product, or that such use will not infringe on any patent. This information is furnished with the express condition that you will make your own tests to determine the suitability of the product for your particular use.

METALLIC STEARATES - TYPICAL PROPERTIES

PRODUCT	ASH, %	WATER SOLUBLE SALTS, %	FREE FATTY ACID, %	MOISTURE, %	SOFTENING POINT, °C	FINENESS SIEVE % THRU/MESH
CALCIUM STEARATES						
12B	11.2	-	0.2	2.9	155	95/200
15	11.4	-	0.2	2.7	155	95/200
15F	11.4	-	0.3	3.4	155	70/40
24-46	9.3	0.1	0.3	2.2	155	99/200
114-36	9.5	NIL	0.2	2.5	155	100/200
114-40	9.5	NIL	0.1	2.5	152	99/200
CP-11	9.9	-	0.1	2.4	155	98/200
CP-22G	10.6	-	0.1	3.0	155	80/40
FOOD GRADE (Kosher)	9.9	-	0.4	2.5	154	100/325
NF	9.2	NIL	0.3	2.7	155	99/325
S-1244	11.2	-	0.2	2.9	155	99/200
WETTABLE	9.2	-	0.3	2.7	155	99/200
DISPERSION CW-1250	9.4	-	0.1	50	-	99/325

Polymer Additives Division

FERRO CORPORATION

7050 Krick Road • Walton Hills, Ohio 44146-4494
Phone (216) 641-8580 • Fax (440) 439-7686

The information contained in this data sheet has been determined through the application of accepted engineering practice and is believed to be reliable. Since the conditions of application and use of our products are beyond our control, no warranty is expressed or implied regarding accuracy of this information, the results to be obtained from the use of the product, or that such use will not infringe on any patent. This information is furnished with the express condition that you will make your own tests to determine the suitability of the product for your particular use.

METALLIC STEARATES - TYPICAL PROPERTIES

PRODUCT	ASH, %	WATER SOLUBLE SALTS, %	FREE FATTY ACID, %	MOISTURE, %	SOFTENING POINT, °C	FINENESS SIEVE % THRU/MESH
ZINC STEARATES						
ABG	13.9	-	0.4	0.4	120	99/325
ACF	13.9	-	0.4	0.4	120	
DLG-10	14.4	0.2	0.3	0.2	120	100/325
DLG-20	17.8	0.2	0.5	0.8	112	
D	15.0	NIL	0.5	0.4	120	99/325
GP	13.7	-	0.6	0.3	120	
H	14.8	NIL	0.4	0.3	122	99/325
L	16.9	-	0.4	0.2	120	
S-1058	15.9	-	0.3	0.2	120	98/325
S-1200	13.1	-	0.3	0.2	120	
USP	13.8	-	0.4	0.4	120	99/200
WETTABLE	13.4	-	0.4	0.2	120	
XRP	14.6	-	1.7	0.5	120	98/200
ZN 41	13.4	-	0.1	0.2	120	
ZINCLOID	13.5	-	0.5	-	122	99/200
8	13.3	-	0.5	0.4	120	
44HS	13.7	-	0.2	0.2	120	99/325 (Also Flake)

Polymer Additives Division

FERRO CORPORATION

7050 Krick Road • Walton Hills, Ohio 44146-4494
Phone (216) 641-8580 • Fax (440) 439-7686

The information contained in this data sheet has been determined through the application of accepted engineering practice and is believed to be reliable. Since the conditions of application and use of our products are beyond our control, no warranty is expressed or implied regarding accuracy of this information, the results to be obtained from the use of the product, or that such use will not infringe on any patent. This information is furnished with the express condition that you will make your own tests to determine the suitability of the product for your particular use.

