

LAMPIRAN

1

PEROLEHAN DATA PENGUJIAN TES DIFUSI

Lampiran 1.1. Pengambilan data tes difusi untuk mencari nilai *water flux* (Pengujian ke-1)

| No. | Media Gelatinasi | Syringe Pump | | | Waktu Pengujian | Hasil Pengujian Larutan Dialisat | | | | | | |
|-----|------------------|---------------------|---------|--------------------|-----------------|------------------------------------|-------------------|---------|-----------|-------------------------------|-------------------|-----------|
| | | Volum Suntikan (mL) | | Flow Rate (mL/jam) | | Perubahan per satuan waktu (menit) | Konduktivitas | | | Volum (mL) | | |
| | | Sebelum | Sesudah | | | | Sebelum Pengujian | Sesudah | | Jumlah molekul yang terdifusi | Sesudah Pengujian | |
| | | | | | | | | NaCl | Terdifusi | | NaCl | Terdifusi |
| 1 | NMP 0 % | 50 | 35 | 20 | 30 | 380 | 360 | - | - | 12 | 3 | |
| 2 | | 35 | 20 | 20 | 60 | 380 | 360 | 360 | 20 | 22 | 4 | |
| 3 | | 17 | 2 | 20 | 90 | 380 | 360 | 360 | 20 | 34 | 8 | |
| 1 | NMP 1% | 50 | 36 | 20 | 30 | 380 | 360 | - | - | 10 | 3 | |
| 2 | | 36 | 30 | 20 | 60 | 380 | 360 | 360 | 20 | 15 | 6 | |
| 3 | | 30 | 28 | 20 | 90 | 380 | 360 | 360 | 20 | 21 | 11 | |
| 1 | NMP 3 % | 50 | 40 | 20 | 30 | 380 | 360 | - | - | 8 | 4 | |
| 2 | | 40 | 35 | 20 | 60 | 380 | 360 | 360 | 20 | 13 | 7 | |
| 3 | | 35 | 24 | 20 | 90 | 380 | 360 | 360 | 20 | 19 | 12 | |
| 1 | NMP 5 % | 57 | 46 | 20 | 30 | 380 | 360 | - | - | 8 | 7 | |
| 2 | | 46 | 36 | 20 | 60 | 380 | 360 | 360 | 20 | 12 | 10 | |
| 3 | | 36 | 26 | 20 | 90 | 380 | 360 | 360 | 20 | 17 | 14 | |
| 1 | nmp 7 % | 57 | 40 | 20 | 30 | 380 | 360 | - | - | 10 | 10 | |
| 2 | | 40 | 38 | 20 | 60 | 380 | 360 | 360 | 20 | 12 | 11 | |
| 3 | | 38 | 31 | 20 | 90 | 380 | 360 | 360 | 20 | 14 | 17 | |

Lampiran 1.2. Pengambilan data tes difusi untuk mencari nilai *water flux* (Pengujian ke-2)

