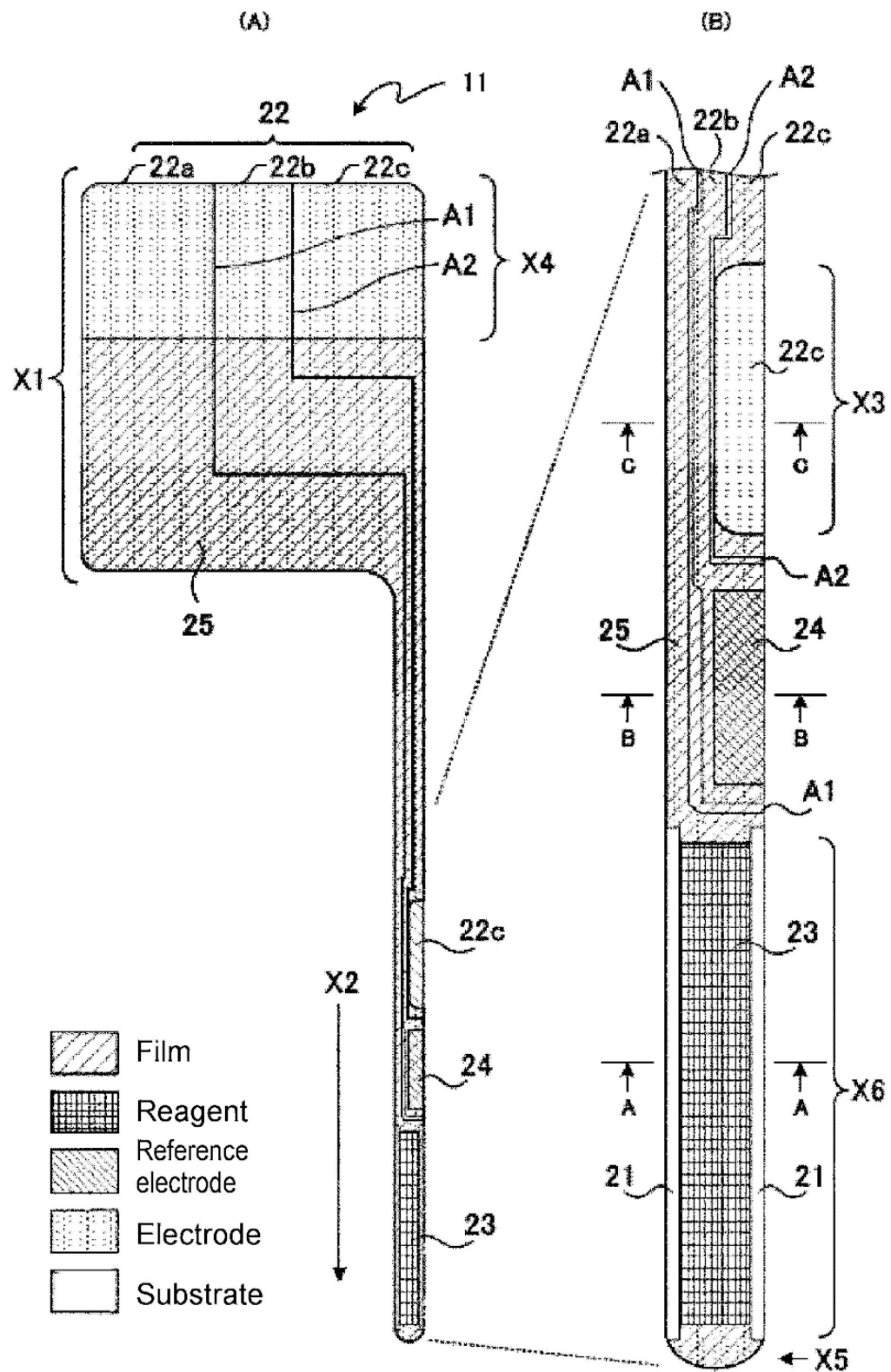
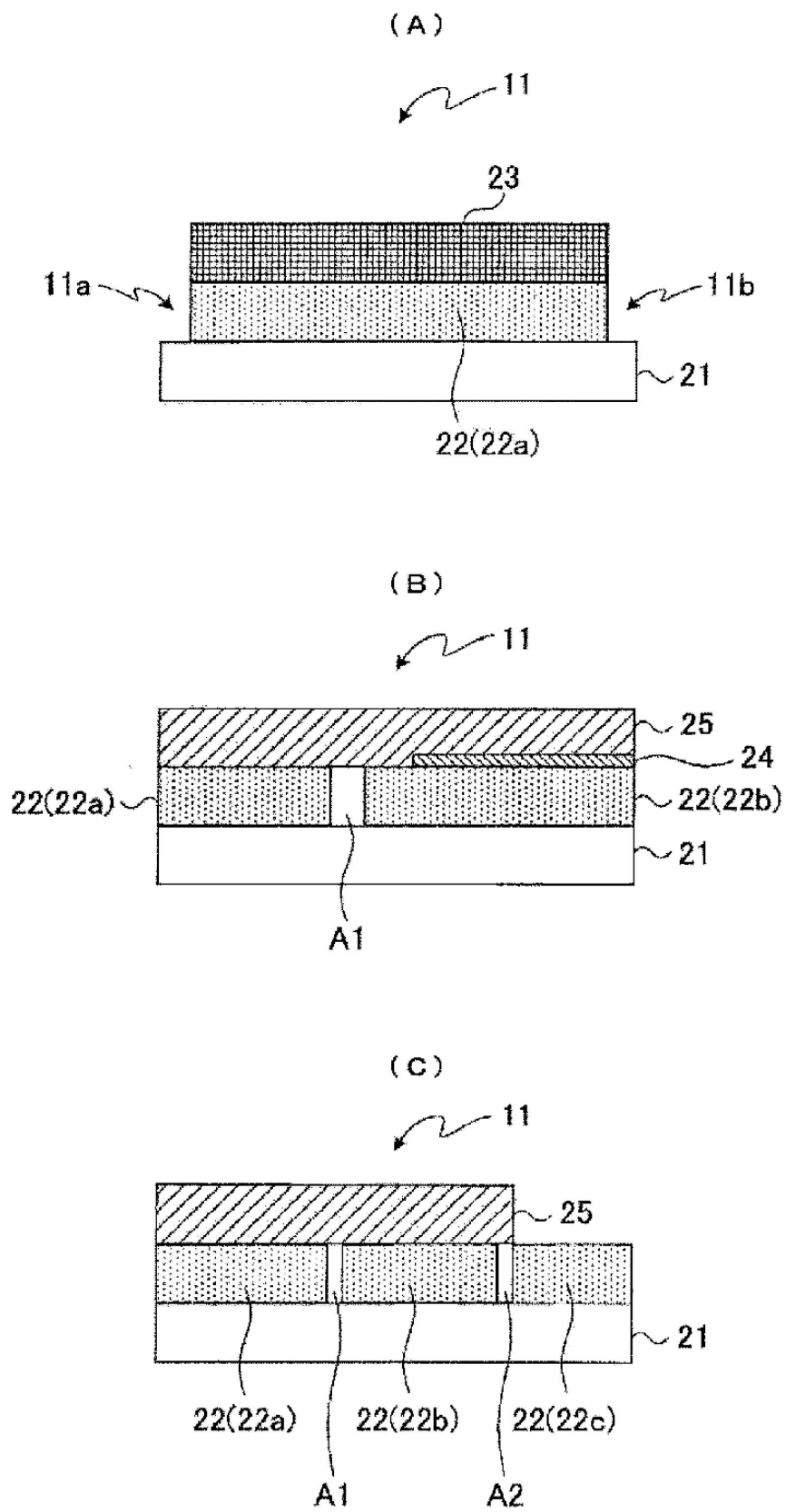


