

## Perhitungan T1 pada *Setting* Suhu 35°C

➤ Rata-rata

- Rata-rata T1 pada modul

$$\begin{aligned}\text{Rata-rata} &= \frac{\sum x}{n} \\ &= \frac{34.225+34.325+34.425+34.425+34.475}{6} \\ &= 34.3917\end{aligned}$$

- Rata-rata T1 pada INCU II

$$\begin{aligned}\text{Rata-rata} &= \frac{\sum x}{n} \\ &= \frac{34.19+34.23+34.28+34.33+34.36+34.37}{6} \\ &= 34.2933\end{aligned}$$

➤ Standar Deviasi

$$\begin{aligned}\text{SD} &= \sqrt{\frac{\sum(x_1-x)^2}{(n-1)}} \\ &= \sqrt{\frac{(34.225-34.3917)^2+(34.325-34.3917)^2}{6-1}} \\ &\quad + \frac{(34.425-34.3917)^2+(34.425-34.3917)^2}{6-1} \\ &\quad + \frac{(34.475-34.3917)^2+(34.475-34.3917)^2}{6-1} \\ &= 0.094032977\end{aligned}$$

➤ UA (Ketidakpastian)

$$\text{UA} = \frac{SD}{\sqrt{n}}$$

$$= \frac{0.094032977}{\sqrt{6}}$$

$$= 0.038388802$$

➤ Error

$$\text{Error\%} = \left( \frac{\text{Rerata INCU II} - \text{Rerata Modul}}{\text{Rerata INCU II}} \right) \times 100\%$$

$$= \left( \frac{34.2933 - 34.3917}{34.2933} \right) \times 100\%$$

$$= -0.2867418 \%$$

### Perhitungan T2 pada *Setting* Suhu 35°C

➤ Rata-rata

- Rata-rata T2 pada modul

$$\text{Rata-rata} = \frac{\sum x}{n}$$

$$= \frac{34.225 + 34.3 + 34.275 + 34.35 + 34.325 + 34.45}{6}$$

$$= 34.3208$$

- Rata-rata T2 pada INCU II

$$\text{Rata-rata} = \frac{\sum x}{n}$$

$$= \frac{33.99 + 34.05 + 34.08 + 34.1 + 34.11 + 34.13}{6}$$

$$= 34.0767$$

➤ Standar Deviasi

$$\text{SD} = \sqrt{\frac{\sum (x_1 - x)^2}{(n-1)}}$$

$$= \sqrt{\frac{(34.225-34.3208)^2+(34.3-34.3208)^2+(34.275-34.3208)^2+(34.35-34.3208)^2+(34.325-34.3208)^2+(34.45-34.3208)^2}{(6-1)}}$$

$$= 0.139825517$$

➤ UA (Ketidakpastian)

$$UA = \frac{SD}{\sqrt{n}}$$

$$= \frac{0.139825517}{\sqrt{6}}$$

$$= 0.057083528$$

➤ Error

$$\text{Error\%} = \left( \frac{\text{Rerata INCU II} - \text{Rerata Modul}}{\text{Rerata INCU II}} \right) \times 100\%$$

$$= \left( \frac{34.0767 - 34.3208}{34.0767} \right) \times 100\%$$

$$= -0.7165216 \%$$

### Perhitungan T3 pada *Setting* Suhu 35°C

➤ Rata-rata

- Rata-rata T3 pada modul

$$\text{Rata-rata} = \frac{\sum x}{n}$$

$$= \frac{34.075+34.25+34.4+34.25+34.25+34.425}{6}$$

$$= 34.275$$

- Rata-rata T3 pada INCU II

$$\begin{aligned} \text{Rata-rata} &= \frac{\sum x}{n} \\ &= \frac{34.2+34.24+34.29+34.33+34.35+34.36}{6} \\ &= 34.295 \end{aligned}$$

➤ Standar Deviasi

$$\begin{aligned} \text{SD} &= \sqrt{\frac{\sum(x_1-x)^2}{(n-1)}} \\ &= \sqrt{\frac{(34.075-34.275)^2+(34.25-34.275)^2}{(6-1)} \\ &\quad + (34.4-34.275)^2+(34.25-34.275)^2 \\ &\quad + (34.25-34.275)^2+(34.425-34.275)^2} \\ &= 0.09212415 \end{aligned}$$