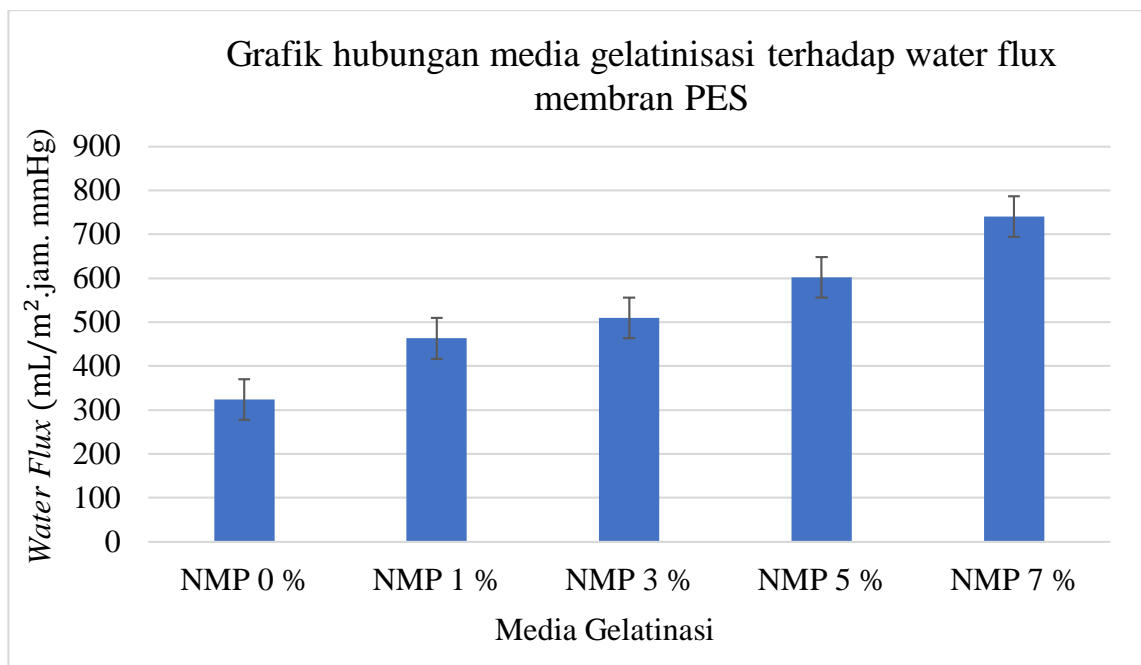
| No. | Media Gelatinasi | Syringe Pump | | | Waktu Pengujian | Hasil Pengujian Larutan Dialisat | | | | | | |
|-----|------------------|---------------------|---------|--------------------|-----------------|------------------------------------|-------------------|---------|-----------|-------------------------------|-------------------|-----------|
| | | Volum Suntikan (mL) | | Flow Rate (mL/jam) | | Perubahan per satuan waktu (menit) | Konduktivitas | | | Volum (mL) | | |
| | | Sebelum | Sesudah | | | | Sebelum Pengujian | Sesudah | | Jumlah molekul yang terdifusi | Sesudah Pengujian | |
| | | | | | | | | NaCl | Terdifusi | | NaCl | Terdifusi |
| 1 | NMP 0 % | 57 | 35 | 20 | 30 | 380 | 360 | - | | 10 | 2 | |
| 2 | | 35 | 18 | 20 | 60 | 380 | 360 | 360 | 20 | 22 | 3 | |
| 3 | | 18 | 3 | 20 | 90 | 380 | 360 | 360 | 20 | 33 | 7 | |
| 1 | NMP 1% | 57 | 49 | 20 | 30 | 380 | 360 | - | - | 8 | 3 | |
| 2 | | 49 | 37 | 20 | 60 | 380 | 350 | 350 | 30 | 14 | 9 | |
| 3 | | 37 | 28 | 20 | 90 | 380 | 350 | 350 | 30 | 20 | 10 | |
| 1 | NMP 3 % | 57 | 46 | 20 | 30 | 380 | 360 | - | 0 | 6 | 4 | |
| 2 | | 46 | 35 | 20 | 60 | 380 | 360 | 36 | 20 | 13 | 8 | |
| 3 | | 35 | 26 | 20 | 90 | 380 | 360 | 360 | 20 | 20 | 11 | |
| 1 | NMP 5 % | 57 | 46 | 20 | 30 | 380 | 360 | - | - | 8 | 5 | |
| 2 | | 46 | 36 | 20 | 60 | 380 | 360 | 360 | 20 | 12 | 9 | |
| 3 | | 35 | 26 | 20 | 90 | 380 | 360 | 360 | 20 | 16 | 13 | |
| 1 | nmp 7 % | 57 | 47,5 | 20 | 30 | 380 | 360 | 360 | 20 | 10 | 10 | |
| 2 | | 47,5 | 38 | 20 | 60 | 380 | 360 | 360 | 20 | 11 | 11 | |
| 3 | | 38 | 33 | 20 | 90 | 380 | 360 | 360 | 20 | 13 | 16 | |

Lampiran 1.3. Pengambilan data tes difusi untuk mencari nilai *water flux* (Pengujian ke-3)

