

New Functional Polymer Optical Fiber Technology

(Min Park, Polymer Hybrids Research Center, Korea Institute of Science and Technology, P.O. Box 131, Cheongryang, Seoul 130 - 650, Korea)

1. POF

POF	()	POF	()
			*		
	-		-	PMMA	
	-		-	PMMA	
			-		PMMA
			1 -		
			*		
			-		
			-	-	,
	-				
			*		
	-		-	POF	
				가	

POF .

2. POF

(Multi-core plastic

optical fiber, MC POF) 가 POF . 1 POF MC POF

. MC POF

(coherent fiber)

가 . 6 1(a) (Step Index, SI) POF

. SI POF

()가 . SI POF

가 POF

(155 Mbps) NA POF가 .⁷ , NA POF가 (放射) , 가

가 MC POF .8 가

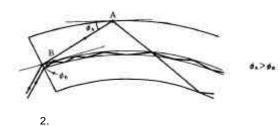
. 가





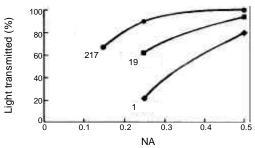
(a) (b 1. POF (a),

POF (a), (Asahi Kasei社) POF (c).



(b)

7.0



•

NA가 . 2

.

. MC POF NA

. 가 NA 0.15

SI POF 가가 가 가

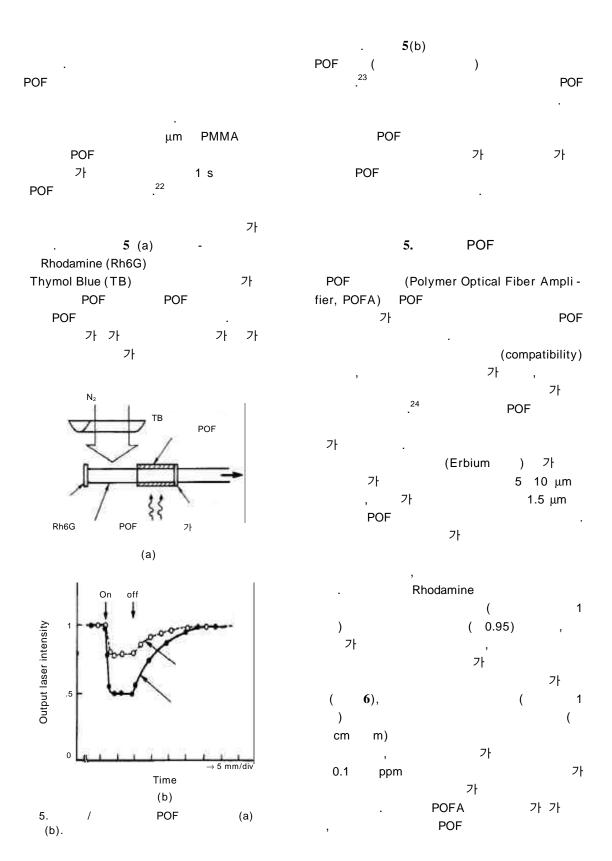
POF . LED

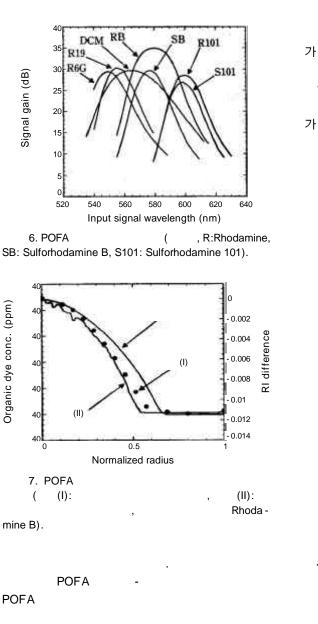
3

```
NA
                                                dB/km
\mathsf{N}\mathsf{A}
     MC POF가
         LD
                                                                                  100 dB/km
                              MC POF
                                                                                       POF
SI POF
                                                   가
                                                (MC POF
                                                                      ).
                                                            가
                        POF
              3.
                                                                                        40~
              (Large core POF, LC POF)
                                                60%
                                                                                    LC POF
                                                     100%
                                                            가
                LC POF
                                                                                     가
                          3 mm
                     Ε
       d,
                              (
가 )
              Е
                                 LC POF
E가
                                가
  Lumatec
                 LC POF (
                              2~8 mm, NA
0.61~0.73)가
                                                가
   , 가 ,
                                                                                   가
                                                                            가
                                                           LC POF
spot
                                    spot
                                                  ) light guide
                    가
                                                     . 300 W
                                                                Xenon
                'light engine'
         GE
                                       light
                                                                                 powermeter
guide
                                     .11
                                                                    5 m
 LC POF
                             SI
                                                25%
                                      가
                                                                NA가
                                                                                  LC POF
                                                       5 m
                                                               70%
                                                       light guide
                                       100
                                                                    LC POF
```

80 70 60 50 40	POF POF POF , POF optoelectronics 가 . POF			POF POF	
30 20 10 15 20 15 20		POF	가		
(m) 4. light guide	가	(POF (ga	ain))	
.12	.17	POF			
LC POF ,	POF)		POF (
, 10 m				POF	
, 가 ,	POF 가		,	2 mm	
	×2 mm,	23 mm	PMMA	2 111111	
, · , 가 . ¹³⁻¹⁵ LC POF	.18	50 r	ns	가	
, ,			-a-	(Poly - a	
	methylstyre				
,	1.5 mm,	7 cm	POF 가		
LC POF	가	.19	1.5	kV	
. , 가 ,				2	
가 가			가	wt%	
POF	•		71	W 1 70	
4. POF	POF	F	POF	•	
DOE			POF		
POF POF	(旋光)				
POF			20,2	1	
	POF				

13 2 2002 4 213





- Rhodamine B 가 1,000 가가 **POFA** 가 가 POFA POFA가 (劣化) 가 POF 6. POF GI POF POF POF **POF** POF 가 가 POF 가 가
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