



TELESCOPE MIRROR BLANKS

Full thickness Pyrex mirror blanks are all molded and fine annealed.

PART #	DIAMETER	THICKNESS
WA0425	4 1/4"	3/4" ± 1/16"
WA0600	6"	1" ± 1/16"
WA0800	8"	1 3/8" ± 3/32"
WA1000	10"	1 3/4" + 1/8"
WA1225	12 1/2"	2 1/8" + 1/8" - 0
WA1600	16"	3" + 1/4" - 1/8"

PLATE GLASS GRINDING TOOLS Soda lime glass grinding tool blanks with waterjet cut diameters +.100 - .000. All with chamfer edges and 1/2" thickness. Diameters range from 4.0" to 12.0".

ROUGH GRINDING

UNASIL Silicon carbide abrasive grain is one of the harder abrasives used in precision applications (9.5 MOHS hardness). Unasil exhibits inherent friability of its sharp crystalline-structure particles, continually exposing new cutting edges during use. This "renewal" of each particles's cutting edges means fast, clean cutting action.
Available in mesh sizes 8 through 3000 - AA Series

FINE GRINDING

UNIVERSAL OPTICAL POWDERS This high quality aluminum oxide based product is precision graded to exact micron sizing for fast and accurate stock removal and uniform scratch free surfaces. Perfect where a small, blocky shaped particle is needed.
Available in micron sizes 1 to 27.5 - AE Series

POLISHING

UNI-CER 657 CERIUM OXIDE POLISH A premium grade, high concentration cerium oxide product comprised of rare earth oxides designed for high stock removal and optimal surface finish on high precision optics. Precision graded to an average micron size of 1.5.

RECOMMENDED PROCESSING STEPS

1	#80 Unasil (165 micron) *	AA0020
2	#120 Unasil (102 micron)	AA0026
3	#220 Unasil (63 micron)	AA0032
4	#320 Unasil (32 micron)	AA0038
5	#200 Universal Optical Powder (20 micron)	AE0016
6	#125 Universal Optical Powder (12.5 micron)	AE0010
7	#50 Universal Optical Powder (5 micron)	AE0006
8	Uni-Cer 657 Cerium Oxide Polish (1.5 micron)	BA2657

*For 8" and larger mirrors we recommend starting with #60 (265 micron) as an added step.

CP 916 ASTRONOMERS MIRROR PITCH For over 70 years, we have been manufacturing and supplying specially prepared polishing pitch compounds to manufacturers of precision optics worldwide. Our CP 916 Astronomers Pitch was specifically developed as a clean, ready to use pitch (no mixing necessary) for telescope mirrors with controlled "flow" characteristics. Melting point 174 degrees F.
Available in 1 kg tubes - PG9082

CHEESECLOTH A fine meshed, white bleached cheesecloth of the finest quality for straining polishing pitches, as well as drying and wiping.
Available in bolts 70 yds long - JB0004

EVERFLO WHITE Recommended for all grinding and polishing applications, Everflo White acts as a magnet attracting abrasive and polishing particles to the grinding or polishing surface to minimize surface damage and give an adhesive quality to the lapping or polishing media.
Available by the pint - KC0003P

TEMPORARY PROTECTIVE MIRROR COATINGS

To protect the mirror surface during processing and storage.

#33 BLUE PRE-COTE An easily applied aerosol spray, quick drying, that hardens to a protective film which can be removed easily with cellophane tape.
Available in 16 oz can - LB0004

PRECISION SURFACE SAVER TAPE A tough plastic film adhering to the lens with its own strong, yet easily removable adhesive.
Available in 4" X 40 yd roll - KD0090

FOR INQUIRIES AND TO PLACE AN ORDER PLEASE CONTACT US AT 800.645.7173, OR VISIT US ON THE WEB AT WWW.UNIVERSALPHOTONICS.COM

Dear Science Enthusiast,

Universal Photonics is dedicated to advancing surfacing and polishing technology in all phases of optics fabrication. For over 70 years we have been providing critical surface preparation materials worldwide.

We are proud to bring you the finest products for your mirror-making needs. Listed here are the materials and tools necessary to make a mirror as well as recommended grinding and polishing steps to assure minimum "sub surface" fractures. The goal is to process your mirror with as few steps as possible, without the need of long processing cycle times at each stage to remove the marks and damage of the preceding step.

Cleanliness is critical as you move through the processing steps. Your mirror and pitch lap are both fragile and need to be protected when not being worked on. Contamination during the process is a constant threat.

We offer the same technical expertise to amateur astronomers as to leading master opticians worldwide. Our customer service professionals are available to help with any problems or questions you may have during the process. Our goal is to help you, with high quality products and technical expertise, achieve the highest level of observation clarity.

Sincerely,

Neil Johnson, CEO

**SOMEWHERE, SOMETHING INCREDIBLE
IS WAITING TO BE KNOWN.**

CARL SAGAN



**UNIVERSAL
PHOTONICS**

**THE
AMATEUR ASTRONOMERS'
SOURCE
FOR MIRROR MAKING**

WWW.UNIVERSALPHOTONICS.COM