

NYCO[®] premium quality wollastonite

NYCO SUPPLIES PREMIUM QUALITY WOLLASTONITE TO THE WORLD

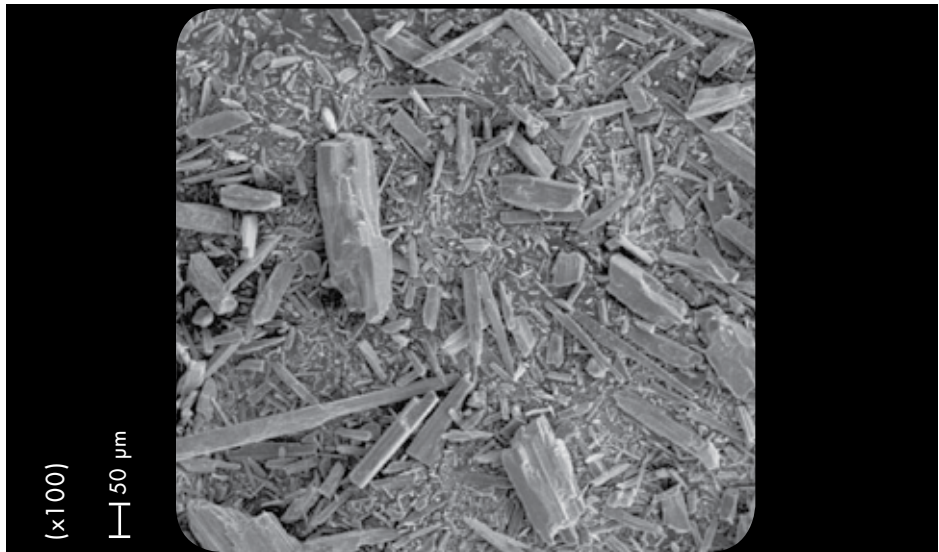
NYCO is not only the foremost supplier of wollastonite in the world, we are also the first...

Since our pioneering plant at Willsboro, New York opened in 1953, to our most recent development of a world class deposit in the Sonora desert of Mexico, NYCO has led the world in its growing acceptance of wollastonite.

- highest quality ores
- state of the art processing
- world class treatment facilities
- market leading reliability & technical service
- 100 plus years of reserves

This data contains general information and describes typical properties only. It is offered for use by persons qualified to determine for themselves the suitability of our products for particular purposes. No guarantee is made or liability assumed, the application of this data and the products described herein being at the sole risk of the user.

TYPICAL PROPERTY	TYPICAL VALUE	METHOD
G.E. Brightness	79	ASTM E97
Oil Absorption (lbs./100 lbs.)	25	ASTM D281
Bulk Density		
Loose (lbs./cu.ft.)	68.6	ASTM C87
(g/cc)	1.1	ASTM C87
Tapped (lbs./cu.ft.)	93.6	ASTM C87
(g/cc)	1.5	ASTM C87
Surface Area (m ² /g) (BET)	0.6	ASAP 2405 (Micromeritics)
Minus 100 U.S. Mesh Screen (%)	90.0	Alpine Jet Sieve
Moisture (%)	0.05	Karl Fischer
Loss on Ignition (1000°C) (%)	0.40	ASTM D1208



NYAD[®] M100

CHEMICAL COMPOSITION: CaSiO₃

COMPONENT	TYPICAL VALUE (%)
CaO	46.25
SiO ₂	52.00
Fe ₂ O ₃	0.25
Al ₂ O ₃	0.40
MnO	0.025
MgO	0.50
TiO ₂	0.025
K ₂ O	0.15
Wt. Loss (1000°C)	0.40

TYPICAL PROPERTIES**VALUE**

APPEARANCE	WHITE
MORPHOLOGY	ACICULAR
MOLECULAR WEIGHT	116
SPECIFIC GRAVITY	2.9
REFRACTIVE INDEX	1.63
pH (10% SLURRY)	9.9
WATER SOLUBILITY (g/100cc)	0.0095
DENSITY (lbs./cu.ft.)	181
BULKING VALUE (gal./lbs.)	0.0413
MOHS HARDNESS	4.5
COEFFICIENT OF EXPANSION (mm/mm/°C)	6.5 X 10 ⁻⁶
MELTING POINT (°C) - theoretical	1540
MELTING POINT (°C) -by ASTM D1857	1410

nyco[®]