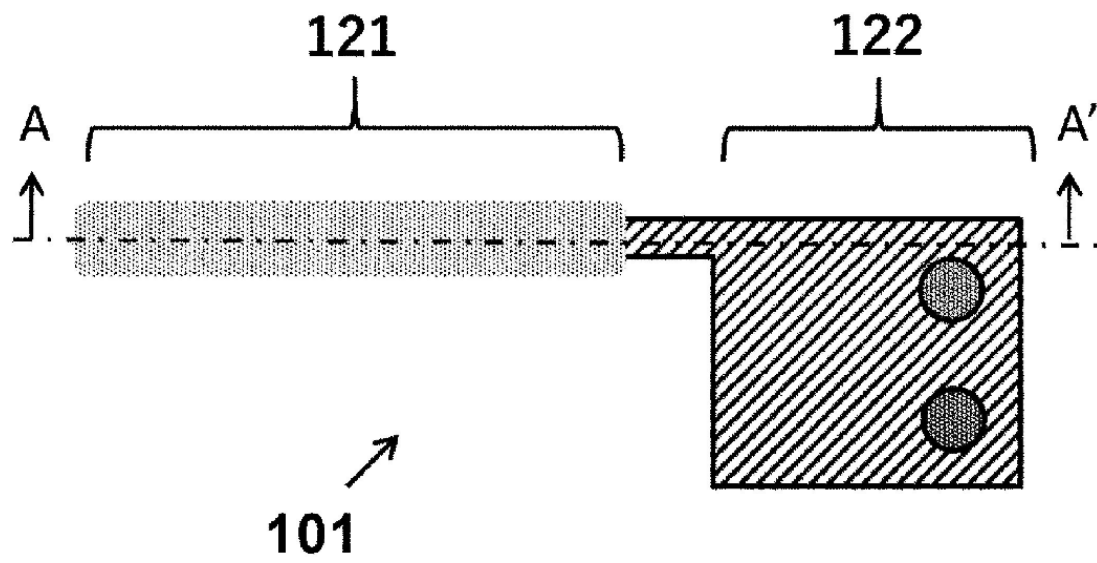
[Figure 1]



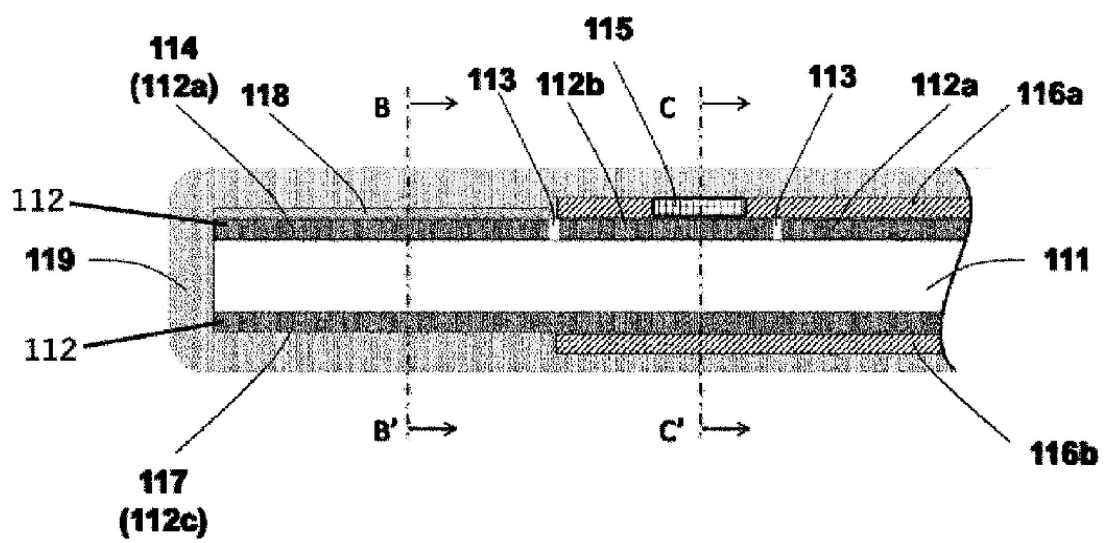
[Figure 2]



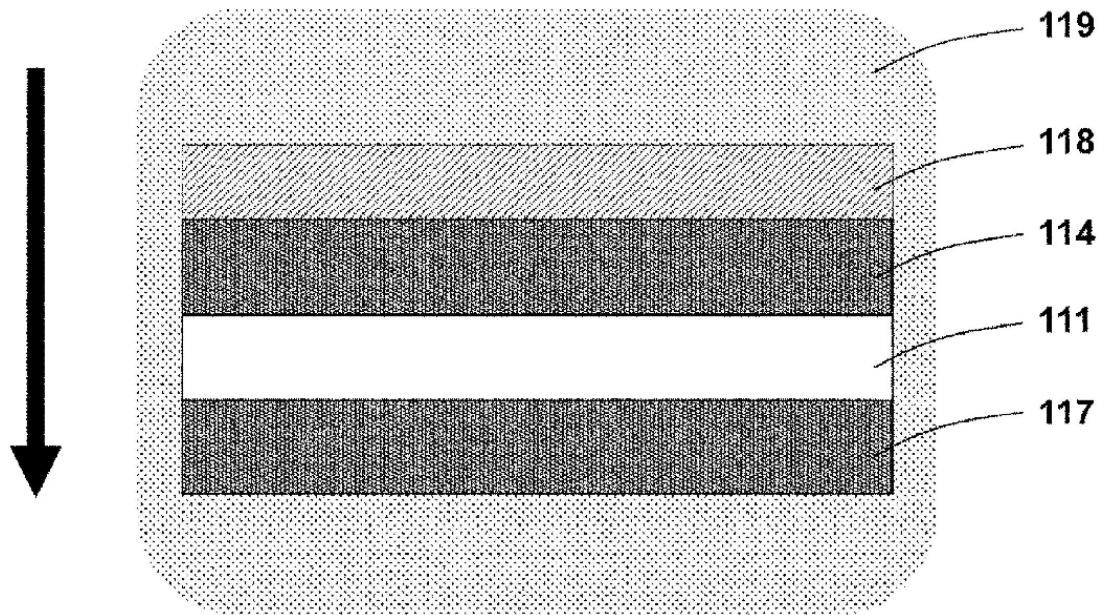
[Figure 3]



