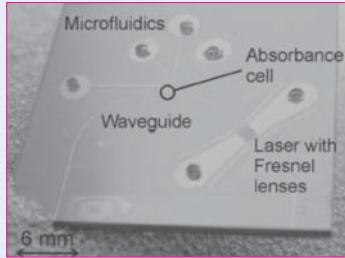
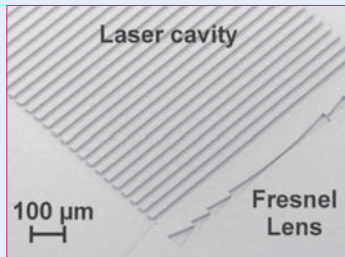


Thermoplastic Polymer for Imprinting

mr-I T85 – New Polymer for lab-on-a-chip, optical and bio applications



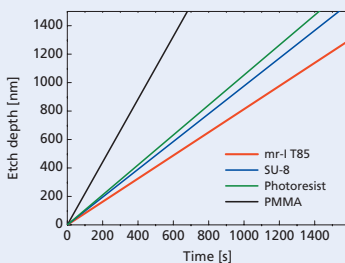
Complete lab-on-a-chip device for absorption measurements, all components imprinted in one layer of mr-I T85 (courtesy of MIC / TU Denmark)



Microfluidic dye laser and Fresnel lens imprinted in mr-I T85 (courtesy of MIC / TU Denmark)



Photonic wave guide filter fabricated using mr-I T85, 320 nm deep holes transferred into silicon (200 nm diameter) (courtesy of MIC / TU Denmark)



Etch depth as a function of time, SF₆/O₂ plasma
 10.08.02.12.02

The new mr-I T85 series has been developed preferably for permanent applications in lab-on-a-chip systems, microfluidics, and microoptical components.

Unique features

- Unpolar thermoplastic
- Excellent film quality
- Beneficial flow behaviour during imprinting, low imprint pressure
- Excellent UV and optical transparency
- High plasma etch resistance
 - comparable to novolak-based photoresists
 - selectivity to silicon 9:1 (Si / mr-I T85)
- High chemical stability
 - high resistance to acids, bases and polar solvents
 - no interactions with conventional photoresists

Applications

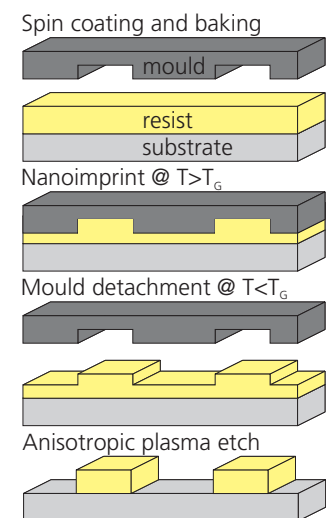
- Lab-on-a-chip systems
- Bio applications
- Microfluidics
- Microoptical elements
- Wave guides
- Single and multilayer systems
- Mask for pattern transfer processes

Technical Data

Glass transition temperature	85 °C
Imprinting conditions	130 – 150 °C
Low pressure	5 – 20 bar
Ready-to-use solutions for various film thicknesses	
Type	Thickness ¹⁾
mr-I T85-0.3	300 nm
mr-I T85-1.0	1.0 µm
mr-I T85-5.0	5.0 µm

¹⁾ 3000 rpm, 30 s

Process Flow



Feature sizes can be imprinted ranging from sub-100 nm to 100 µm.
 micro resist technology provides ready-to-use solutions for film thicknesses from 100 nm to 20 µm.