One Mineral, A World Of Applications

UNITED STATES

P.O. Box 368
803 Mountain View Drive
Willisboro, NY
12996-0368, USA
Tel: (518) 963-4262
Fax: (518) 963-1110

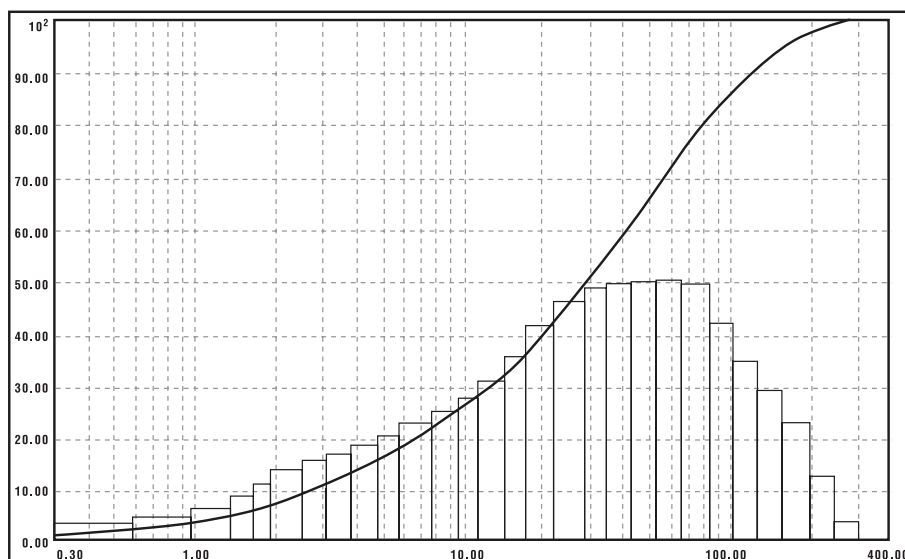
EUROPE

Belgium
Tel: (32) 10 88 13 02
Fax: (32) 10 22 65 99

MEXICO

Hermosillo, Sonora
Mexico CP 83005
Tel: (52) 62 89 10 00
Fax: (52) 62 89 10 90

www.nycomineral.com
info@nycomineral.com

CILAS GRANULOMETER CURVE

Technical data sheets on other wollastonite products and comprehensive health & safety information are available upon request.

NYAD[®] M100

NYCO[®] wollastonite a to z

For over 50 years, we have been the world leaders in the mining and processing of wollastonite, a versatile functional filler and specialty additive. Today, we're still leading the way in adapting and perfecting our premium quality products for an ever growing number of applications.

- Premium quality products
- Long-term ore reserves
- State-of-the-art processing
- World-class surface modification facilities
- First-class, customer-focused global technical support
- World-wide distribution network
- ISO 9001/14001 certified operations

wollastonite facts

- Wollastonite (calcium metasilicate, or CaSiO_3) is a naturally occurring white, non-metallic mineral with an acicular or needle-shaped crystal structure.
- This distinctive property makes wollastonite an ideal performance mineral for a broad range of industrial and consumer applications.
- Acicularity imparts significant strengthening properties and is of considerable importance in wollastonite's diverse market applications.

- The brightness and whiteness of wollastonite also enhances its use for certain filler and ceramic applications.
- Wollastonite is completely inert and noncarcinogenic with low biodurability, and its dusts are biosoluble; qualities that have made it a recognized substitute for short-fiber asbestos and many man-made fibers.

In short, NYCO's wollastonite is far more than a filler – it is a highly functional, value-adding, non-hazardous performance mineral that can add functionality in a great variety of customer applications.

MINERA NYCO CHEMISTRY	
COMPONENT	TYPICAL VALUE (%)
CaO	46.25
SiO ₂	52.00
Fe ₂ O ₃	0.25
Al ₂ O ₃	0.40
MnO	0.025
MgO	0.50
TiO ₂	0.025
K ₂ O	0.15
Wt. Loss (1000°C)	0.40
NEW YORK NYCO CHEMISTRY	
CaO	46.15
SiO ₂	51.60
Fe ₂ O ₃	0.77
Al ₂ O ₃	0.34
MnO	0.16
MgO	0.38
TiO ₂	0.05
K ₂ O	0.05
Wt. Loss (1000°C)	0.50