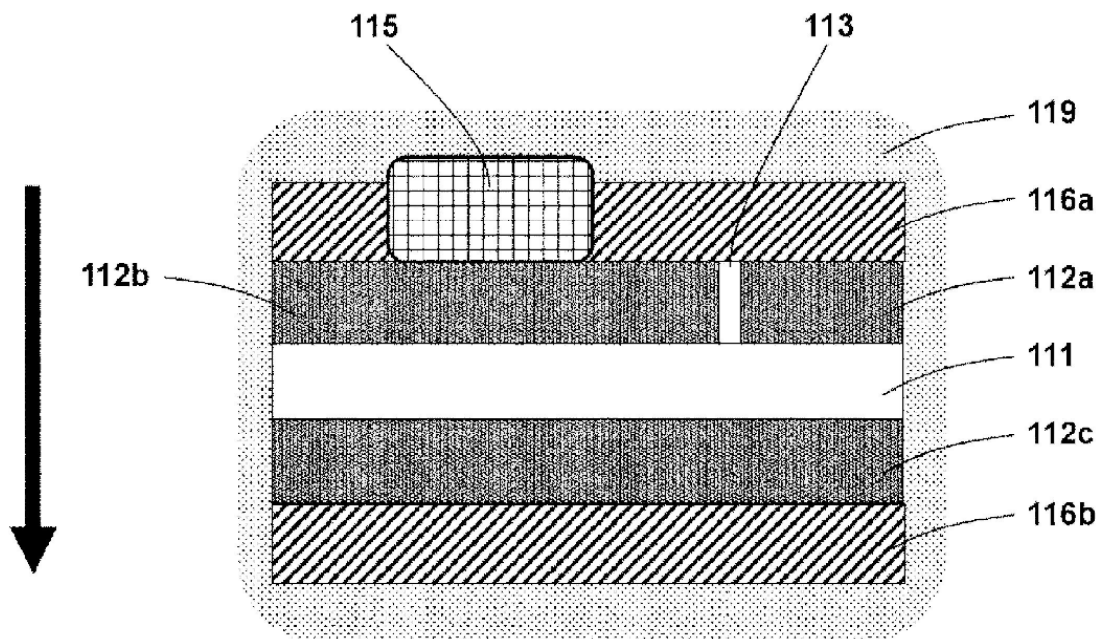
[Figure 4]



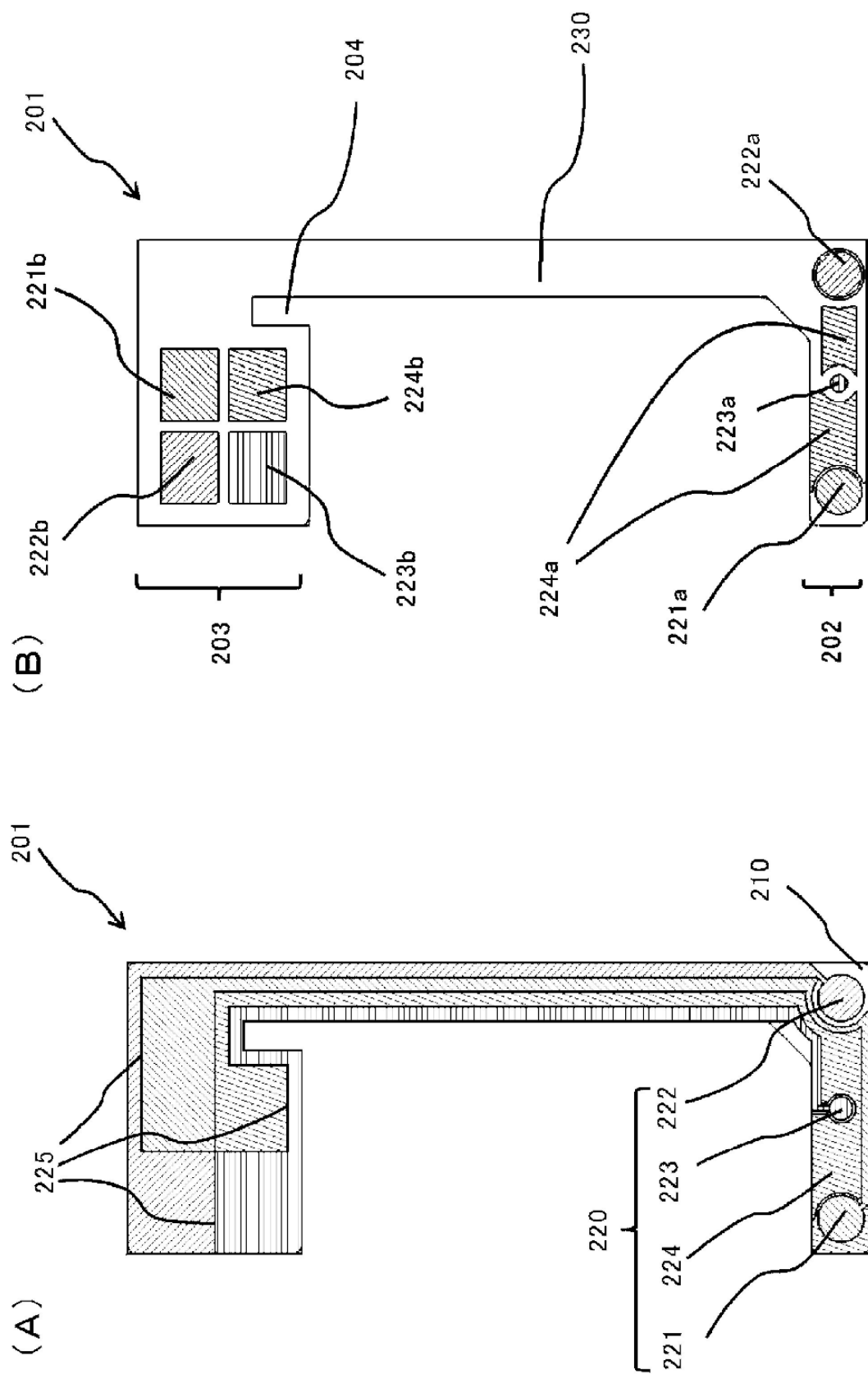
[Figure 5]



[Figure 6]

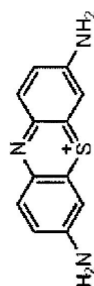


[Figure 7]

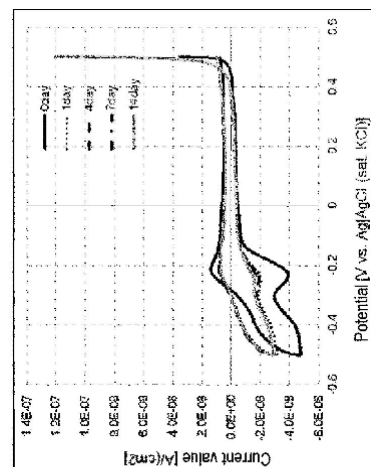
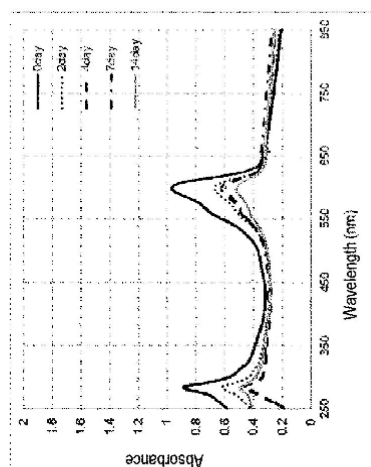


[Figure 8]