METALLIC STEARATES FOR RUBBER AND PLASTICS

Harwick Standard Distribution Corporation markets the complete line of Metallic Stearates manufactured by Ferro Corporation-Polymer Additives Division, Cleveland, Ohio. This includes stearates of Aluminum, Barium, Calcium, Magnesium, Tin (Stannous), and Zinc. These products are produced by the reaction of a linear, even numbered, carboxylic acid from C₈ to C₂₂ (commonly referred to as fatty acids) and a metal compound by either fusion or precipitation techniques. The physical properties of a specific metallic soap are determined largely by the particle size, particle size distribution, and particle shape. These parameters are controlled by various precipitation, grinding, and classification techniques.

The following is a description of the various classes of metallic soaps and the typical properties of the various grades offered by Harwick Standard.

ALUMINUM SOAPS

Being a trivalent metal, aluminum can form mono-, di-, or tri-soaps containing increasing percentages of fatty acid. These soaps are almost exclusively prepared by the precipitation process. As a class, they are usually coarser and more resinous than other common metallic soaps. For a given acid, the mono-derivative is generally the highest melting and the tri-soap the lowest. Most aluminum soaps are insoluble in water and low molecular weight alcohols, ketones, and esters. In hydrocarbons, chlorinated solvents, and fatty chemicals, they produce viscous gels.

Commercially, the most important property of aluminum soaps is their ability to raise the viscosity of organic fluids. Collectively, these products offer a variety of gelling properties.

One of the earliest uses of aluminum soaps was as a thickening agent in the manufacture of petroleum greases. Today, however, they are widely used in the manufacture of paint, ink, adhesives, caulks, and vinyl plastisols.

The types of gels obtainable with aluminum soaps vary in viscosity from slightly bodied liquids to heavy pastes, and in consistency from buttery to rubbery. The exact nature of the gel depends on the type and concentration of the soap, the polarity of the solvent, and the manner in which the gel is prepared.

Continued.....

THE INFORMATION AND RECOMMENDATIONS CONTAINED HEREIN ARE BASED UPON DATA THAT ARE BELIEVED TO BE ACCURATE AND RELIABLE. APPLICATION AND PERFORMANCE INFORMATION ARE PROVIDED ONLY AS A GUIDE, SINCE THE CONDITIONS OF USE ARE BEYOND THE CONTROL OF HARWICK STANDARD DISTRIBUTION CORPORATION. CONSEQUENTLY, HARWICK STANDARD MAKES NO WARRANTIES, EXPRESS OR IMPLIED, WITH RESPECT TO THE GOODS OR USES OF THE GOODS OR THE PERFORMANCE OF THE GOODS AND MAKES NO WARRANTIES OF FITNESS FOR PARTICULAR PURPOSE OR MERCHANTABILITY. BUYER ACKNOWLEDGES THAT HARWICK STANDARD WILL NOT BE LIABLE FOR CONSEQUENTIAL, INCIDENTAL, DIRECT OR SPECIAL DAMAGES ARISING, DIRECTLY OR INDIRECTLY, IN RESPECT TO SUCH GOODS OR THE USE OR FAILURE THEREOF, WHETHER BASED ON BREACH OF WARRANTY, NEGLIGENCE, STRICT LIABILITY IN TORT OR OTHERWISE.



HARWICK STANDARD
DISTRIBUTION CORPORATION

60 S. SEIBERLING ST.
P.O. BOX 9360
AKRON, OH 44305-0360
PHONE: (330) 798-9300
FAX: (330) 798-0214
TECHNICAL FAX: (330) 798-9328
SALES FAX: (330) 798-4089
WWW.HARWICKSTANDARD.COM

ISO 9001-2000
REGISTERED

**METALLIC STEARATES
FOR RUBBER AND PLASTICS**
continued

ALUMINUM SOAPS (continued)

Aluminum distearate is the most widely used of the aluminum soaps. To achieve the optimum degree of thickening, this soap is generally dispersed in the cold vehicle and slowly heated with agitation to 150-320°F. Upon cooling, a gel forms. In some applications, the cooled gel is subsequently, mechanically sheared to increase its stability. Generally, aluminum stearates with low free acid content give stiffer gels than those with high free acid content. However, the texture of any gel can be markedly altered by the addition of polar substances such as water, alcohol or amines.

