

Title (en)

Method of finely polishing planar optical elements.

Title (de)

Verfahren zur Feinpolieren von flachen optischen Elementen.

Title (fr)

Procédé de polissage fin d'éléments optiques plan.

Publication

EP 0608730 A1 19940803 (EN)

Application

EP 94100543 A 19940115

Priority

US 1134393 A 19930129

Abstract (en)

The present invention relates to a method of finely polishing an optically transparent surface with a polishing liquid containing abrasive particles. The polishing mixture, while subjected to ultrasonic agitation, is contacted with an optically transparent surface under conditions effective to polish finely that surface. The abrasive particles typically have a size of up to 1 micron. This process is particularly useful in smoothing the optically transparent surfaces which define cavities or sidewalls for planar optical elements in optical waveguides. <IMAGE>

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Citation (search report)

- [X] DE 2103919 B2 19800514
- [X] US 3061422 A 19621030 - AKIHIKO SATO
- [A] ZIMIN A K: "Investigation of the technological process of ultrasonic finishing of polished surfaces of optical elements", OPT.-MEKH. PROM. (USSR), OPTIKO-MEKHANICHESKAYA PROMYSHLENNOST, MAY 1990, USSR, 57, 5, 50 - 53, vol. 57, no. 5, May 1990 (1990-05-01), ISSN 0030-4042, pages 50 - 53
- [A] MOORE D O: "Uses of ultrasonic impact grinding (UIG) in optical fabrication", ADVANCES IN FABRICATION AND METROLOGY FOR OPTICS AND LARGE OPTICS, SAN DIEGO, CA, USA, 17-19 AUG. 1988, 122 - 127, vol. 966, 1989, ISSN 0277-786X, pages 122 - 127
- [A] ZIMIN A K ET AL: "Use of ultrasonic processing for the fabrication of optical components having a complicated surface shape", OPT.-MEKH. PROM. (USSR), OPTIKO-MEKHANICHESKAYA PROMYSHLENNOST, JAN. 1986, USSR, 53, 1, 57 - 58, vol. 53, no. 1, January 1986 (1986-01-01), ISSN 0030-4042, pages 57 - 58
- [A] DOUGHTY G F ET AL: "Integrated optical microwave spectrum analyser (IOSA) using geodesic lenses", SPIE PROCEEDINGS OF THE MAX BORN CENTENARY CONFERENCE OPTICS 82, ECOSA 82, EDINBURGH, UK, 7-10 SEPT. 1982, 705 - 710, vol. 369, 1983, ISSN 0277-786X, pages 705 - 710
- [A] BOR-UEI CHEN ET AL: "Geodesic lenses in single-mode LiNbO₃/waveguides", APPL. PHYS. LETT. (USA), APPLIED PHYSICS LETTERS, 15 AUG. 1977, USA, 31, 4, 263 - 265, vol. 31, no. 4, 15 August 1977 (1977-08-15), ISSN 0003-6951, pages 263 - 265
- [A] "Single Chamber Photolithographic Display Tube", IBM TECHNICAL DISCLOSURE BULLETIN, vol. 19, no. 12, May 1977 (1977-05-01), US, pages 4746 - 4747

Cited by

CN115042022A; EP0749805A1; CN102785145A; US5989301A; CN102794698A; US6258136B1; WO2015053868A1; WO9700756A3; WO0027586A1; US9793613B2; US10490899B2

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