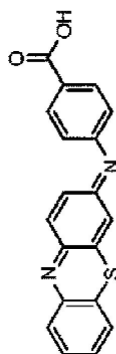
Reference Comparative Example 1-2



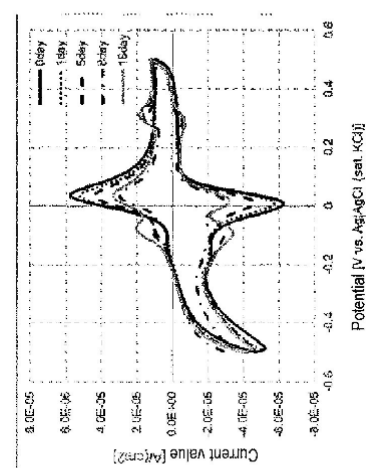
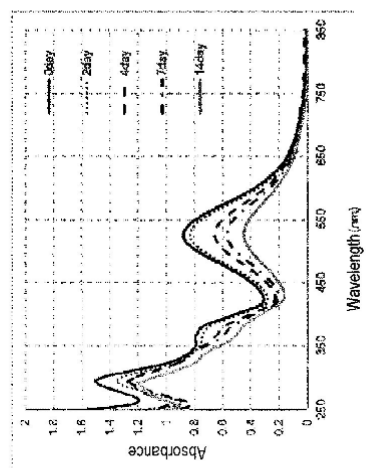
Thionine



Reference Comparative Example 1-1



3-(4'-Carboxyphenyl)imino-3H-phenothiazine

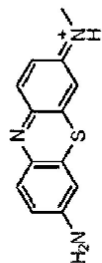


Absorption spectrum  
in optical test  
(40°C, PB  
pH 7.4)

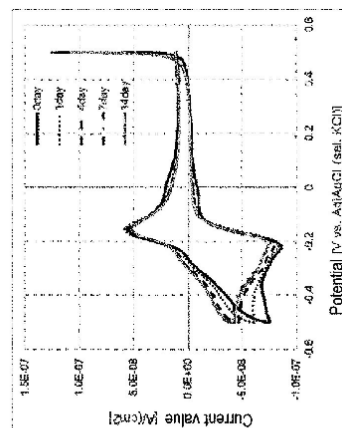
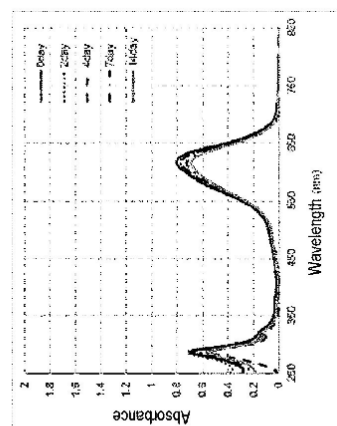
Cyclic voltammogram  
in redox reaction test  
(40°C  
pH 7.4)

[Figure 9]

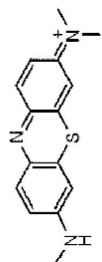
Reference Example 1-3



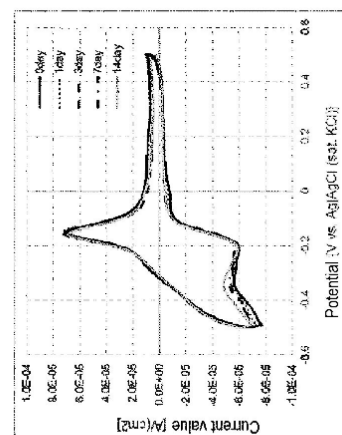
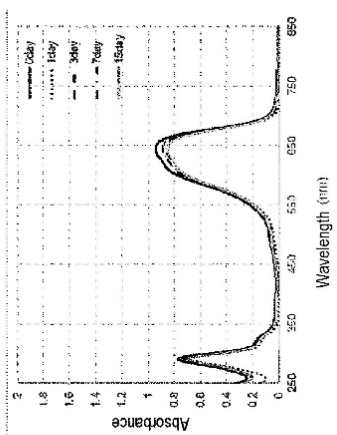
Azure C



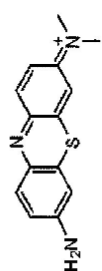
Reference Example 1-2



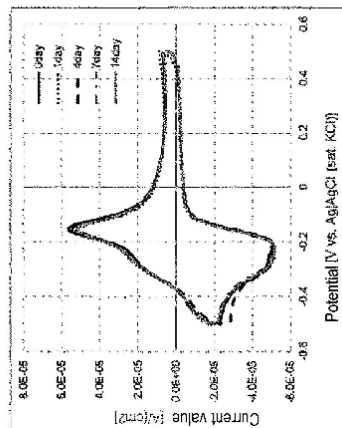
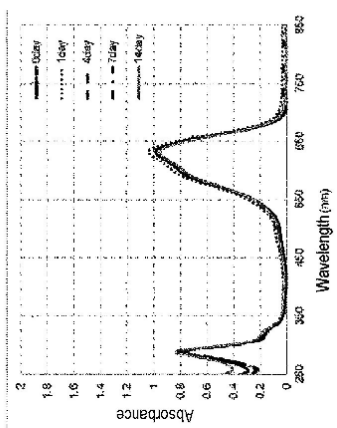
Azure B



Reference Example 1-1



Azure A

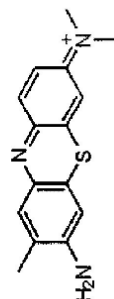


Absorption spectrum  
in optical test  
(40°C, PB  
pH 7.4)

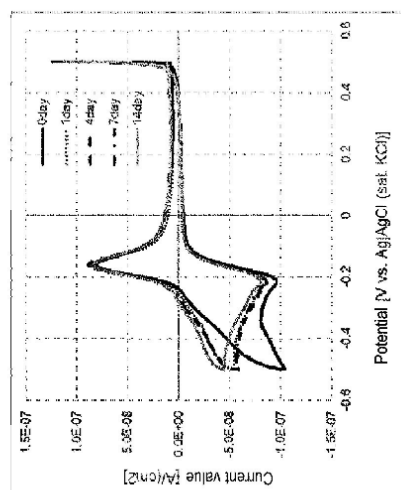
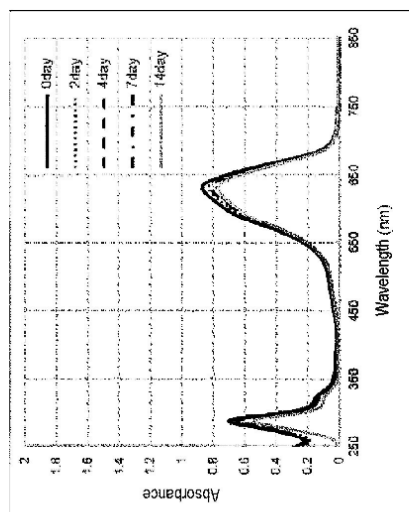
Cyclic voltammogram  
in redox reaction test  
(40°C  
pH 7.4)

[Figure 10]

