



Modification research on in wall of capillary copper tube with Norland optical adhesive 68 in a double stereo PCR microfluidic chip

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Genet. Mol. Res. 14 (4): 13603-13611 (2015)

Received July 4, 2015

Accepted September 18, 2015

Published October 28, 2015

DOI <http://dx.doi.org/10.4238/2015.October.28.21>

ABSTRACT. In this study, a Norland optical adhesive 68 (NOA68) film, approximately 2.2 μm thick, was manufactured using ultraviolet solidified NOA68 in apparatus manufacturing film on the inwall of a capillary copper pipe, developed in our laboratory. The roughness of the inwall of capillary copper pipe was improved from $R_a = 0.766$ to $0.204 \mu\text{m}$ and the contact angle was improved from approximately 96° to 55° , increasing hydrophilicity. Polymerase chain reaction experiments indicated that the ratio of work pressure in the microfluidic chip before modification to that after modification was 2.71/1, indicating that the extension efficiency increased. Our results provide a basis for the construction of a microform chip based on function integration.

Key words: Microfluidic chip; Surface modification; NOA68