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High Quality Optically Polished Aluminum Mirror and Process for Producing

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DESCRIPTION

This optical surface producing method for aluminum monolith involves pre-polishing monolith. A bevel is formed on an aluminum monolith. The monolith is pre-polished to produce a surface having a surface roughness of not more than 100 angstroms root-mean-square (rms) with a surface accuracy in terms of surface figure error of not more than half a wave peak-to-valley. The pre-polished surface is then polished, after which the polished surface is cleaned. The polishing process involves the use of polishing agent comprising an aqueous dispersion of abrasive particles, a catalyst, and an organic solvent. The polishing agent comprises carbon black, ammonium hydroxide, phenol, ethylene glycol and water.

FEATURES AND BENEFITS

- The technology eliminates electroless nickel plating from the aluminum mirrors, thus resulting in drastic cost savings during fabrication, reduced risk associated with polishing through nickel to the aluminum.
- The method also has improved performance since properly heat-treated bare aluminum performs well in cryogenic conditions without the nickel plating.

APPLICATIONS

- X-ray Telescopes
- Cryogenic Instruments
- Interferometry
- Medical Imaging Devices

FOR MORE INFORMATION

If you are interested in more information or want to pursue transfer of this technology, GSC-14147-1, please contact:

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