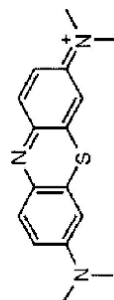
Reference example 1-5



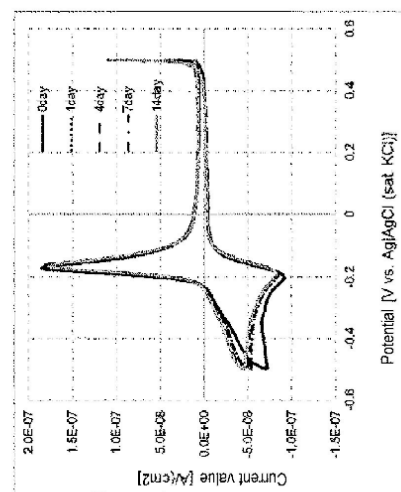
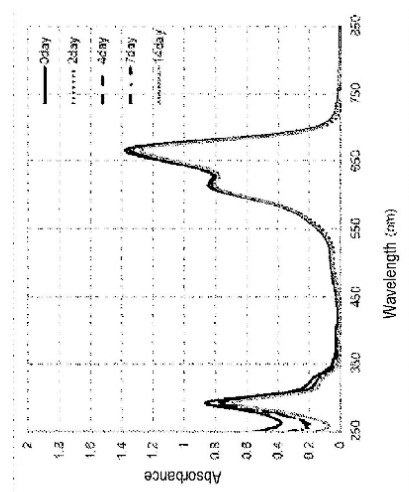
Toluidine blue



Reference example 1-4



Methylene blue

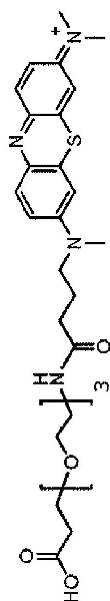


Absorption spectrum  
in optical test  
(40°C, PB  
pH 7.4)

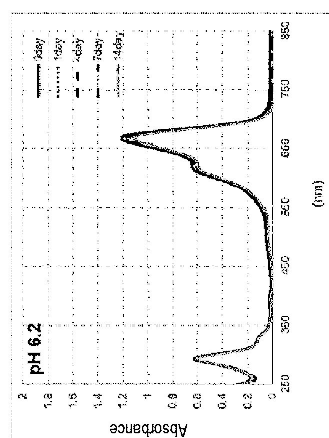
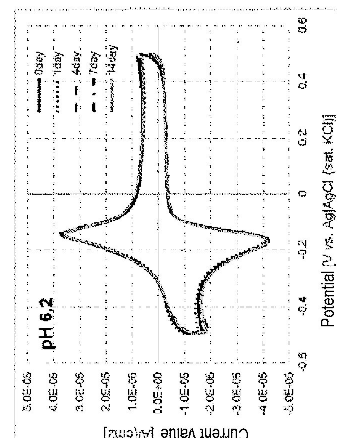
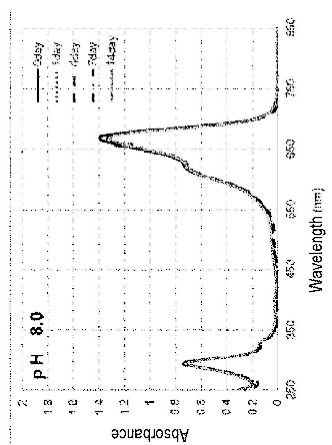
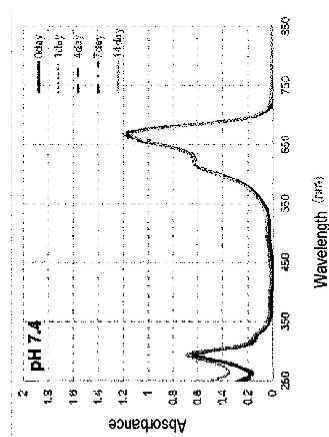
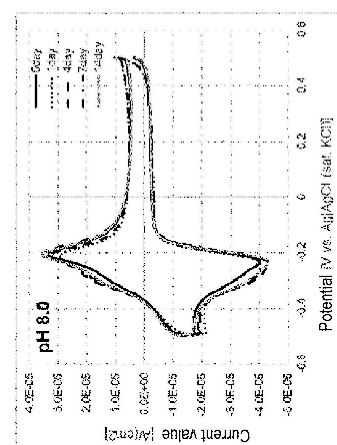
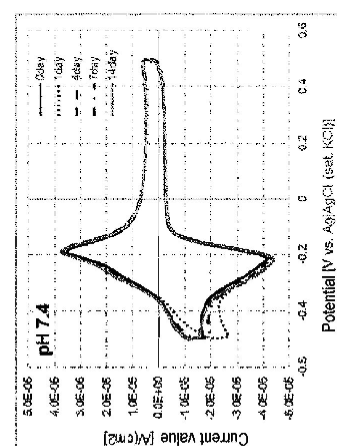
Cyclic voltammogram  
in redox reaction test  
(40°C  
pH 7.4)

[Figure 11]

Reference Example 2-1

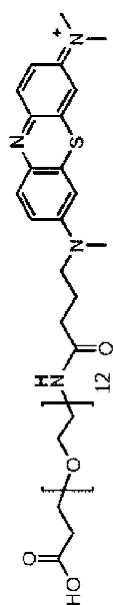


PNT-66

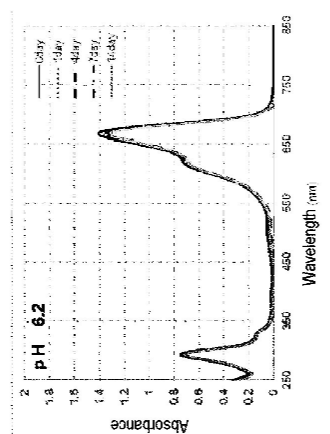
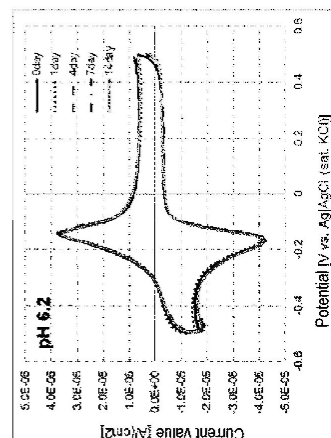
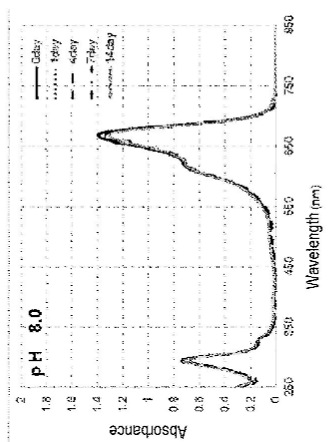
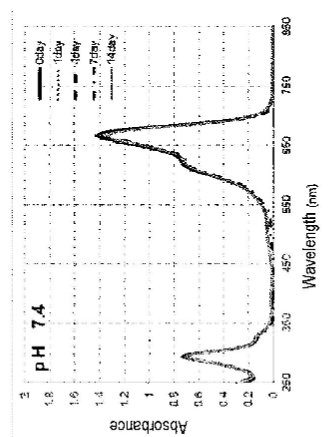
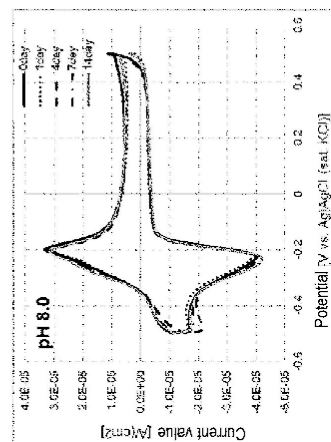
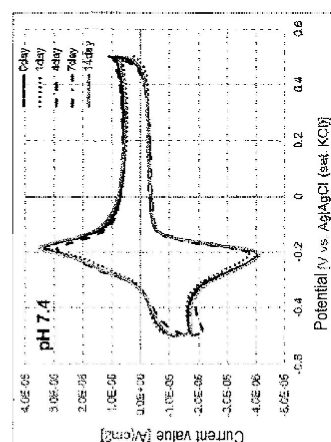
Absorption spectrum  
in optical test  
(40°C)Cyclic voltammogram  
in redox reaction test  
(40°C)