In protective coatings, Ferro aluminum stearates control viscosity and leveling characteristics, aid pigment suspension, enhance water repellence, and provide excellent flattening action. Aluminum stearates are widely used in wire drawing compounds, slushing oils, and forging oils to reduce die wear and prevent scoring of stamped metal parts. In the textile industry, aluminum soaps are employed as lubricants and in the waterproofing of rope and canvas. Caulk and adhesive manufacturers use aluminum stearates to improve the stability and rheological characteristics of their compounds.

THE INFORMATION AND RECOMMENDATIONS CONTAINED HEREIN ARE BASED UPON DATA THAT ARE BELIEVED TO BE ACCURATE AND RELIABLE. APPLICATION AND PERFORMANCE INFORMATION ARE PROVIDED ONLY AS A GUIDE, SINCE THE CONDITIONS OF USE ARE BEYOND THE CONTROL OF HARWICK STANDARD DISTRIBUTION CORPORATION. CONSEQUENTLY, HARWICK STANDARD MAKES NO WARRANTIES, EXPRESS OR IMPLIED, WITH RESPECT TO THE GOODS OR USES OF THE GOODS OR THE PERFORMANCE OF THE GOODS AND MAKES NO WARRANTIES OF FITNESS FOR PARTICULAR PURPOSE OR MERCHANTABILITY. BUYER ACKNOWLEDGES THAT HARWICK STANDARD WILL NOT BE LIABLE FOR CONSEQUENTIAL, INCIDENTAL, DIRECT OR SPECIAL DAMAGES ARISING, DIRECTLY OR INDIRECTLY, IN RESPECT TO SUCH GOODS OR THE USE OR FAILURE THEREOF, WHETHER BASED ON BREACH OF WARRANTY, NEGLIGENCE, STRICT LIABILITY IN TORT OR OTHERWISE.

**METALLIC STEARATES
FOR RUBBER AND PLASTICS**
continued

ZINC SOAPS

Zinc stearates are prepared by either precipitation or fusion techniques to offer a wide range of particle sizes and bulk densities for exacting end use requirements. Zinc stearate precipitates in the form of fine, plate-like particles, which account for its high degree of lubricity. Unlike most metallic soaps, zinc stearates exhibit sharp melting points and low melt viscosities. Zinc stearate is highly water repellent and essentially insoluble in common solvents at ambient temperatures.

In the plastics industry, zinc stearate is widely used as a lubricant for polystyrene. It has also been reported to be synergistic when used in combination with light stabilizers in polyolefins. Thermosetting molding compounds, particularly polyester premix and sheet molding compound, employ zinc stearate as a mold release in automated molding operations. Zinc stearate is the active component of many FDA approved polyvinyl chloride stabilizer systems.

Zinc stearate is the most widely used metallic soap in the powdered metallurgy field. Ferro zinc stearates are low dusting and readily incorporated into both iron and alloy powders. They provide excellent mold release, have a minimum effect on green strength, and have been known to increase die life up to 50%. Careful quality control during manufacture ensures that the particle size and distribution of Ferro zinc stearate for the powdered metallurgy industry are uniform from batch to batch. This is reflected by reproducible results in production runs.

In the paint industry zinc stearate is employed as a flattening agent and sanding aid in lacquers. In this application, extremely fine particle size is the prime requirement. This imparts the ability to simply stir in the zinc stearate, thereby eliminating expensive grinding operations. Lacquer grade zinc stearates are specially formulated to buffer the action of acidic catalysts and thereby resist bloom in the finished topcoats. Zinc stearate has a minimum effect on the rheology of paint vehicles and does not soften the resulting coatings.

