

(PERHITUNGAN)

Perhitungan Laju Alir Produk Reverse Osmosis

1. Pada P = 0.2 Mpa = 20 Bar

$$v = 500 \text{ ml} = 0,5 \text{ Liter}$$

$$t = 230 \text{ s} = 0,0638 \text{ Jam}$$

$$Q = \frac{V}{t} = \frac{0,5 \text{ liter}}{0,0638 \text{ jam}} = 7,837 \frac{\text{liter}}{\text{jam}}$$

2. Pada P = 0.3 Mpa = 43,5114 Psi

$$v = 500 \text{ ml} = 0,5 \text{ Liter}$$

$$t = 162 \text{ s} = 0,045 \text{ Jam}$$

$$Q = \frac{V}{t} = \frac{0,5 \text{ liter}}{0,045 \text{ jam}} = 11,11 \frac{\text{liter}}{\text{jam}}$$

3. Pada P = 0.4 Mpa = 58,5114 Psi

$$V = 500 \text{ ml} = 0,5 \text{ Liter}$$

$$t = 113,5 \text{ s} = 0,0315 \text{ Jam}$$

$$Q = \frac{V}{t} = \frac{0,5 \text{ liter}}{0,0315 \text{ jam}} = 15,873 \frac{\text{liter}}{\text{jam}}$$

4. Pada P = 0.5 Mpa = 72,519 Psi

$$v = 500 \text{ ml} = 0,5 \text{ Liter}$$

$$t = 95 \text{ s} = 0,0263 \text{ Jam}$$

$$Q = \frac{V}{t} = \frac{0,5 \text{ liter}}{0,0263 \text{ jam}} = 19,011 \frac{\text{liter}}{\text{jam}}$$

Perhitungan Laju Alir Rejeksi Reverse Osmosis

5. Pada $P = 0.2 \text{ Mpa} = 20 \text{ Bar}$

$$v = 500 \text{ ml} = 0,5 \text{ Liter}$$

$$t = 92 \text{ s} = 0,0256 \text{ Jam}$$

$$Q = \frac{V}{t} = \frac{0,5 \text{ liter}}{0,0256 \text{ jam}} = 19,531 \frac{\text{liter}}{\text{jam}}$$

6. Pada $P = 0.3 \text{ Mpa} = 30 \text{ Bar}$

$$v = 500 \text{ ml} = 0,5 \text{ Liter}$$

$$t = 74 \text{ s} = 0,0205 \text{ Jam}$$

$$Q = \frac{V}{t} = \frac{0,5 \text{ liter}}{0,0205 \text{ jam}} = 24,390 \frac{\text{liter}}{\text{jam}}$$

7. Pada $P = 0.4 \text{ Mpa} = 40 \text{ Bar}$

$$V = 500 \text{ ml} = 0,5 \text{ Liter}$$

$$t = 64 \text{ s} = 0,0177 \text{ Jam}$$

$$Q = \frac{V}{t} = \frac{0,5 \text{ liter}}{0,0177 \text{ jam}} = 28,248 \frac{\text{liter}}{\text{jam}}$$

8. Pada $P = 0.5 \text{ Mpa} = 50 \text{ Bar}$

$$v = 500 \text{ ml} = 0,5 \text{ Liter}$$

$$t = 58 \text{ s} = 0,0161 \text{ Jam}$$

$$Q = \frac{V}{t} = \frac{0,5 \text{ liter}}{0,0161 \text{ jam}} = 31,056 \frac{\text{liter}}{\text{jam}}$$

PerhitunganFluksPermeatReverse Osmosis

9. Pada P = 0.2 Mpa = 20 Bar

$$v = 500 \text{ ml} = 0,5 \text{ Liter}$$

$$t = 230 \text{ s} = 0,0638 \text{ Jam}$$

$$A = 3,3 \text{ m}^2$$

$$Q = \frac{V}{A \cdot t} = \frac{0,5 \text{ liter}}{3,3 \text{ m}^2 \cdot 0,0638 \text{ jam}} = 2,37 \frac{\text{liter}}{\text{m}^2 \cdot \text{jam}}$$