| No. | Media Gelatinasi | Syringe Pump | | | Waktu Pengujian | Hasil Pengujian Larutan Dialisat | | | | | | |
|-----|------------------|---------------------|---------|--------------------|-----------------|------------------------------------|-------------------|---------|-----------|-------------------------------|-------------------|-----------|
| | | Volum Suntikan (mL) | | Flow Rate (mL/jam) | | Perubahan per satuan waktu (menit) | Konduktivitas | | | Volum (mL) | | |
| | | Sebelum | Sesudah | | | | Sebelum Pengujian | Sesudah | | Jumlah molekul yang terdifusi | Sesudah Pengujian | |
| | | | | | | | | NaCl | Terdifusi | | NaCl | Terdifusi |
| 1 | NMP 0 % | 45 | 30 | 20 | 30 | 380 | 360 | - | | 10 | 2 | |
| 2 | | 30 | 10 | 20 | 60 | 380 | 360 | 360 | 20 | 23 | 3 | |
| 3 | | 10 | 3 | 20 | 90 | 380 | 360 | 360 | 20 | 32 | 6 | |
| 1 | NMP 1% | 45 | 40 | 20 | 30 | 380 | 360 | - | - | 8 | 3 | |
| 2 | | 40 | 37 | 20 | 60 | 380 | 350 | 350 | 30 | 14 | 9 | |
| 3 | | 37 | 25 | 20 | 90 | 380 | 350 | 350 | 30 | 19 | 9 | |
| 1 | NMP 3 % | 46 | 38 | 20 | 30 | 380 | 360 | - | 0 | 6 | 4 | |
| 2 | | 38 | 36 | 20 | 60 | 380 | 360 | 36 | 20 | 13 | 8 | |
| 3 | | 36 | 24 | 20 | 90 | 380 | 360 | 360 | 20 | 21 | 10 | |
| 1 | NMP 5 % | 46 | 38 | 20 | 30 | 380 | 360 | - | - | 8 | 5 | |
| 2 | | 38 | 36 | 20 | 60 | 380 | 360 | 360 | 20 | 12 | 9 | |
| 3 | | 36 | 26 | 20 | 90 | 380 | 360 | 360 | 20 | 15 | 12 | |
| 1 | nmp 7 % | 46 | 40 | 20 | 30 | 380 | 360 | 360 | 20 | 10 | 10 | |
| 2 | | 40 | 38 | 20 | 60 | 380 | 360 | 360 | 20 | 9 | 11 | |
| 3 | | 38 | 30 | 20 | 90 | 380 | 360 | 360 | 20 | 12 | 15 | |

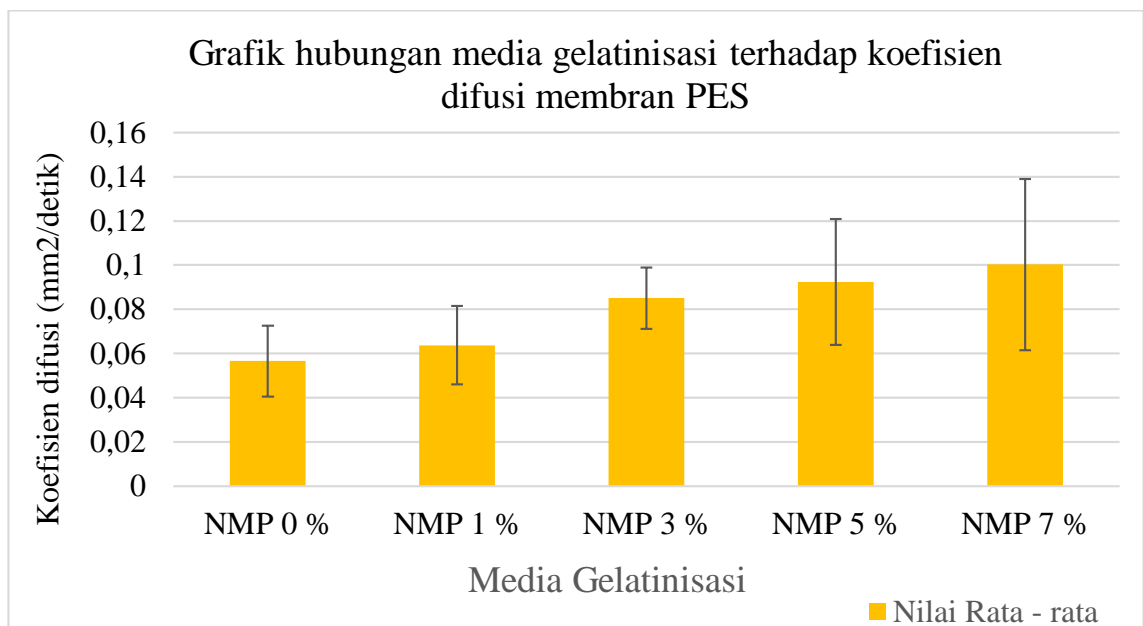
Lampiran 1.4. Hasil perolehan water flux (fluks air) dengan luas area difusi (A) 0,000192 m²; waktu pengujian 90 menit; dan tekanan 75 mmHg