THE INFORMATION AND RECOMMENDATIONS CONTAINED HEREIN ARE BASED UPON DATA THAT ARE BELIEVED TO BE ACCURATE AND RELIABLE. APPLICATION AND PERFORMANCE INFORMATION ARE PROVIDED ONLY AS A GUIDE, SINCE THE CONDITIONS OF USE ARE BEYOND THE CONTROL OF HARWICK STANDARD DISTRIBUTION CORPORATION. CONSEQUENTLY, HARWICK STANDARD MAKES NO WARRANTIES, EXPRESS OR IMPLIED, WITH RESPECT TO THE GOODS OR USES OF THE GOODS OR THE PERFORMANCE OF THE GOODS AND MAKES NO WARRANTIES OF FITNESS FOR PARTICULAR PURPOSE OR MERCHANTABILITY. BUYER ACKNOWLEDGES THAT HARWICK STANDARD WILL NOT BE LIABLE FOR CONSEQUENTIAL, INCIDENTAL, DIRECT OR SPECIAL DAMAGES ARISING, DIRECTLY OR INDIRECTLY, IN RESPECT TO SUCH GOODS OR THE USE OR FAILURE THEREOF, WHETHER BASED ON BREACH OF WARRANTY, NEGLIGENCE, STRICT LIABILITY IN TORT OR OTHERWISE.



HARWICK STANDARD
DISTRIBUTION CORPORATION

60 S. SEIBERLING ST.
P.O. BOX 9360
AKRON, OH 44305-0360
PHONE: (330) 798-9300
FAX: (330) 798-0214
TECHNICAL FAX: (330) 798-9328
SALES FAX: (330) 798-4089
WWW.HARWICKSTANDARD.COM

ISO 9001-2000
REGISTERED

**METALLIC STEARATES
FOR RUBBER AND PLASTICS**
continued

SPECIALTY METAL SOAPS

Barium and tin comprise Ferro's metal soap line. These materials are primarily used as components of PVC stabilizers.

Barium soaps can be prepared by either fusion or precipitation techniques. They are characterized by extremely high melting points and low solubilities. These properties make them ideally suited for high temperature lubricant applications in the plastics molding, metalworking, and petroleum lubricant industries. In polyvinyl chloride stabilizers, barium soaps are normally used in conjunction with antioxidants, and chelators in synergistic combinations. The primary function of the barium soap is to lubricate and contribute to long term heat stability.

Tin (stannous) stearate is the lowest melting stearate in the Ferro line. It is prepared by a unique process and exhibits many novel properties unattainable with other metallic soaps. Ferro was the first to recognize the usefulness of this material as a stabilizer for polyvinyl chloride and holds basic patents on this use.

Tin stearate is FDA approved as a nontoxic stabilizer for use in PVC food containers. In plastic applications outside the vinyl area, tin stearate is creating a growing interest as a unique lubricant with antistatic characteristics.

THE INFORMATION AND RECOMMENDATIONS CONTAINED HEREIN ARE BASED UPON DATA THAT ARE BELIEVED TO BE ACCURATE AND RELIABLE. APPLICATION AND PERFORMANCE INFORMATION ARE PROVIDED ONLY AS A GUIDE, SINCE THE CONDITIONS OF USE ARE BEYOND THE CONTROL OF HARWICK STANDARD DISTRIBUTION CORPORATION. CONSEQUENTLY, HARWICK STANDARD MAKES NO WARRANTIES, EXPRESS OR IMPLIED, WITH RESPECT TO THE GOODS OR USES OF THE GOODS OR THE PERFORMANCE OF THE GOODS AND MAKES NO WARRANTIES OF FITNESS FOR PARTICULAR PURPOSE OR MERCHANTABILITY. BUYER ACKNOWLEDGES THAT HARWICK STANDARD WILL NOT BE LIABLE FOR CONSEQUENTIAL, INCIDENTAL, DIRECT OR SPECIAL DAMAGES ARISING, DIRECTLY OR INDIRECTLY, IN RESPECT TO SUCH GOODS OR THE USE OR FAILURE THEREOF, WHETHER BASED ON BREACH OF WARRANTY, NEGLIGENCE, STRICT LIABILITY IN TORT OR OTHERWISE.