➤ UA (Ketidakpastian)

$$\begin{aligned} \text{UA} &= \frac{SD}{\sqrt{n}} \\ &= \frac{0.09212415}{\sqrt{6}} \\ &= 0.038388802 \end{aligned}$$

➤ Error

$$\begin{aligned} \text{Error\%} &= \left( \frac{\text{Rerata INCU II} - \text{Rerata Modul}}{\text{Rerata INCU II}} \right) \times 100\% \\ &= \left( \frac{34.295 - 34.275}{34.2953} \right) \times 100\% \\ &= 0.0583175 \% \end{aligned}$$

**Perhitungan T4 pada Setting Suhu 35°C**

➤ Rata-rata

- Rata-rata T4 pada modul

$$\begin{aligned}\text{Rata-rata} &= \frac{\sum x}{n} \\ &= \frac{34.825+34.9+34.875+34.925+34.8}{+34.85} \\ &= \frac{\quad\quad\quad}{6} \\ &= 34.8625\end{aligned}$$

- Rata-rata T4 pada INCU II

$$\begin{aligned}\text{Rata-rata} &= \frac{\sum x}{n} \\ &= \frac{33.89+33.96+33.97+33.98+34.02+34.02}{6} \\ &= 33.9733\end{aligned}$$

➤ Standar Deviasi

$$\begin{aligned}\text{SD} &= \sqrt{\frac{\sum(x_1-x)^2}{(n-1)}} \\ &= \sqrt{\frac{(34.825-34.8625)^2+(34.9-34.8625)^2}{+ (34.875-34.8625)^2+(34.925-34.8625)^2} \\ &\quad + (34.8-34.8625)^2+(34.85-34.8625)^2}{(6-1)}} \\ &= 0.463390861\end{aligned}$$

➤ UA (Ketidakpastian)

$$\text{UA} = \frac{SD}{\sqrt{n}}$$

$$= \frac{0.463390861}{\sqrt{6}}$$

$$= 0.038388802$$

➤ Error

$$\text{Error\%} = \left( \frac{\text{Rerata INCU II} - \text{Rerata Modul}}{\text{Rerata INCU II}} \right) \times 100\%$$

$$= \left( \frac{33.9733 - 34.8625}{33.9733} \right) \times 100\%$$

$$= -2.6172488 \%$$

### Perhitungan T4 pada *Setting* Suhu 35°C

➤ Rata-rata

- Rata-rata T4 pada modul

$$\text{Rata-rata} = \frac{\sum x}{n}$$

$$= \frac{34.825 + 34.9 + 34.875 + 34.925 + 34.8 + 34.85}{6}$$

$$= 34.8625$$

- Rata-rata T4 pada INCU II

$$\text{Rata-rata} = \frac{\sum x}{n}$$

$$= \frac{33.89 + 33.96 + 33.97 + 33.98 + 34.02 + 34.02}{6}$$

$$= 33.9733$$

➤ Standar Deviasi

$$\text{SD} = \sqrt{\frac{\sum (x_1 - x)^2}{(n-1)}}$$

$$= \sqrt{\frac{(34.825-34.8625)^2+(34.9-34.8625)^2+(34.875-34.8625)^2+(34.925-34.8625)^2+(34.8-34.8625)^2+(34.85-34.8625)^2}{(6-1)}} \\ = 0.463390861$$

➤ UA (Ketidakpastian)

$$UA = \frac{SD}{\sqrt{n}} \\ = \frac{0.463390861}{\sqrt{6}} \\ = 0.038388802$$

➤ Error

$$\text{Error\%} = \left( \frac{\text{Rerata INCU II} - \text{Rerata Modul}}{\text{Rerata INCU II}} \right) \times 100\% \\ = \left( \frac{33.9733 - 34.8625}{33.9733} \right) \times 100\% \\ = -2.6172488 \%$$

### Perhitungan T5 pada Setting Suhu 35°C

➤ Rata-rata

- Rata-rata T5 pada modul

$$\text{Rata-rata} = \frac{\sum x}{n} \\ = \frac{35.05+35.075+35.15+35.2+35.15+35.225}{6} \\ = 35.1417$$

- Rata-rata T5 pada INCU II

$$\begin{aligned} \text{Rata-rata} &= \frac{\sum x}{n} \\ &= \frac{35.01+35.06+35.11+35.15+35.18+35.22}{6} \\ &= 35.1217 \end{aligned}$$

