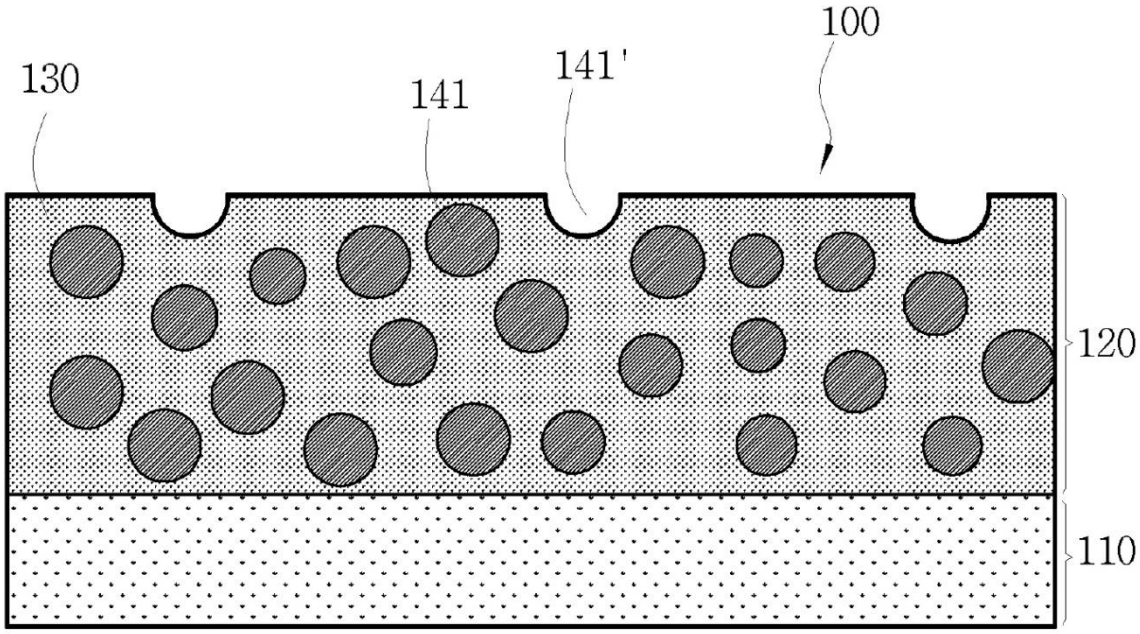
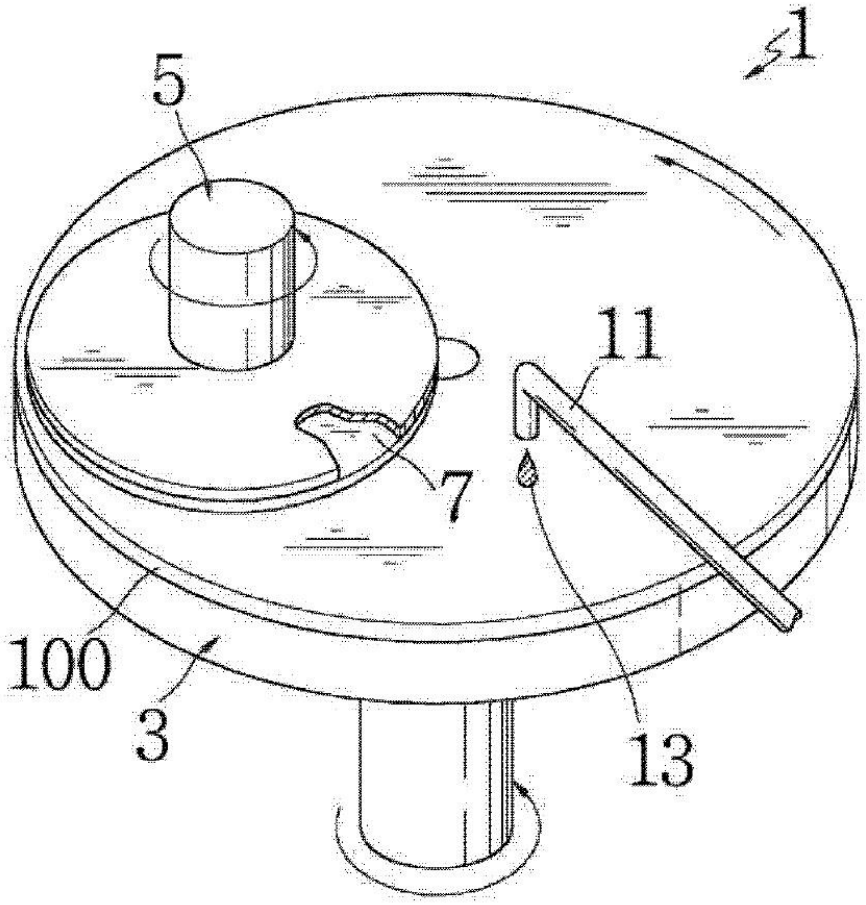