**METALLIC STEARATES
FOR RUBBER AND PLASTICS**
continued

CALCIUM AND MAGNESIUM SOAPS

Calcium and magnesium stearates are quite similar in their physical properties. Both can be prepared commercially by either precipitation or fusion techniques. Both are characterized by a high degree of lubricity, excellent color and color stability, and extremely low solubility in water and all common organic solvents. Plastic processors use these materials in a wide variety of lubricating applications. Calcium stearate serves as an excellent mold release agent for thermosetting molding compounds. In rigid vinyl extrusions, calcium stearate markedly improves the dynamic thermal stability of compounds employing organotin and antimony mercaptide-type heat stabilizers. Calcium stearate is employed as a scavenger for catalyst residues and as a processing aid in polypropylene. Both calcium and magnesium stearates are utilized in FDA approved nontoxic stabilizers for polyvinyl chloride bottles and food wrap. Magnesium stearate is often preferred to calcium stearate as a lubricant for ABS injection molding compounds.

Papercoaters employ calcium stearate to lubricate and prevent dusting in high speed calendering operations. In addition, the calcium stearate imparts gloss and water repellence to the finished sheet.

In foundry applications, calcium stearate is used extensively in shell molding to increase the flow of resin-coated sand, thereby achieving greater density and high tensile strengths in shells and cores.

Concrete manufacturers incorporate calcium stearate to improve flow and prevent caking in dry mix, to waterproof and affect cure times, and to impart release properties.

Paint formulators use both calcium and magnesium stearates to flatten finishes, control wet out and leveling, and aid in pigment grinding operations. Magnesium stearate is utilized as a viscosity depressant for aluminum stearate gels.

There are several areas where magnesium stearates appear to be preferred to calcium stearates. The chief among these is the cosmetic, pharmaceutical, and food additive areas. Being an extremely efficient dry lubricant, magnesium stearate prevents caking and promotes flow in a wide variety of powders and granular substances. In the pharmaceutical industry, it aids in capsule filling and tableting operations. In addition, it improves the stability, smoothness, and texture of a variety of emulsions, dispersions, creams, lotions, and ointments.

THE INFORMATION AND RECOMMENDATIONS CONTAINED HEREIN ARE BASED UPON DATA THAT ARE BELIEVED TO BE ACCURATE AND RELIABLE. APPLICATION AND PERFORMANCE INFORMATION ARE PROVIDED ONLY AS A GUIDE, SINCE THE CONDITIONS OF USE ARE BEYOND THE CONTROL OF HARWICK STANDARD DISTRIBUTION CORPORATION. CONSEQUENTLY, HARWICK STANDARD MAKES NO WARRANTIES, EXPRESS OR IMPLIED, WITH RESPECT TO THE GOODS OR USES OF THE GOODS OR THE PERFORMANCE OF THE GOODS AND MAKES NO WARRANTIES OF FITNESS FOR PARTICULAR PURPOSE OR MERCHANTABILITY. BUYER ACKNOWLEDGES THAT HARWICK STANDARD WILL NOT BE LIABLE FOR CONSEQUENTIAL, INCIDENTAL, DIRECT OR SPECIAL DAMAGES ARISING, DIRECTLY OR INDIRECTLY, IN RESPECT TO SUCH GOODS OR THE USE OR FAILURE THEREOF, WHETHER BASED ON BREACH OF WARRANTY, NEGLIGENCE, STRICT LIABILITY IN TORT OR OTHERWISE.