10. Pada P = 0.3 Mpa = 30 Bar

$$v = 500 \text{ ml} = 0,5 \text{ Liter}$$

$$t = 162 \text{ s} = 0,045 \text{ Jam}$$

$$A = 3,3 \text{ m}^2$$

$$Q = \frac{V}{A \cdot t} = \frac{0,5 \text{ liter}}{3,3 \text{ m}^2 \cdot 0,045 \text{ jam}} = 3,37 \frac{\text{liter}}{\text{m}^2 \cdot \text{jam}}$$

11. Pada P = 0.4 Mpa = 40 Bar

$$V = 500 \text{ ml} = 0,5 \text{ Liter}$$

$$t = 113,5 \text{ s} = 0,0315 \text{ Jam}$$

$$A = 3,3 \text{ m}^2$$

$$Q = \frac{V}{A \cdot t} = \frac{0,5 \text{ liter}}{3,3 \text{ m}^2 \cdot 0,0315 \text{ jam}} = 4,81 \frac{\text{liter}}{\text{m}^2 \cdot \text{jam}}$$

12. Pada P = 0.5 Mpa = 50 Bar

$$v = 500 \text{ ml} = 0,5 \text{ Liter}$$

$$t = 95 \text{ s} = 0,0263 \text{ Jam}$$

$$A = 3,3 \text{ m}^2$$

$$Q = \frac{V}{A \cdot t} = \frac{0,5 \text{ liter}}{3,3 \text{ m}^2 \cdot 0,0263 \text{ jam}} = 5,76 \frac{\text{liter}}{\text{m}^2 \cdot \text{jam}}$$

Perhitungan% RejeksiReverse Osmosis

13. Pada P = 0.2 Mpa = 20 Bar

$$C_p = 0,28 \text{ ppm}$$

$$C_f = 8,15 \text{ ppm}$$

$$\%R = 1 - \frac{C_p}{C_f} \times 100 \% = \left(1 - \frac{0,28}{8,15}\right) \times 100 \% = 96,6 \%$$

14. Pada P = 0.3 Mpa = 30 Bar

$$C_p = 0,24 \text{ ppm}$$

$$C_f = 8,15 \text{ ppm}$$

$$\%R = 1 - \frac{C_p}{C_f} \times 100 \% = \left(1 - \frac{0,24}{8,15}\right) \times 100 \% = 97,1 \%$$

15. Pada P = 0.4 Mpa = 40 Bar

$$C_p = 0,22 \text{ ppm}$$

$$C_f = 8,15 \text{ ppm}$$

$$\%R = 1 - \frac{C_p}{C_f} \times 100 \% = \left(1 - \frac{0,22}{8,15}\right) \times 100 \% = 97,4 \%$$