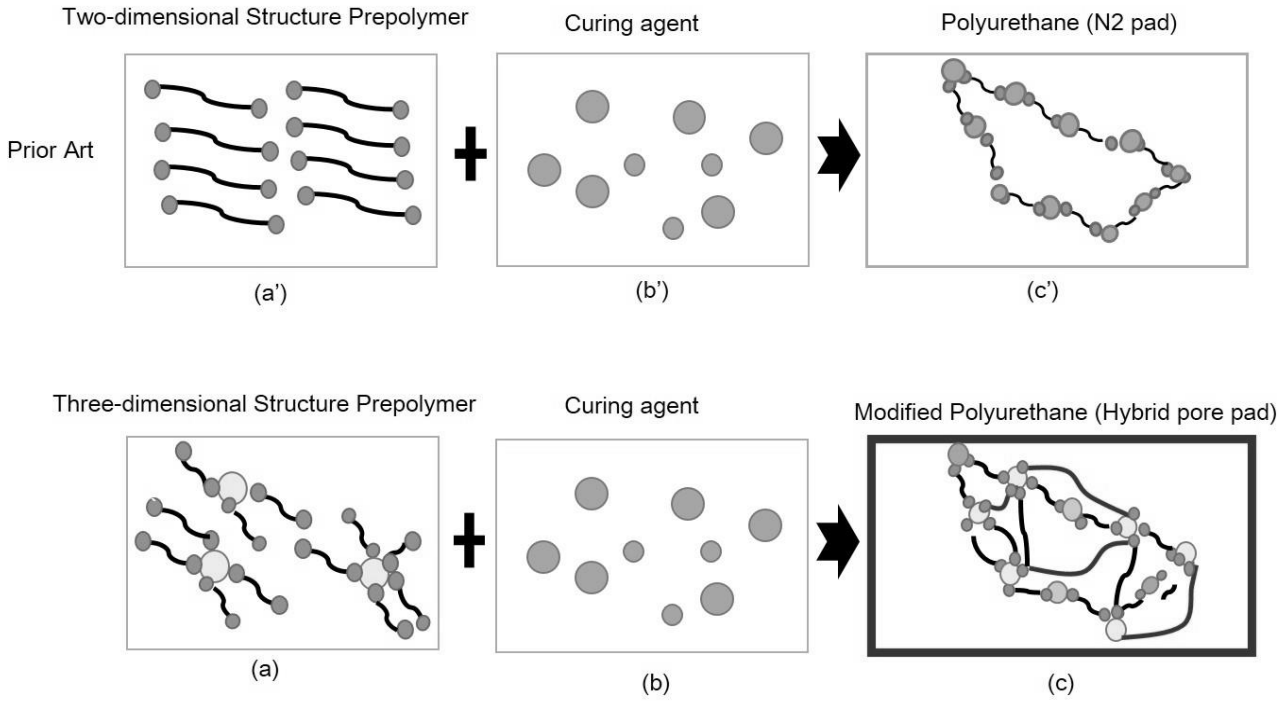
【Fig. 1】