HARWICK STANDARD
DISTRIBUTION CORPORATION

60 S. SEIBERLING ST.
P.O. BOX 9360
AKRON, OH 44305-0360
PHONE: (330) 798-9300
FAX: (330) 798-0214
TECHNICAL FAX: (330) 798-9328
SALES FAX: (330) 798-4089
WWW.HARWICKSTANDARD.COM

ISO 9001-2000
REGISTERED

**METALLIC STEARATES
FOR RUBBER AND PLASTICS**
continued

TYPICAL PROPERTIES

Product	Total Ash %	Soluble Salts %	Free Fatty Acid %	Moisture %	Soft. Point °C	Fineness U.S.Std. Sieve %Thru/ Mesh	Apparent Density g/cc
Aluminum Stearate 505	8.7	0.5	3.5	1.0	230	95/200	0.4
Aluminum Stearate 303	8.7	0.5	3.5	0.6	155	98/200	0.2
Aluminum Stearate 404	7.1	0.5	24.0	1.0	109	90/200	0.2
Calcium Stearate 114-36	9.3	0.1	0.4	2.4	155	99.9/200	0.2
Calcium Stearate Wettable	9.5	0.1	0.4	2.4	155	99.9/200	0.2
Calcium Stearate 15F (Fused)	9.9	----	0.3	2.5	155	20/200	0.3
Magnesium Stearate 90	8.0	----	0.6	2.8	147	99.7/200	0.3
Magnesium Stearate NF (USP)	7.8	----	0.6	2.8	147	99.7/200	0.3

Continued.....

THE INFORMATION AND RECOMMENDATIONS CONTAINED HEREIN ARE BASED UPON DATA THAT ARE BELIEVED TO BE ACCURATE AND RELIABLE. APPLICATION AND PERFORMANCE INFORMATION ARE PROVIDED ONLY AS A GUIDE, SINCE THE CONDITIONS OF USE ARE BEYOND THE CONTROL OF HARWICK STANDARD DISTRIBUTION CORPORATION. CONSEQUENTLY, HARWICK STANDARD MAKES NO WARRANTIES, EXPRESS OR IMPLIED, WITH RESPECT TO THE GOODS OR USES OF THE GOODS OR THE PERFORMANCE OF THE GOODS AND MAKES NO WARRANTIES OF FITNESS FOR PARTICULAR PURPOSE OR MERCHANTABILITY. BUYER ACKNOWLEDGES THAT HARWICK STANDARD WILL NOT BE LIABLE FOR CONSEQUENTIAL, INCIDENTAL, DIRECT OR SPECIAL DAMAGES ARISING, DIRECTLY OR INDIRECTLY, IN RESPECT TO SUCH GOODS OR THE USE OR FAILURE THEREOF, WHETHER BASED ON BREACH OF WARRANTY, NEGLIGENCE, STRICT LIABILITY IN TORT OR OTHERWISE.



HARWICK STANDARD
DISTRIBUTION CORPORATION

60 S. SEIBERLING ST.
P.O. BOX 9360
AKRON, OH 44305-0360
PHONE: (330) 798-9300
FAX: (330) 798-0214
TECHNICAL FAX: (330) 798-9328
SALES FAX: (330) 798-4089
WWW.HARWICKSTANDARD.COM

ISO 9001-2000
REGISTERED

**METALLIC STEARATES
FOR RUBBER AND PLASTICS**
continued

TYPICAL PROPERTIES, Continued

Product	Total Ash %	Soluble Salts %	Free Fatty Acid %	Moisture %	Soft. Point °C	Fineness U.S.Std. Sieve %Thru/ Mesh	Apparent Density g/cc
Zinc Stearate ACF	13.4	0.3	0.5	0.4	120	99.8/200	0.3
Zinc Stearate D	14.7	0.3	0.3	0.6	120	99.8/200	0.2
Zinc Stearate F Prill	15.0	nil	0.5	0.5	120	99.9/14	0.6
Zinc Stearate USP	13.4	0.3	0.3	0.4	120	99.8/200	0.3
Zinc Stearate Wettable	14.0	0.3	0.3	0.4	120	99.8/200	0.2
Zinc Stearate FRP	14.6	----	0.3	0.3	120	99.8/200	0.3
Zincloid (Aqueous Paste 20% Solids)	13.5	----	0.4	----		99.8/200	0.2