[Figure 12]

## Reference Example 2-2

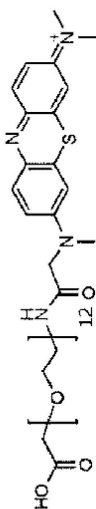


PNT-69

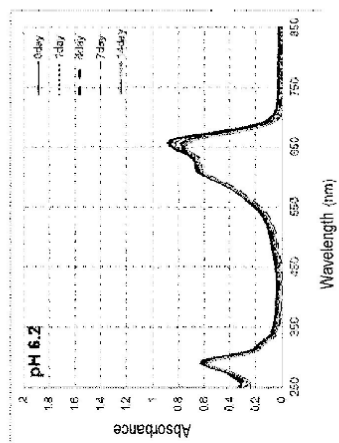
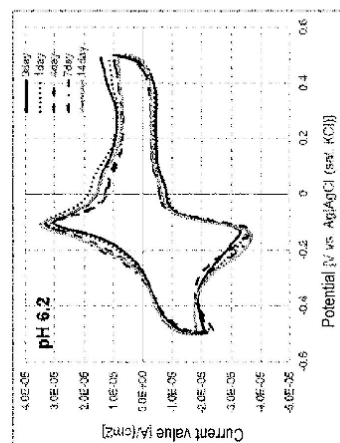
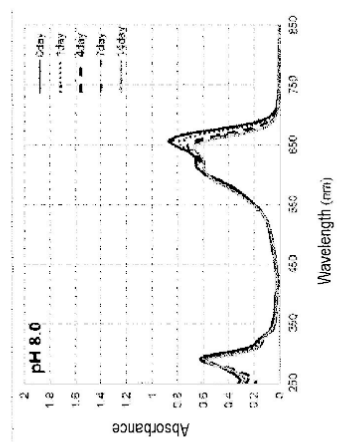
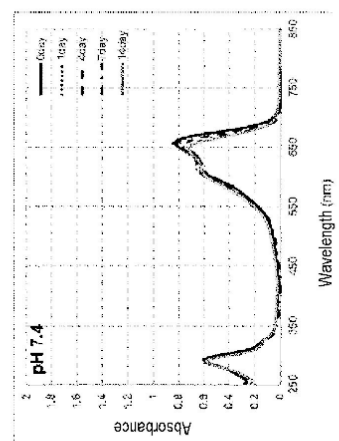
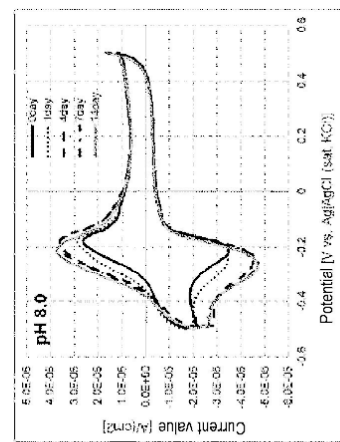
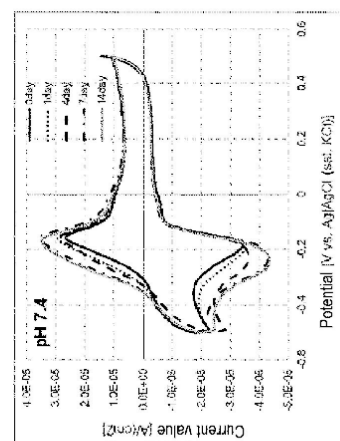
Absorption spectrum  
in optical test  
(40°C)Cyclic voltammogram  
in redox reaction test  
(40°C)

[Figure 13]

Reference Example 2-3



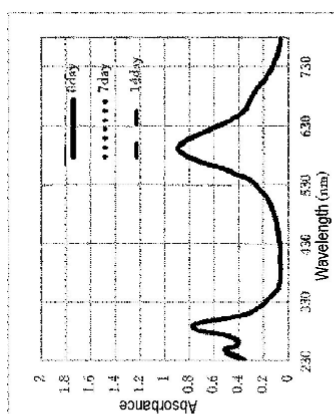
PNT-63

Absorption spectrum  
in optical test  
(40°C)Cyclic voltammogram  
in redox reaction test  
(40°C)

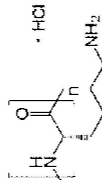
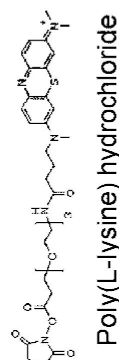
[Figure 14]

## Optical test of polymer-bound PNT (in PBS)

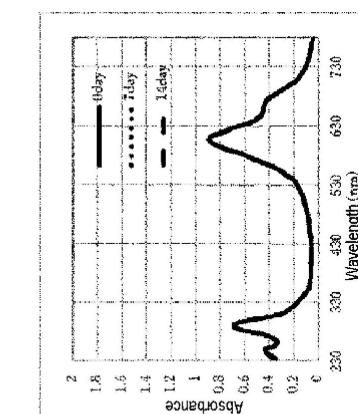
Example 3-1 (Poly(L-lysine)·PNT-66)



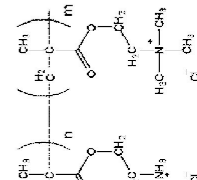
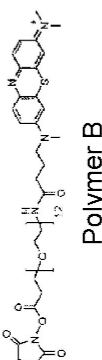
PNT-66NHS form (PNT-67)



Example 3-3 (Polymer B · PNT-69)



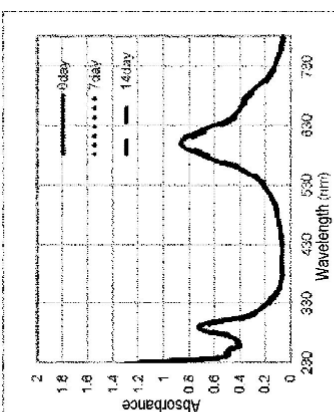
PNT-66NHS form (PNT-70)



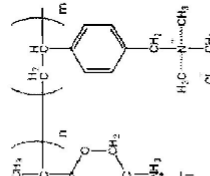
Molar ratio 13.3 : 86.7

Example 3-2 (Polymer A · PNT-69)

PNT-69NHS form (PNT-70)



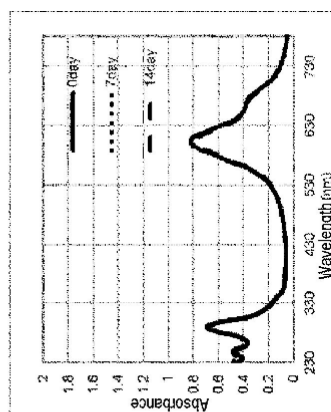
Polymer A



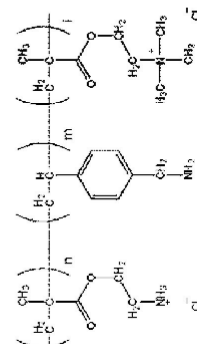
Molar ratio 48.5 : 51.5

Example 3-4 (Polymer C · PNT-69)

PNT-69NHS form (PNT-70)