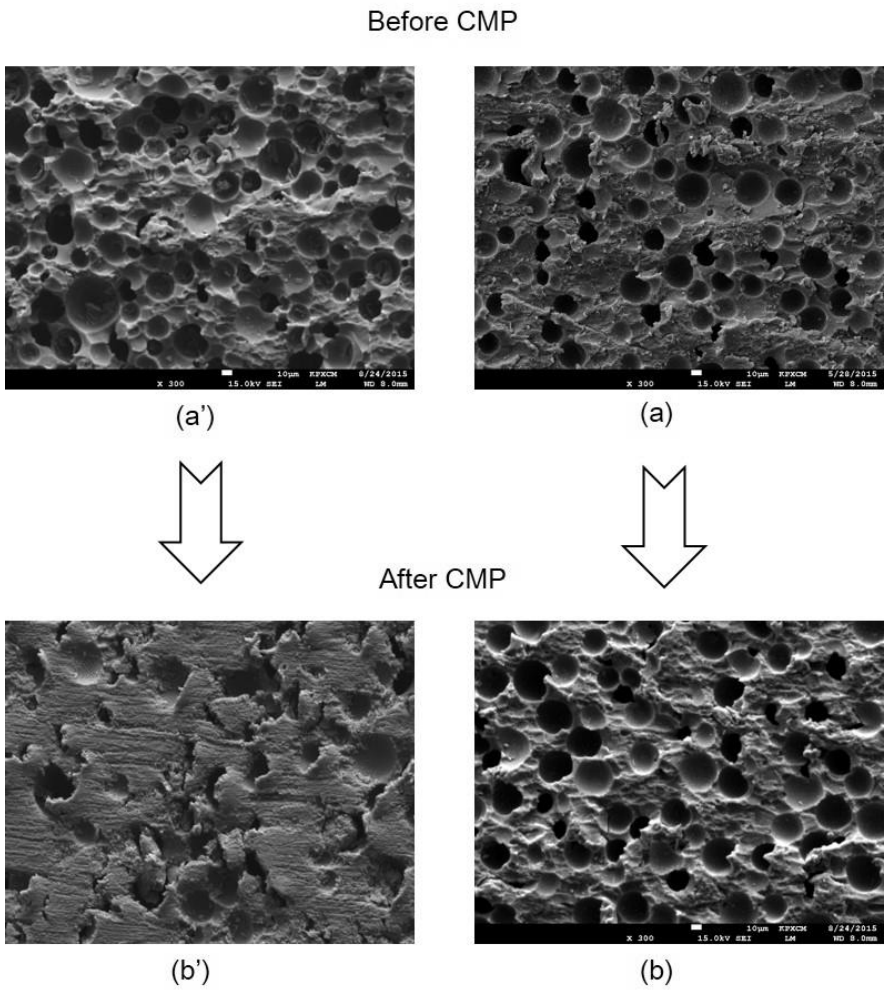
【Fig. 2】



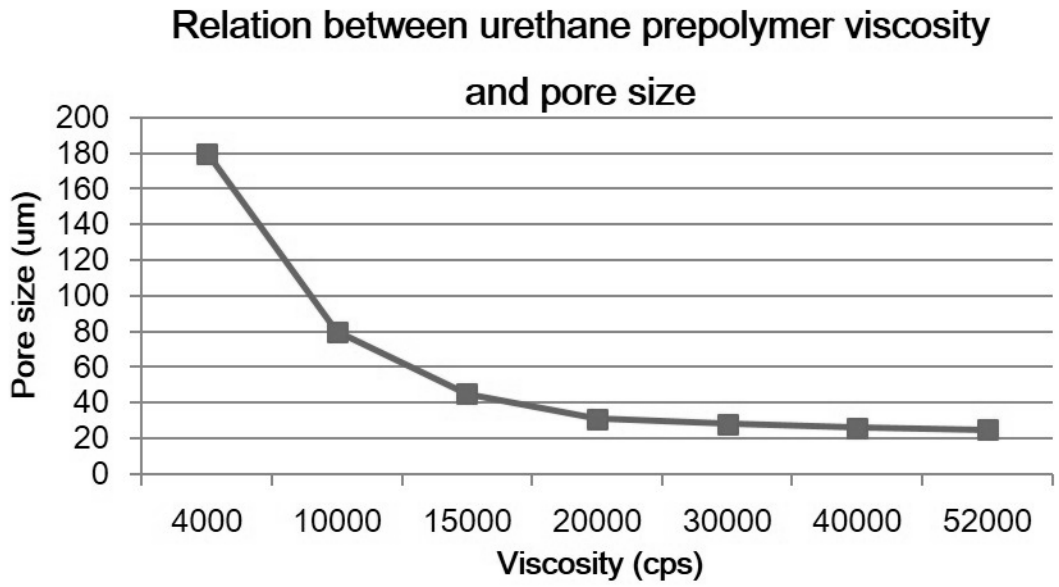
【Fig. 3】


Two-dimensional Structure Prepolymer
Curing agent
Polyurethane (N2 pad)
Prior Art
(a')
(b')
(c')
Three-dimensional Structure Prepolymer
Curing agent
Modified Polyurethane (Hybrid pore pad)
(a)
(b)
(c)