THE INFORMATION AND RECOMMENDATIONS CONTAINED HEREIN ARE BASED UPON DATA THAT ARE BELIEVED TO BE ACCURATE AND RELIABLE. APPLICATION AND PERFORMANCE INFORMATION ARE PROVIDED ONLY AS A GUIDE, SINCE THE CONDITIONS OF USE ARE BEYOND THE CONTROL OF HARWICK STANDARD DISTRIBUTION CORPORATION. CONSEQUENTLY, HARWICK STANDARD MAKES NO WARRANTIES, EXPRESS OR IMPLIED, WITH RESPECT TO THE GOODS OR USES OF THE GOODS OR THE PERFORMANCE OF THE GOODS AND MAKES NO WARRANTIES OF FITNESS FOR PARTICULAR PURPOSE OR MERCHANTABILITY. BUYER ACKNOWLEDGES THAT HARWICK STANDARD WILL NOT BE LIABLE FOR CONSEQUENTIAL, INCIDENTAL, DIRECT OR SPECIAL DAMAGES ARISING, DIRECTLY OR INDIRECTLY, IN RESPECT TO SUCH GOODS OR THE USE OR FAILURE THEREOF, WHETHER BASED ON BREACH OF WARRANTY, NEGLIGENCE, STRICT LIABILITY IN TORT OR OTHERWISE.

Metallic Stearates, Waxes and Fatty Acids

Whether you process rigid PVC, polyolefins, polystyrenics, wood composites, rubber or any of the many compounds that require lubricants or waxes, Ferro gives you more **choices** for performance, economy and ease-of-use.

In fact, Ferro is the market leader in polymer lubricants. Our Synpro® **metallic stearates** are commonly used as multifunctional internal lubricants, process aids, mold release agents and pigment dispersants. Petrac® **waxes** are commonly specified as external lubricants for rigid PVC, as release agents for molded PVC, and in combination with stearates to provide balanced internal/external lubrication. **Fatty acids**, also supplied under the Petrac brand, are formulated as emulsifiers in polymerization processes, and as plasticizers and lubricants in rubber compounding.

Extensive Product Line

Ferro offers more lubricant choices, in a greater variety of product forms than any other supplier.

Exceptional Value

No other supplier gives you the combination of product quality, performance, ease of use, service and economy that Ferro does. Together these benefits mean you get an unbeatable return on your additive investment.

Easy to Handle

For those who prefer a non-dusting additive, Ferro lubricants are available as granules, prills or pastilles so they flow smoothly for more accurate metering. Fewer fines mean less dust and improved housekeeping.

Global Supply

Strategically located lubricant manufacturing sites in the U.S. and Europe ensure that you can get the product you want when you need it.

Responsible Care

All Ferro chemical manufacturing plants are operated according to industry guidelines for safety and environmental protection. Products are available in recyclable or returnable containers.

Technical Support

Modern Ferro technical centers have been designed to meet your needs. We have extensive analytical and finished-product testing equipment, along with full-scale extrusion lines and injection-molding machines to mirror real-world processing conditions. These facilities support a staff of technical specialists who focus on R & D and customer application requirements, making Ferro a leader in product innovation.



Ferro lubricants available as powder, granules, pastilles and prills



MARKETED BY
HARWICK STANDARD
DISTRIBUTION CORPORATION
80 S. Seiberling Street • Akron, Ohio 44305