| No. Pengujian | Media Gelatinasi | Hasil Pengujian Larutan NaCl | | Perhitungan <i>Water Flux</i> |
|---------------|------------------|---|----------|---------------------------------|
| | | Volume larutan NaCl yang terdifusi (mL) | | (WF) |
| | | NaCl | Terserap | (mL/m ² . jam. mmHg) |
| 1 | NMP 0 % | 34 | 8 | 370,4 |
| 2 | | 33 | 7 | 324,1 |
| 3 | | 32 | 6 | 277,8 |
| Rata-rata | | 33 | 7 | 324,1 |
| 1 | NMP 1 % | 21 | 11 | 509,3 |
| 2 | | 20 | 10 | 463,0 |
| 3 | | 19 | 9 | 416,7 |
| Rata - rata | | 20 | 10 | 463,0 |
| 1 | NMP 3 % | 19 | 12 | 555,6 |
| 2 | | 20 | 11 | 509,3 |
| 3 | | 21 | 10 | 463,0 |
| Rata - rata | | 20 | 11 | 509,3 |
| 1 | NMP 5 % | 17 | 14 | 648,1 |
| 2 | | 16 | 13 | 601,9 |
| 3 | | 15 | 12 | 555,6 |
| Rata - rata | | 16 | 13 | 601,9 |
| 1 | NMP 7 % | 14 | 17 | 787,0 |
| 2 | | 13 | 16 | 740,7 |
| 3 | | 12 | 15 | 694,4 |
| Rata - rata | | 13 | 16 | 740,7 |

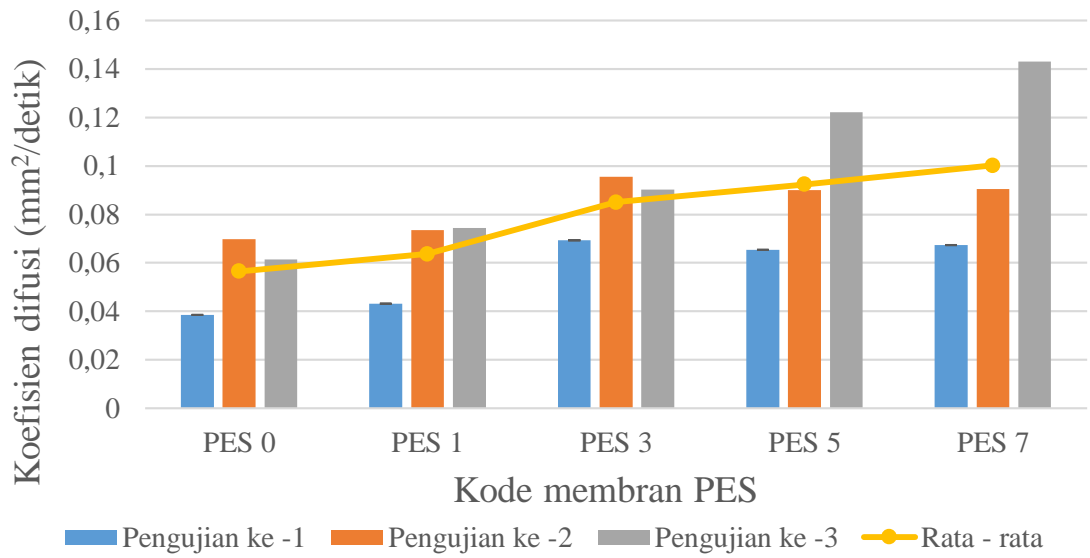


Lampiran 1.5. Hasil perolehan diffusion coeficient (koefisien difusi) dengan laju aliran 0,3 mL/menit; luas area difusi (A) 192 mm²; dan larutan NaCl sebagai dialisat

| No. Pengujian | Media Gelatinasi | Ketebalan | Koefisien Difusi |
|---------------|------------------|-------------------|----------------------------|
| | | H | μ |
| | | (μm) | (mm^2/s) |
| 1 | NMP 0 % | 105 | 0,038 |
| 2 | | | 0,069 |
| 3 | | | 0,061 |
| Rata-rata | | | 0,056 |
| 1 | NMP 1 % | 97 | 0,043 |
| 2 | | | 0,073 |
| 3 | | | 0,074 |
| Rata - rata | | | 0,063 |
| 1 | NMP 3 % | 93 | 0,069 |
| 2 | | | 0,095 |
| 3 | | | 0,09 |
| Rata - rata | | | 0,085 |
| 1 | NMP 5 % | 83 | 0,065 |
| 2 | | | 0,089 |
| 3 | | | 0,122 |
| Rata - rata | | | 0,092 |
| 1 | NMP 7 % | 80 | 0,067 |
| 2 | | | 0,09 |
| 3 | | | 0,143 |
| Rata - rata | | | 0,1 |



Grafik pengaruh media gelatinasi terhadap koefisien difusi pada beberapa pengujian



LAMPIRAN

2

SPESIFIKASI ALAT DAN BAHAN PENELITIAN

Lampiran 3.2. Proses fabrikasi membran PES