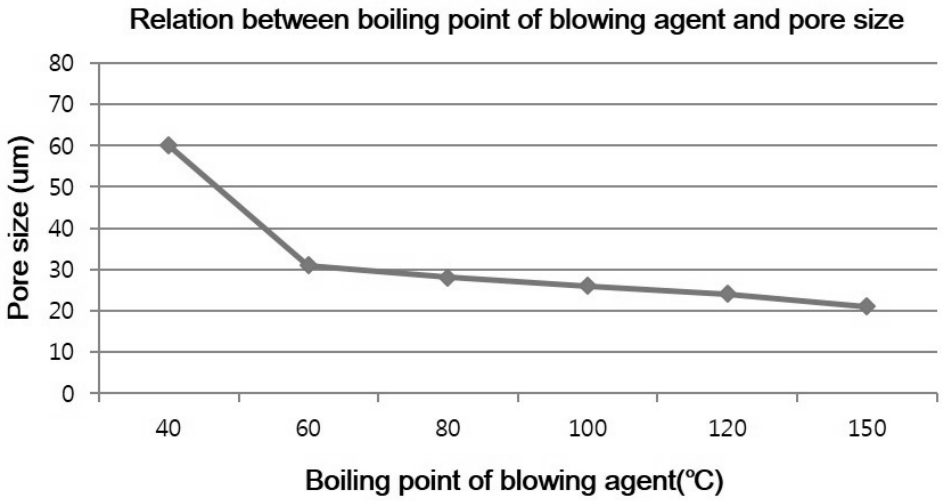
【Fig. 4】



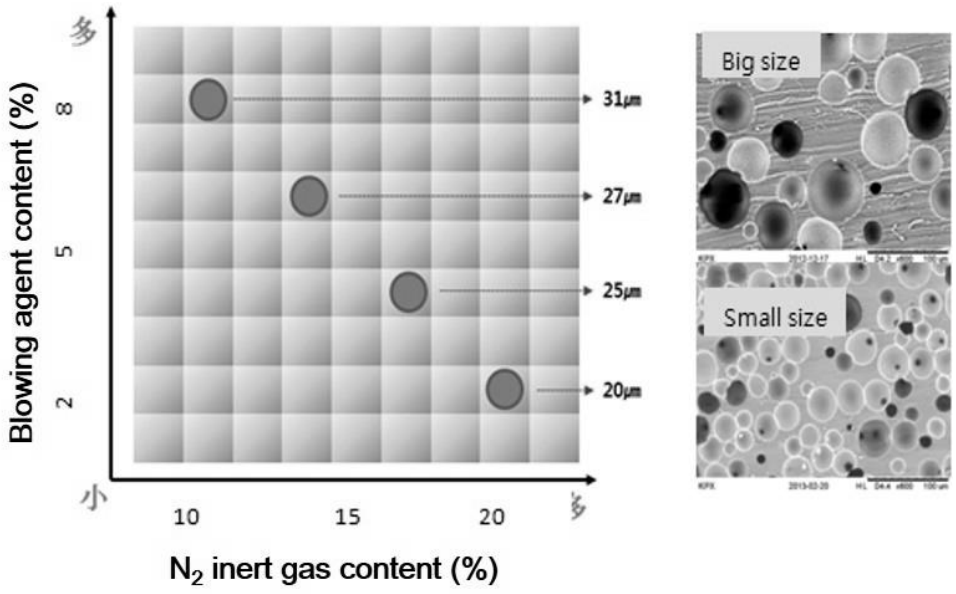
【Fig. 5】


Relation between urethane prepolymer viscosity and pore size
Pore size (um)
200
180
160
140
120
100
80
60
40
20
0
4000
10000
15000
20000
30000
40000
52000
Viscosity (cps)

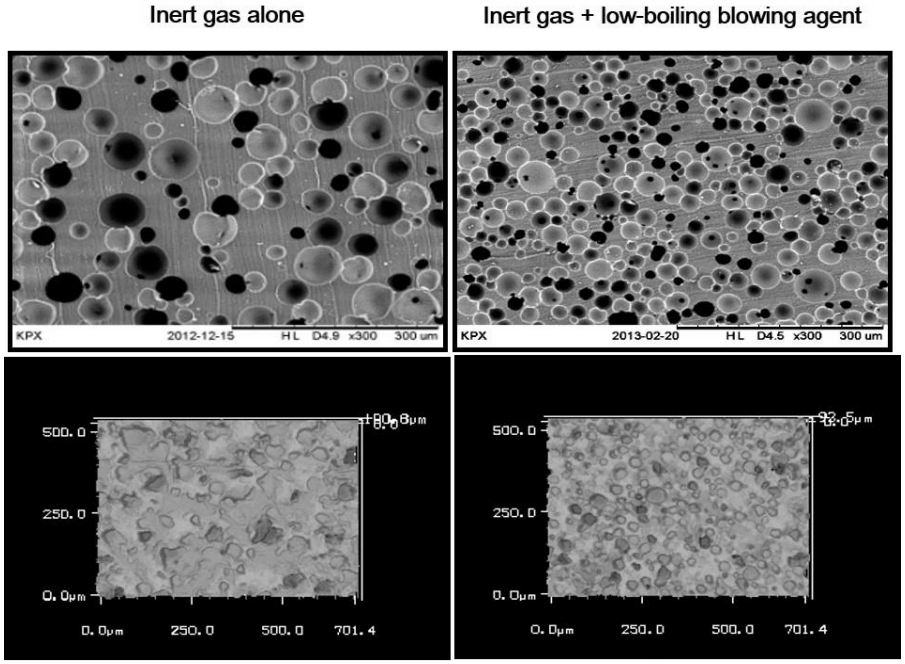
【Fig. 6】


Relation between boiling point of blowing agent and pore size
Pore size (um)
80
70
60
50
40
30
20
10
0
40
60
80
100
120
150
Boiling point of blowing agent(℃)

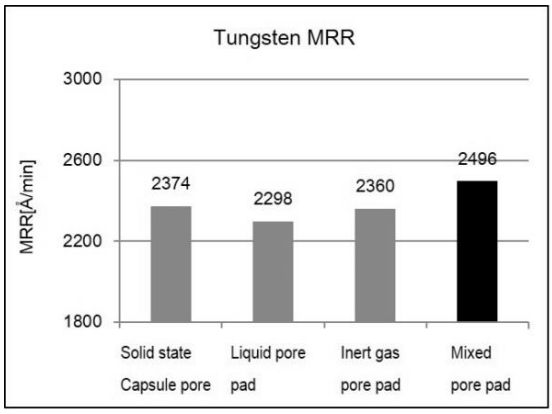
【Fig. 7】


多
8
5
2
小
Blowing agent content (%)
31μm
27μm
25μm
20μm
10
15
20
多
N2 inert gas content (%)
Big size
Small size