	APPLICATION	LUBRICANT	DESCRIPTION
Plastics	PVC	Calcium Stearate 12B, 15F	Powder or free flowing granular, for use as a lubrication and fusion promoter in rigid PVC.
		Zinc Stearate GP, Barium Stearate	Co-Stabilizers for flexible PVC.
		Petrac® Lubricants	Specialty formulated non-dusting lubricants for superior extrusion performance.
	POLYOLEFINS	Calcium Stearates 114-36, 114-50, 114-60 and Calcium Pelargonate	High purity for use as acid scavengers and lubricants, available in fine powders and free flowing granulars.
		Zinc Stearate 8, or 8 Prill	Lubricant and process aid for polyolefin applications.
	POLYSTYRENE	Zinc Stearate 8, or 8 Prill, 8 Pastille, or GP	Exceptionally clear, heat stable for critically clear applications.
	POLYESTERS	Calcium Stearate 12B, S-1244	Fine powder approved for food contact.
		Zinc Stearate S-1058	Ultra fine particle size.
	ABS	Magnesium Stearate 90	High performance lubricant and mold release agent.
	PHENOLICS	Calcium Stearate 12B, Zinc Stearate GP	Used as mold release agent.
MELAMINE	Zinc Stearate GP	Effective process lubricant.	
Wood Composites			
	PVC	Calcium Stearate 12B, 15F	Powder or free flowing granular, for lubrication and to promote fusion.
	POLYETHYLENE	Zinc Stearate GP, GP Prill Petrac® Lubricants	Acts as a lubricant to enhance processability. Specialty formulated lubricants for superior extrusion performance.
Color Concentrates			
		Calcium Stearate 12B, Zinc stearate GP, 8, Aluminum Stearate 404	Coupling agent with polar pigments; in addition, works as a process lubricant.
Elastomers	COMPOUNDING	Calcium Stearate BRE, Zinclud	Low viscosity dispersion, effective as an anti-tack agent and minimizing static charge.
	DUSTING & SLAB DIP	Zinc Stearate GP, D, ACF	Superior mold release properties.
Paint	PIGMENT SUSPENSION	Aluminum Stearate 303 & R	Interacts with pigments, good solubility and thickening properties.
	FLATTENING	Calcium Stearate 114-60	Fine powder.
Lacquer		Zinc Stearate DLG-10A, DLG-20A	Sanding sealer lubricant, reduces gloss.
Cosmetics		Zinc Stearate USP, Aluminum Stearate NF	Fine powder, improves waterproofing and anti-caking.
Food		Magnesium Stearate KFG, Calcium Stearate KFG, LD, HD	Food grade, Kosher.
	Pharmaceutical	Calcium Stearate NF, KFG Zinc Stearate USP, KFG	Flow and anti-caking agents.
		Magnesium Stearate NF, KFG	Binding agent for tableting.
		Aluminum Stearate NF	Thickening agent for vegetable oils.
Masonry & Cement		Calcium Stearate LPH, 12B Aluminum Stearate Non-Gel	Low viscosity dispersion, improves hydrophobic properties of concrete.
Paper Coatings		Calcium Stearate BRP Dispersion	Improves smoothness and reduces friction to enhance handling.
Metallurgical Compounds			
	POWDERED METALS	Zinc Stearate GP, Lithium Stearate	Powder form, for use as a lubricant.
	WIRE DRAWING	Aluminum Stearate, Calcium Stearate 12B	
Grease		Aluminum Stearate GM, 598, Lithium Stearate, Barium Stearate	Highly efficient thickening lubricants.

Lubricants available to meet NSF, PPI, USP, NF and EP requirements.



Ferro World Headquarters
 North American Sales Office
 Polymer Additives Division
 7061 East Pleasant Valley Rd.
 Independence, OH 44131-5543
 Phone: 800.321.9942 (within the US)
 Phone: 216.641.8580 (outside the US)
 Fax: 216.750.1419
www.ferro.com



MARKETED BY
HARWICK STANDARD
 DISTRIBUTION CORPORATION
 60 S. Selberling Street • Akron, Ohio 44305



Ferro

In addition to lubricants, Ferro is a global supplier of plasticizers, stabilizers and other products that provide superior quality additive solutions to the polymer industry.

The Polymer Additives Division is part of Ferro Corporation, a major international producer of performance materials, with operations in 20 countries on five continents. In addition to polymer additives, Ferro makes filled and reinforced plastic compounds; color concentrates; liquid colorants and gelcoats; melt-processable thermoplastic elastomers; performance and fine chemicals; industrial coatings; inorganic color and glass performance materials; tile coating systems; and electronic material systems.