TYPICAL PROPERTIES	VALUE
APPEARANCE	WHITE
MORPHOLOGY	ACICULAR
ASPECT RATIO	15:1 → 3:1
MOLECULAR WEIGHT	116
SPECIFIC GRAVITY	2.9
REFRACTIVE INDEX	1.63
pH (10% SLURRY)	9.9
WATER SOLUBILITY (g/100cc)	0.0095
DENSITY (lbs./cu.ft.)	181
BULKING VALUE (gal./lbs.)	0.0413
MOHS HARDNESS	4.5
COEFFICIENT OF EXPANSION (mm/mm/°C)	6.5×10^{-6}
MELTING POINT (°C) - theoretical	1540
MELTING POINT (°C) - by ASTM D1857	1410

WOLLASTONITE... ONE MINERAL,

HIGH ASPECT RATIO

GRADES

NYCOR™ R,
HARRP™ 20 x 40,
HARRP™ -40M,
NYAD G®, NYAD® MG,
NYAD G® WOLLASTOCOAT®,
MG WOLLASTOCOAT®,
G-RRIM WOLLASTOCOAT®,
RRIMGLOS® 4W, RRIMGLOS® II,
ULTRAFIBE® 30,
ULTRAFIBE® M 30,
ULTRAFIBE® 4W, ULTRAFIBE® II
NYGLOS® 20, NYGLOS® M 20,
NYGLOS® M 15, NYGLOS® 12,
NYGLOS® 8, NYGLOS® M8,
NYGLOS® 4W, NYGLOS® M3

The high aspect ratio grades are produced by special attrition milling and air classifying. These products are specifically produced to maintain the integrity of their particle size and aspect ratios. They typically have an aspect ratio ranging from 15:1 to 5:1. These grades are used in the following applications:

PLASTICS/ELASTOMERS

- Front and rear fenders
- Front and rear fascias
- Rocker panels
- Wheel flare
- Body side moldings
- Fan shroud
- Engine cover
- Bed liners and flooring products
- Interior hard trim
- Air in-take manifold
- HVAC Panel
- Distributor cap
- Brake piston
- Instrument panel
- Interior trim
- Commutators

- Coil tops
- Automotive rear spoiler
- Gelcoats
- Shower stalls and tubs
- Boat hulls
- Circuit boards
- Electrical connectors
- Switch boxes
- Cast urethane and epoxies
- Gaskets
- Cultured marble
- Wood composites
- Decking

PAINTS & COATINGS

- Roof coatings
- Textured coatings
- Block fillers
- Floor patching
- Swimming pool coatings
- High heat resistant powder coatings

CONSTRUCTION

- Calcium silicate board
- Fire resistant board
- Roof tiles
- Ceiling tiles
- Corrugated Roofs
- Concrete/cement
- Sanitary Pipes
- Recycled plastic railroad ties
- Grouts
- Stucco
- Exterior Insulation Finishing Systems (EIFS)
- Mortar Mixes
- Caulking
- Underlayments
- Patching compounds
- Wood plastic composites

FRICTION

- Brake pads and linings
- Disc pads
- Truck blocks
- Clutch facings
- Friction materials

METALLURGICAL

- Tire cord steel
- Slag conditioners
- Fluxes

POWDER

GRADES

NYAD® M 200, NYAD® MD 200,
NYAD® 325, NYAD® M 325,
NYAD® MD 325,
NYGLOS® STPO,
NYGLOS® MSTPO,
NYAD® 400, NYAD® M 400,
NYAD® MD 400,
400 WOLLASTOCOAT®,
M 400 WOLLASTOCOAT®,
MD 400 WOLLASTOCOAT®

The milled grades are produced on ball or pebble mills and ground to mesh size specifications. These grades consist of a 200 mesh, 325 mesh and a 400 mesh. Their aspect ratios typically range from 5:1 to 3:1. The milled grades find broad use in the following applications:

PLASTIC/ELASTOMERS

- Brake pistons
- Potting compounds
- Traffic markers
- Elastomers
- Adhesives
- Sealants
- Wood plastic composites

PAINTS & COATINGS

- Architectural coatings
- Block fillers
- Powder coatings (Functional)
- Anti-skid coatings

CERAMICS

- Floor and wall tiles
- Glazes

METALLURGICAL

- Fluxes
- Mold and tundish powders

FINE PARTICLE SIZE

GRADES

NYAD® 1250, NYAD® M 1250,
NYAD® MD 1250, NYAD® 5000,
10 WOLLASTOCOAT®,
M 1250 WOLLASTOCOAT®,
MD 1250 WOLLASTOCOAT®,
NYAD 5000 WOLLASTOCOAT®