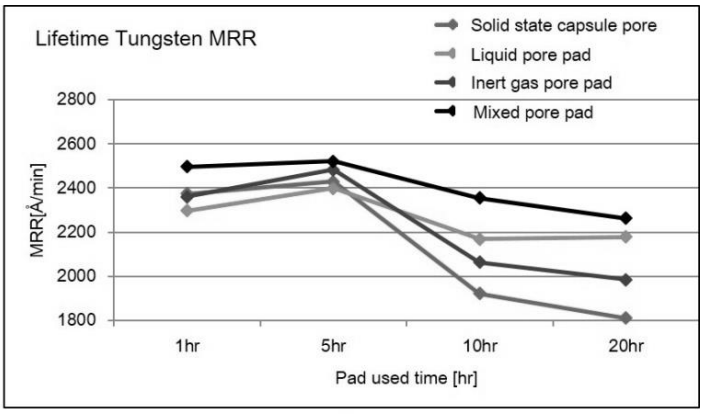
【Fig. 8】


Inert gas alone
Inert gas + low-boiling blowing agent
KPX 2012-12-15 HL D4.9 x300 300 um
KPX 2013-02-20 HL D4.5 x300 300 um
500.0
250.0
0.0μm
0.0μm 250.0 500.0 701.4
(a)
(b)

【Fig. 9】



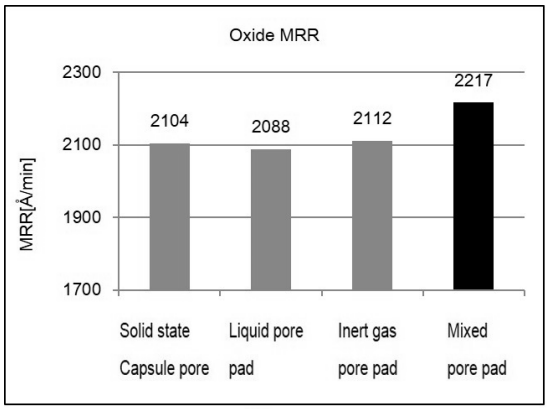
(a)



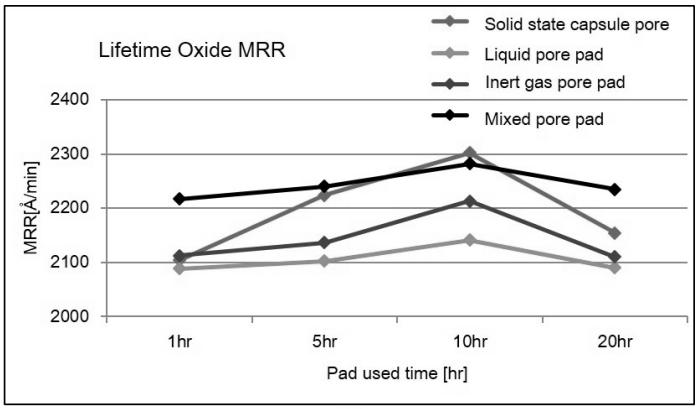
(b)

