LAMPIRAN B
PERHITUNGAN

1. Penetapan Kadar Air Simplisia

- Bobot cawan kosong = 23,471 gr
- Bobot cawan kosong = 23,471 + 2 gr = 25,471 gr
- Bobot cawan sesudah = 23,047
- Kadar air simplisia = $\frac{25,471-23,047}{25,471} \times 100\ \%$

  = 9,51 %

2. Penetapan Rendemen

- Bobot simplisia = 24,30 gr
- Bobot cawan kosong = 28,704 gr
- Bobot cawan + ekstrak = 35,131 gr
- Berat ekstrak daun pepaya = $35,131 - 28,704 = 6,427$
- % rendemen = $\frac{6,427}{24,30} \times 100\ \%$

  $= 26,451\ \%$

3. Formulasi Gel *Hand Sanitizer*

Berdasarkan Formula yang dimodifikasi dari standar (Pustaka: Cosmetic and Toiletry Formulation 2nd ed-vol 8/p.273).

a. Ekstrak daun pepaya = 1 % x 50 gr = 0,5 gr

Volume ekstrak daun pepaya = 0,5 gr x 0,9732 $\frac{gr}{ml}$ = 0,5 ml

b. *Hydroxypropyl Metyhl Celullose*

1) F1 = 1,5 % x 50 gr = 0,75 gr
2) F2 = 2,0 % x 50 gr = 1,00 gr
3) F3 = 2,5 % x 50 gr = 1,25 gr
4) F4 = 3,0 % x 50 gr = 1,50 gr
5) F5 = 3,5 % x 50 gr = 1,75 gr

c. Gliserin = 5 % x 50 gr = 2,5 gr

Volume gliserin = 2,5 gr x 1,26 $\frac{gr}{ml}$ = 3,15 ml

d. Propilen glikol = 0,5 % x 50 gr = 0,25 gr

Volume Propilen glikol = 0,25 gr x 1,036 $\frac{gr}{cm^3}$ = 0,3 ml

e. *Methyl Paraben* = 0,2 % x 50 gr = 0,1 gr

f. Alkohol 60 % = 60 % x 50 gr = 30 gr

Volume alkohol 60 % = 30 gr x 0,7893 $\frac{gr}{cm^3}$ = 23,679 ml

g. Aquadest = 50 gr – (0,5+2,5+0,25+30) gr = 16,5 gr

Volume aquadest = 16,5 gr x 0,9797 $\frac{gr}{ml}$ = 16,165 ml

4. Densitas

a. Ekstrak Daun Pepaya

– Piknometer kosong = 61,4 gr

– Piknometer + aquadest (20^{o}C) = 162,3 gr

– Piknometer + ekstrak daun pepaya = 159,6 gr

– Massa aquadest = (berat piknometer + aquadest) – (piknometer kosong)
= (162,3 – 61,4) gr
= 100,9 gr

– $\text{volume aquadest} = \frac{\text{massa aquadest}}{\rho \text{ air aquadest}} = \frac{100{,}9 \text{ gr}}{1 \frac{\text{gr}}{\text{ml}}} = 100{,}9 \text{ cm}^3$

– $\text{volume aquadest} = \text{volume piknometer}$

– $\text{Jadi, } \rho \text{ ekstrak daun pepaya} = \frac{\text{m ekstrak daun pepaya}}{\text{volume aquadest}} = \frac{(159{,}6-61{,}4) \text{ gr}}{100{,}9 \text{ cm}^3}$

$$= 0{,}973 \frac{\text{gr}}{\text{cm}^3}$$

b. Gel *Hand Sanitizer*

– Piknometer kosong = 35,84 gr

– Piknometer + aquadest (20^{o}C) = 61,12 gr

– Massa aquadest = (berat piknometer + aquadest) – (piknometer kosong)

= (61,12 – 35,84) gr

= 25,28 gr

– $\text{volume aquadest} = \frac{\text{massa aquadest}}{\rho \text{ air aquadest}} = \frac{25{,}28 \text{ gr}}{1 \frac{\text{gr}}{\text{cm}^3}} = 25{,}28 \text{ cm}^3$

– volume aquadest = volume piknometer

a. F1

Piknometer + F1 (20^{0}C) = 60,06 gr

Massa F1 = (Piknometer + F1 (20^{0}C)) – (Piknometer kosong)

Massa F1 = (60,06-35,84) gr = 24,22 gr

Jadi, ρ F1= $\frac{\text{massa F1}}{\text{volume pikno}} = \frac{24{,}22 \text{ gr}}{25{,}28 \text{ ml}}$ = 0,958 gr/cm^3

Dengan cara yang sama, maka hasil perhitungan densitas gel dapat ditabulasikan seperti pada Tabel 17. berikut ini.

Tabel 17. Hasil Perhitungan densitas gel

Formula	ρ Gel (gr/ml)
F2	0,968
F3	0,977
F4	0,978
F5	0,981

5. Viskositas Gel *Hand Sanitizer*

μ = K (ρA-ρB)

viskositas kinematik = $\frac{\mu}{\rho B}$

Dimana :

μ = viskositas (cP)

K = konstanta bola (3,3)

ρA = Densitas bola (8,02 gr/ml)

ρB = densitas hand sanitizer (gr/ml)

t = waktu (s)

a. F1

Waktu bola (s)	7,94	7,79	7,42	7,56
Waktu rata2 (s)			7,6775	

μ = K (ρA-ρB) t

μ = 3,3 x (8,02 – 0,9580) $\frac{gr}{ml}$ x 7, 6775 s = 178,9210 cP

viskositas kinematik = $\frac{\mu}{\rho B}$ x faktor pengenceran = $\frac{178,9210}{0,9580\ gr/ml}$ x 5

viskositas kinematik = 186,7651 x 5 = 933,8255

Dengan cara yang sama, maka hasil perhitungan viskositas gel dapat ditabulasikan seperti pada Tabel 18. berikut ini.

Tabel 18. Hasil Perhitungan viskositas gel

Formula	Waktu rata-rata (s)	μ (cP)	μ kinematik
F2	14,442	336,067	1734,62
F3	20,95	487,122	2491,93
F4	26,51	616,002	3147,36
F5	36,02	836,697	4264,51