16. Pada P = 0.5 Mpa = 50 Bar

$$C_p = 0,21 \text{ ppm}$$

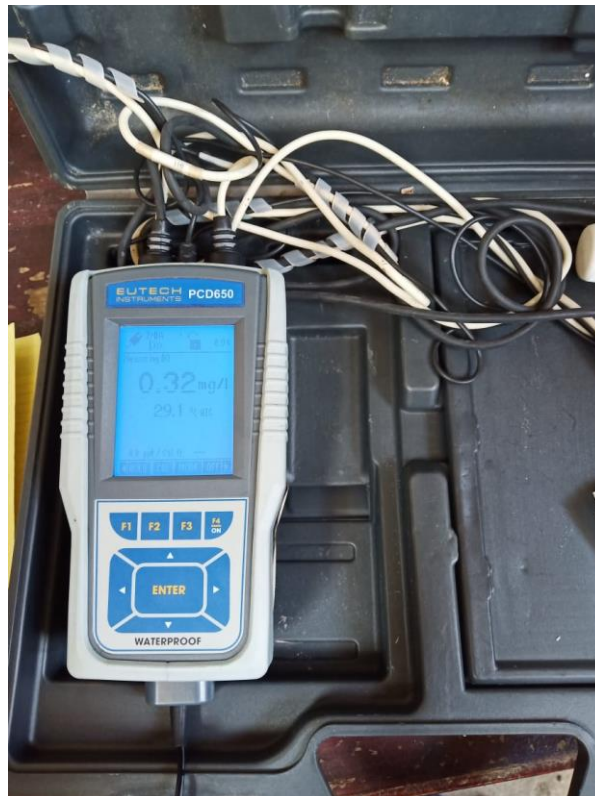
$$C_f = 8,15 \text{ ppm}$$

$$\%R = 1 - \frac{C_p}{C_f} \times 100 \% = \left(1 - \frac{0,21}{8,15}\right) \times 100 \% = 97,5 \%$$

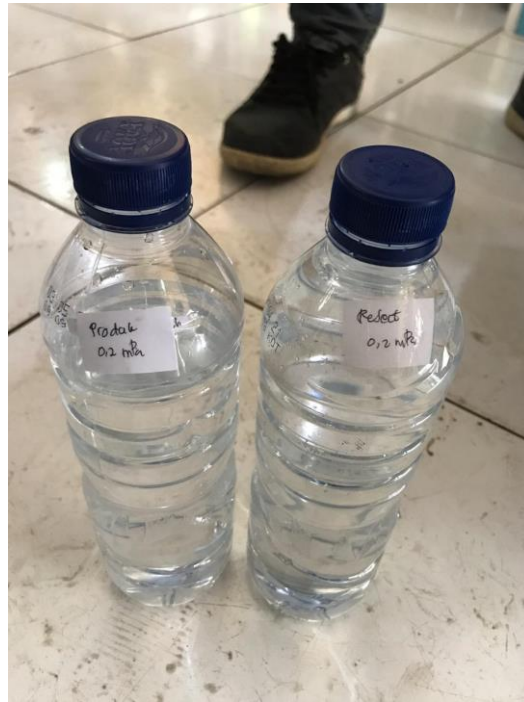
(GAMBAR)



Rangkaian Alat Pembuatan Aquadest



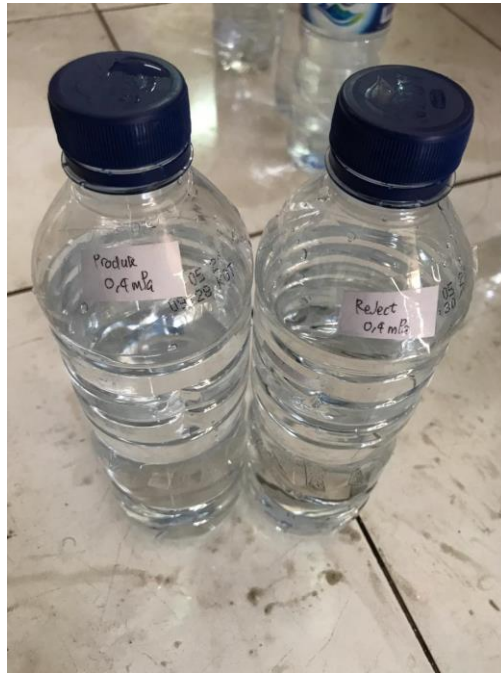
Alat Analisa Air Waterproof Instrument



Hasil Analisa Sampel Produk dan Rejekt pada Tekanan 20 Bar



Hasil Analisa Sampel Produk dan Rejekt pada Tekanan 30 Bar



Hasil Analisa Sampel Produk dan Reject sipada Tekanan 40 Bar



Hasil Analisa Sampel Produk dan Reject sipada Tekanan 50 Bar