Apparatus	Wafer	Slurry	Disk
POLI-762	Tungsten	W	C1

【Fig. 10】



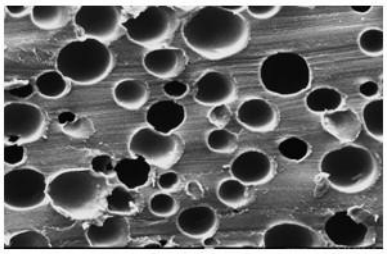
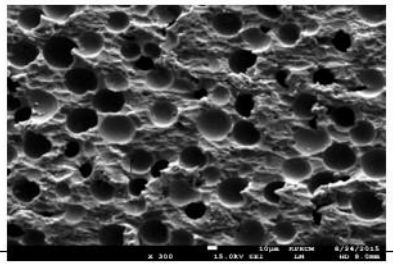
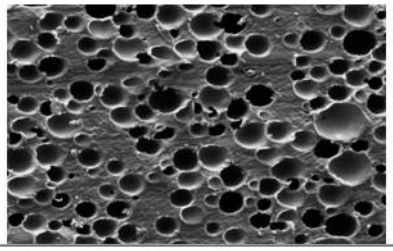
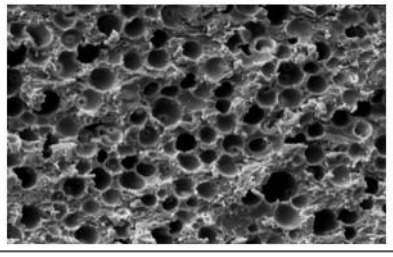
(a)



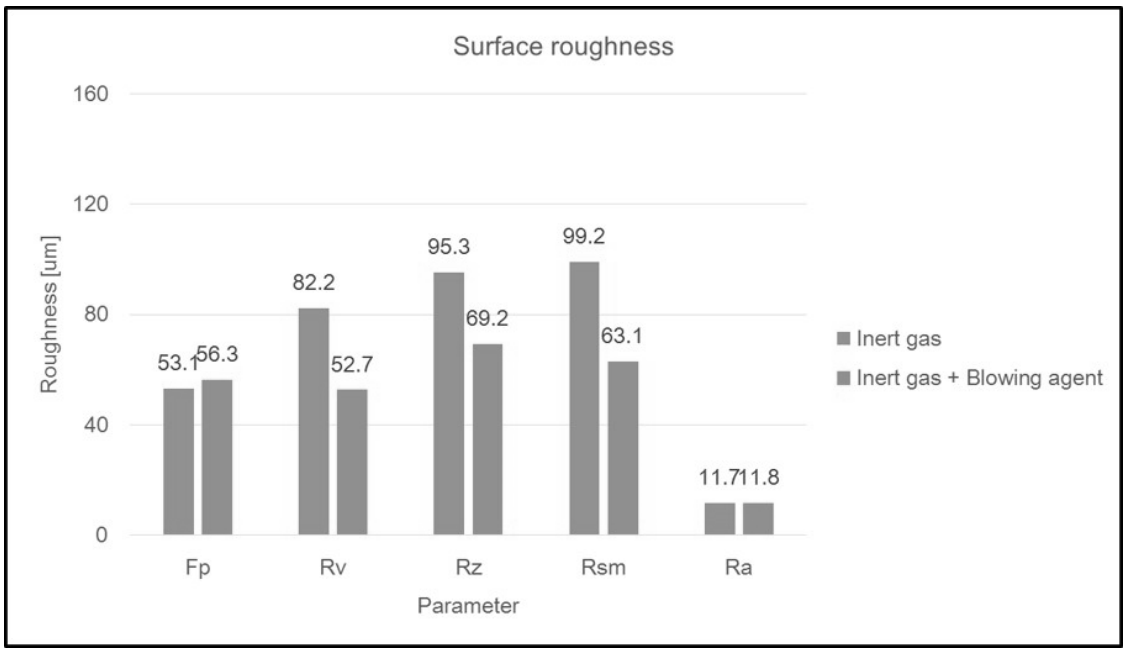
(b)