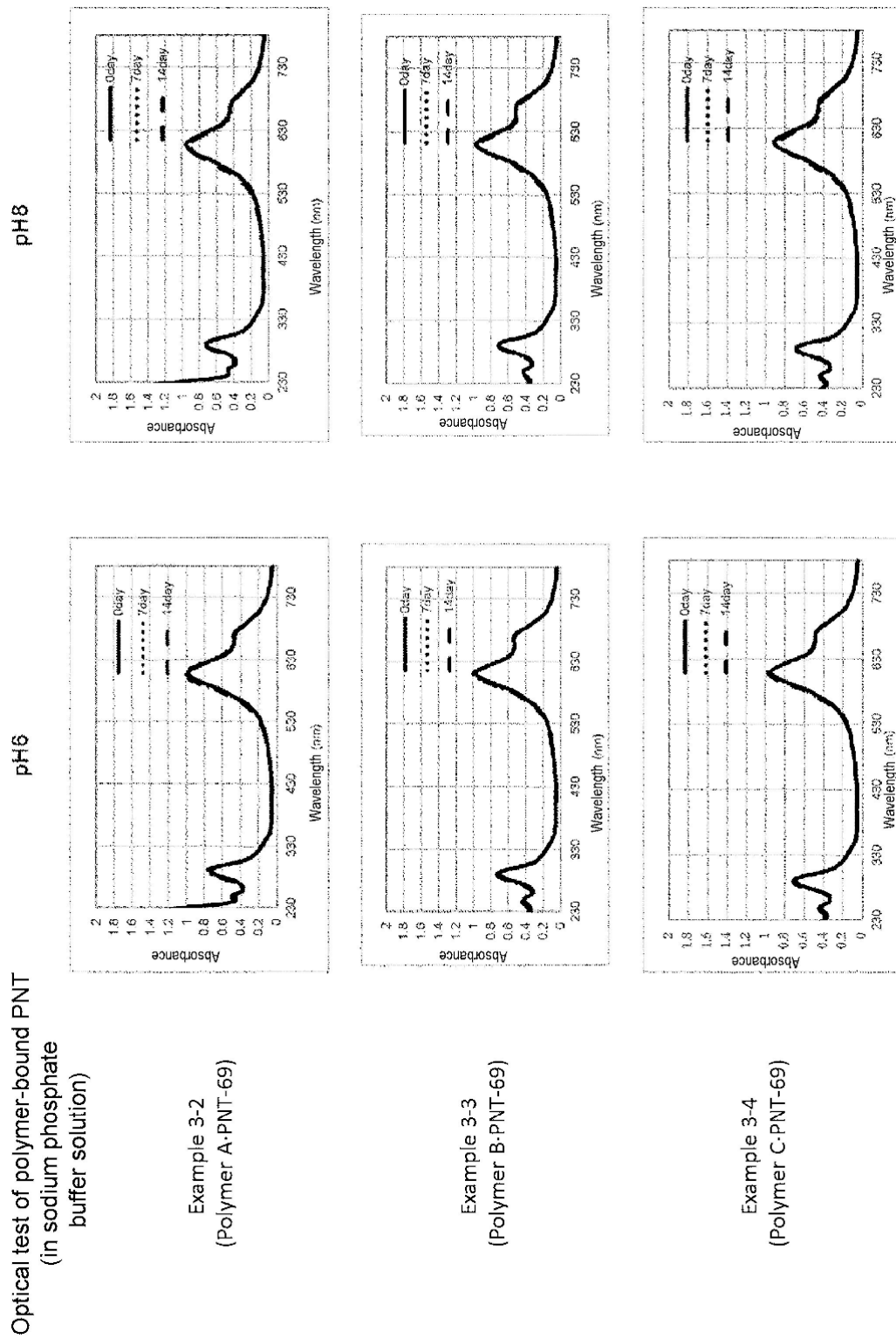


Polymer C



Molar ratio 21.2 : 78.8

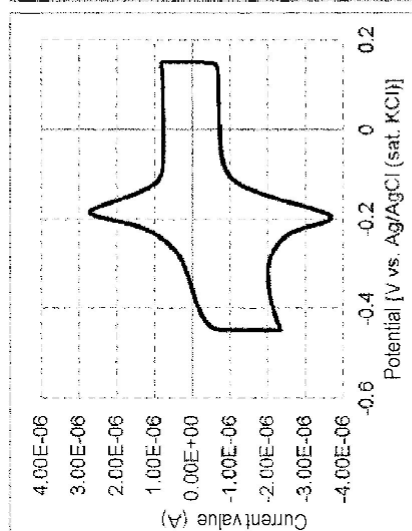
[Figure 15]



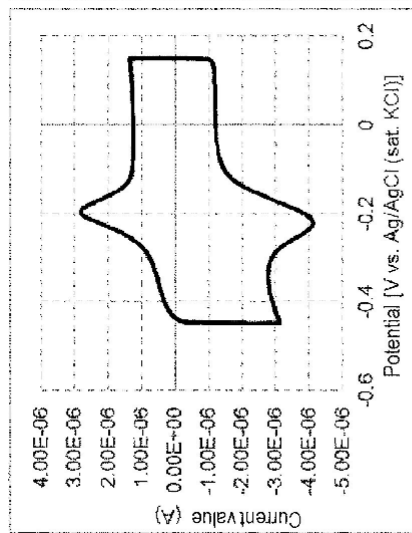
[Figure 16]

## Electrochemical response test of polymer-bound PNT

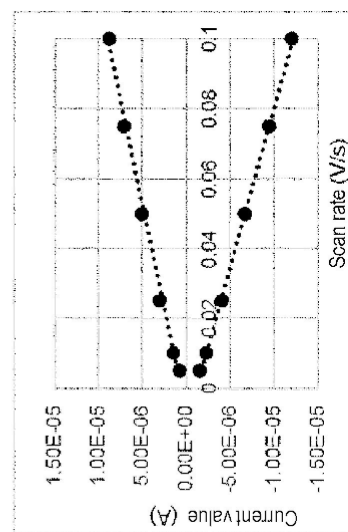
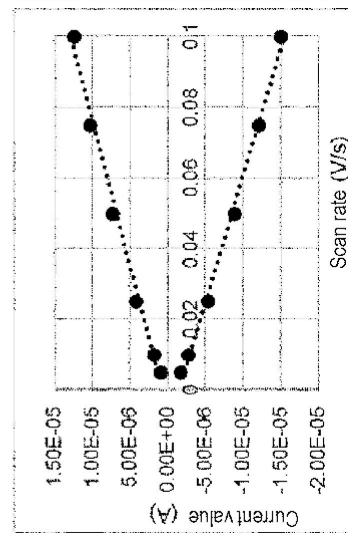
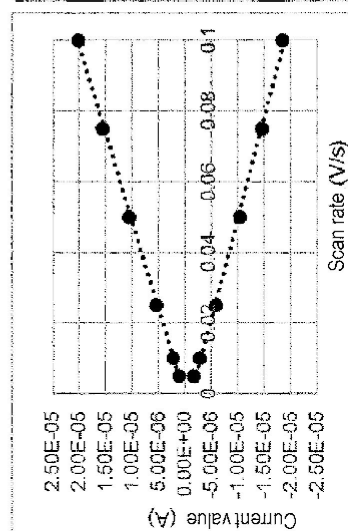
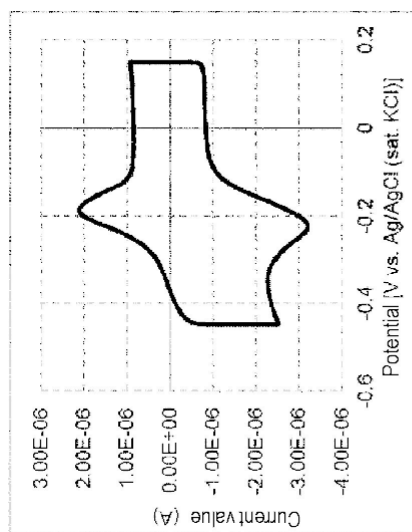
Example 3-2 (Polymer A:PNT-69)