The fine particle size grades are produced by milling and air classifying to a top and medium size specification. These grades are available as a 1250 and a 5000 mesh product. The aspect ratios are typically 3:1. They are used in the following applications:

PLASTIC/ELASTOMERS

- Paintable/Plateable wheel covers
- Roof racks
- Automotive door handles
- Shower handles
- Power tool housings
- Automotive lamp housings
- Automotive mirror housings
- Seals
- O-rings
- Adhesives
- Thin film

PAINTS & COATINGS

- Industrial and marine coatings
- Powder coatings (Decorative)
- Pipe coatings
- Architectural coatings

A WORLD OF APPLICATIONS



One Mineral, A World Of Applications

NYCO Minerals, Inc.

P.O. Box 368

803 Mountain View Dr.

Willsboro, NY

12996-0368, USA

Tel.: 518-963-4262

Fax: 518-963-1110

ISO 9001/14001 CERTIFIED

Minera NYCO S.A. de C.V.

Blvd. Kino N° 295-565

Local 5

Col. Country Club

Hermosillo, Sonora, Mexico

C.P. 83010

Tel.: 52-662-289-1000

Fax: 52-662-289-1090

ISO 9001/14001 CERTIFIED

NYCO Europe

45 Av. de Citeaux

1348 Louvain-la-Neuve

Belgium

Tel.: 32-10-88-13-02

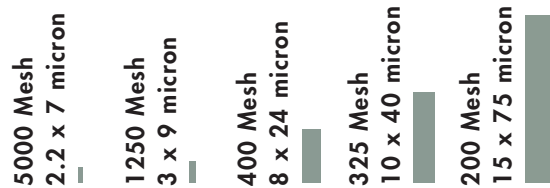
Fax: 32-10-22-65-99

info@nycominerals.com

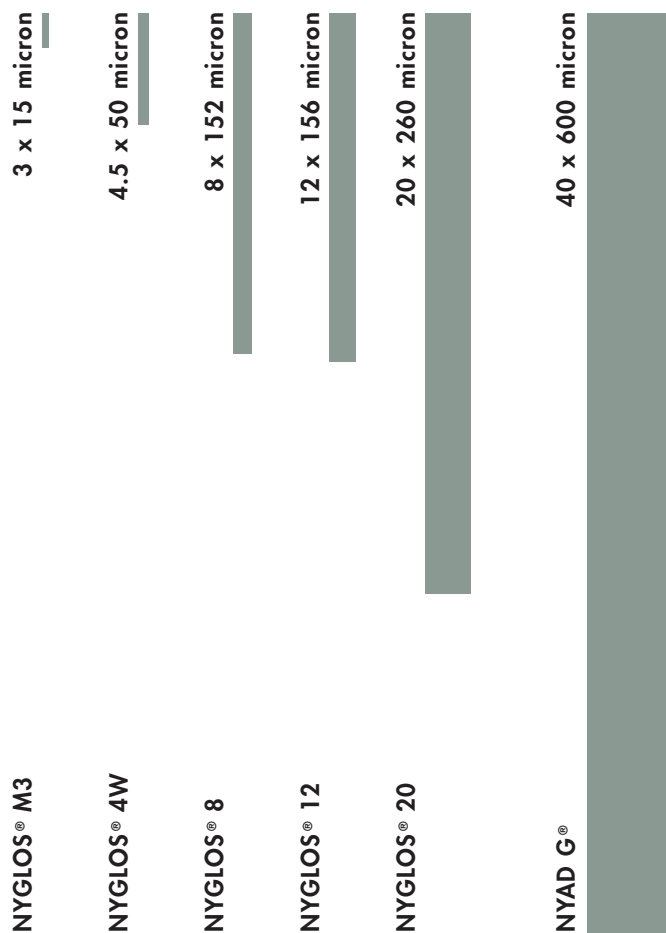
www.nycominerals.com

Relative Particle Size

NYAD® Powder Grades



High Aspect Ratio Grades



HEALTH & SAFETY STATEMENT: Wollastonite is a naturally occurring, non-hazardous mineral. The benign health aspect of wollastonite provides a compelling reason for its use in place of other industrial minerals and fibers.

Detailed technical data sheets on these and other wollastonite products as well as comprehensive health & safety information are available upon request.