Apparatus	Wafer	Slurry	Disk
POLI-762	Oxide	T	C7

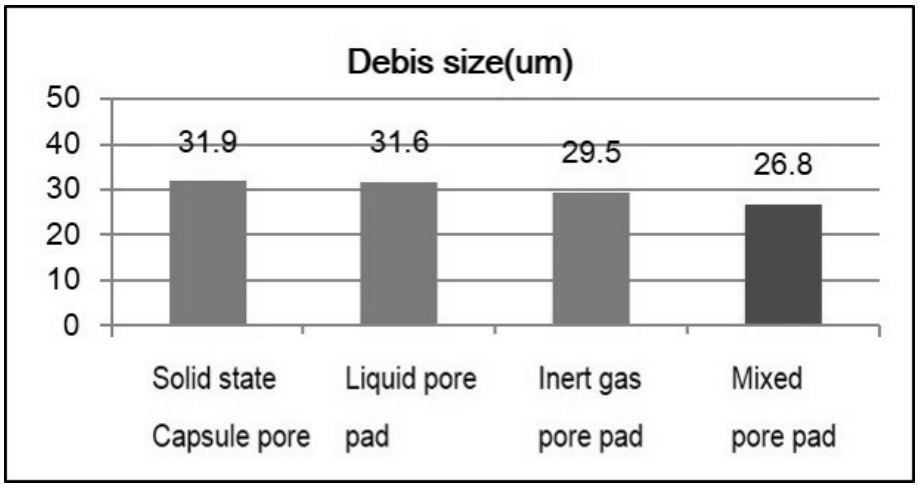
【Fig. 11】

Example 4	
Example 5	
Example 6	
Example 7	

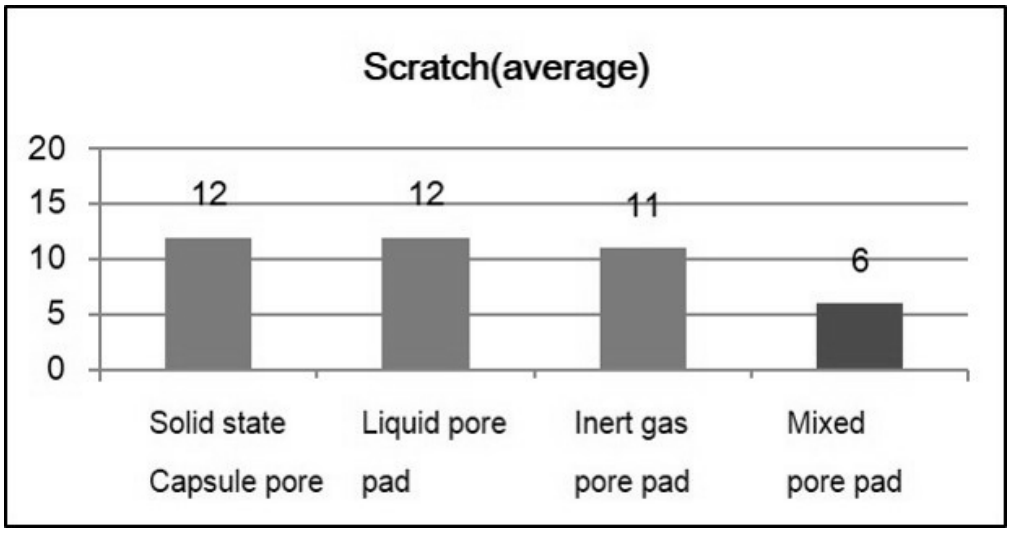
【Fig. 12a】


Surface roughness
160
120
80
40
0
Roughness [um]
53.1
56.3
82.2
52.7
95.3
69.2
99.2
63.1
11.7
11.8
Fp
Rv
Rz
Rsm
Ra
Parameter
Inert gas
Inert gas + Blowing agent

【Fig. 12b】


Debis size(um)
50
40
30
20
10
0
31.9
31.6
29.5
26.8
Solid state Capsule pore
Liquid pore pad
Inert gas pore pad
Mixed pore pad

【Fig. 12c】


Scratch(average)
20
15
10
5
0
12
12
11
6
Solid state Capsule pore
Liquid pore pad
Inert gas pore pad
Mixed pore pad