Example 3-3 (Polymer B:PNT-69)



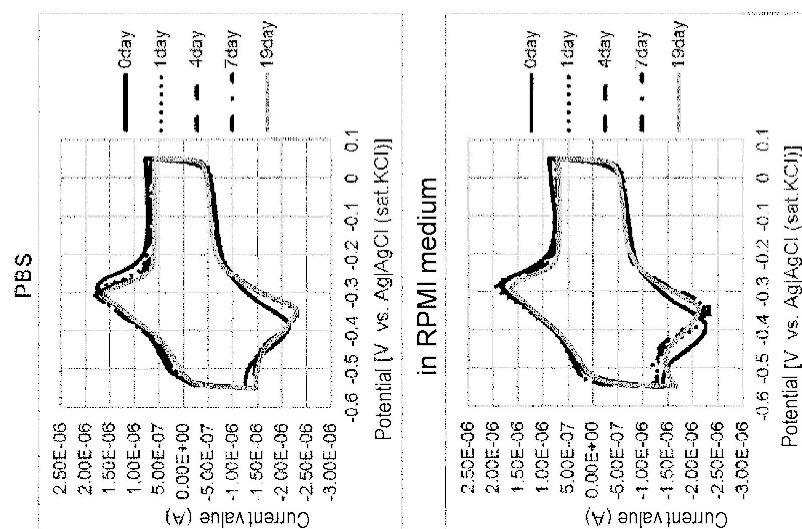
Example 3-4 (Polymer C:PNT-69)



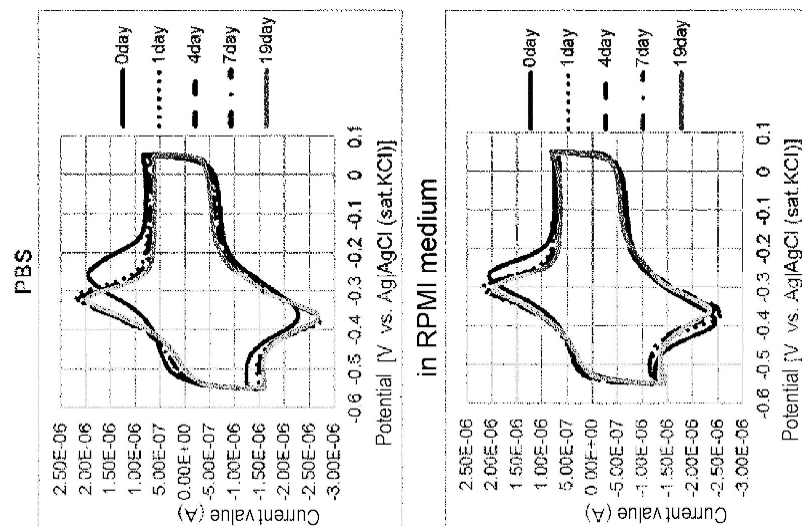
[Figure 17]

## Electrochemical response and durability test of polymer-bound PNT

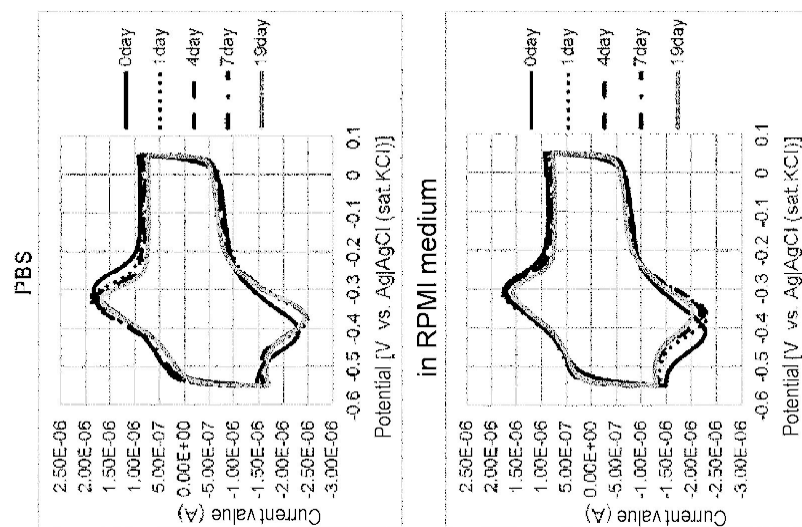
Example 3-2 (Polymer A:PNT-69)



Example 3-3 (Polymer B:PNT-69)

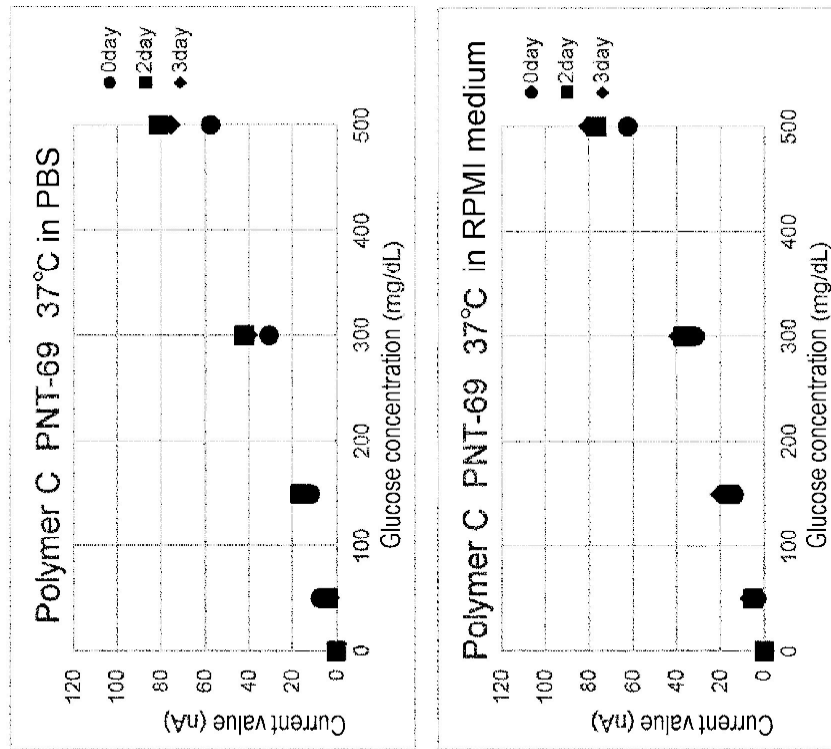


Example 3-4 (Polymer C:PNT-69)



[Figure 18]

Example 3-4 (Polymer C-PNT-69)



Example 3-3 (Polymer B-PNT-69)