➤ Standar Deviasi

$$\begin{aligned} \text{SD} &= \sqrt{\frac{\sum(x_1-x)^2}{(n-1)}} \\ &= \sqrt{\frac{(35.05-35.1417)^2+(35.075-35.1417)^2 \\ &\quad +(35.15-35.1417)^2+(35.2-35.1417)^2 \\ &\quad +(35.15-35.1417)^2+(35.225-35.1417)^2}{(6-1)}} \\ &= 0.067644274 \end{aligned}$$

➤ UA (Ketidakpastian)

$$\begin{aligned} \text{UA} &= \frac{SD}{\sqrt{n}} \\ &= \frac{0.067644274}{\sqrt{6}} \\ &= 0.027615659 \end{aligned}$$

➤ Error

$$\begin{aligned} \text{Error\%} &= \left( \frac{\text{Rerata INCU II} - \text{Rerata Modul}}{\text{Rerata INCU II}} \right) \times 100\% \\ &= \left( \frac{35.1217 - 35.1417}{35.1217} \right) \times 100\% \\ &= -0.0569449 \% \end{aligned}$$

**Perhitungan TM pada *Setting* Suhu 35°C**



➤ Rata-rata

- Rata-rata TM pada modul

$$\begin{aligned}\text{Rata-rata} &= \frac{\sum x}{n} \\ &= \frac{33.05+33.1+33+33.125+33.15}{6} \\ &= 33.0792\end{aligned}$$

- Rata-rata TM pada INCU II

$$\begin{aligned}\text{Rata-rata} &= \frac{\sum x}{n} \\ &= \frac{33.15+33.15+33.15+33.2+33.1+33.15}{6} \\ &= 33.15\end{aligned}$$

➤ Standar Deviasi

$$\begin{aligned}\text{SD} &= \sqrt{\frac{\sum(x_1-x)^2}{(n-1)}} \\ &= \sqrt{\frac{(35.05-33.0792)^2+(33.1-33.0792)^2}{(6-1)}} \\ &= 0.055325378\end{aligned}$$

➤ UA (Ketidakpastian)

$$\text{UA} = \frac{SD}{\sqrt{n}}$$

$$= \frac{0.055325378}{\sqrt{6}}$$

$$= 0.022586491$$

➤ Error

$$\text{Error\%} = \left( \frac{\text{Rerata INCU II} - \text{Rerata Modul}}{\text{Rerata INCU II}} \right) \times 100\%$$

$$= \left( \frac{33.15 - 33.0792}{33.15} \right) \times 100\%$$

$$= 0.2136752 \%$$

### Perhitungan T1 pada *Setting* Suhu 36°C

➤ Rata-rata

- Rata-rata T1 pada modul

$$\text{Rata-rata} = \frac{\sum x}{n}$$

$$= \frac{34.225 + 34.325 + 34.425 + 34.425 + 34.475 + 34.475}{6}$$

$$= 34.3917$$

- Rata-rata T1 pada INCU II

$$\text{Rata-rata} = \frac{\sum x}{n}$$

$$= \frac{34.19 + 34.23 + 34.28 + 34.33 + 34.36 + 34.37}{6}$$

$$= 34.2933$$

➤ Standar Deviasi

$$\text{SD} = \sqrt{\frac{\sum (x_1 - x)^2}{(n-1)}}$$

$$\begin{aligned}
&= \sqrt{\frac{(34.225-34.3917)^2+(34.325-34.3917)^2}{(6-1)} + \frac{(34.425-34.3917)^2+(34.425-34.3917)^2}{(6-1)} + \frac{(34.475-34.3917)^2+(34.475-34.3917)^2}{(6-1)}} \\
&= 0.094032977
\end{aligned}$$

➤ UA (Ketidakpastian)

$$\begin{aligned}
\text{UA} &= \frac{SD}{\sqrt{n}} \\
&= \frac{0.094032977}{\sqrt{6}} \\
&= 0.038388802
\end{aligned}$$

➤ Error

$$\begin{aligned}
\text{Error\%} &= \left( \frac{\text{Rerata INCU II} - \text{Rerata Modul}}{\text{Rerata INCU II}} \right) \times 100\% \\
&= \left( \frac{34.2933 - 34.3917}{34.2933} \right) \times 100\% \\
&= -0.2867418 \%
\end{aligned}$$