LAMPIRAN

A. Lampiran A

- Perhitungan mencari nilai rata-rata pada mesh 60 komposisi 80%:20% dan waktu pemasakan 1 jam.

$\bar{X} = \frac{\sum xi}{n}$

$= \frac{88+89+86}{3}$

$= 87{,}6°$

Mencari simpangan baku

$S = \sqrt{\frac{\sum(xi-\bar{X})^2}{n}}$

$S = \sqrt{\frac{\sum(88-\bar{87})^2+(89-87)^2+(86-87)^2}{3}}$

$= 1{,}5$

Pengaruh tegangan padat menggunakan cairan.

Diketahui :

Mean : 87,6 ± 1,5

$\theta = 1{,}5$

Jawab :

$Cos\ 1{,}5 = -1 + 2\sqrt{\frac{\gamma C}{\gamma L}}$

$2\sqrt{\frac{\gamma C}{\gamma L}} = 1 + \cos(1{,}5)$

$\sqrt{\frac{\gamma C}{\gamma L}} = \frac{1+\cos\theta}{2}$

$\sqrt{\frac{\gamma C}{\gamma L}} = \left(\frac{1+\cos(1{,}5)}{2}\right)^2 . 72{,}8$

$\gamma C = 87{,}6\ \pm 1{,}5\ mN\ m^{-1}$

- Perhitungan mencari nilai rata-rata pada mesh 60 komposisi 80%:20% dan waktu pemasakan 2 jam.

$\bar{X} = \frac{\sum xi}{n}$

$= \frac{90+91+92}{3}$

$= 91°$

Mencari simpangan baku

$$S = \sqrt{\frac{\sum(xi-\bar{X})^2}{n}}$$

$$S = \sqrt{\frac{\sum(90-\bar{91})^2+(91-91)^2+(92-91)^2}{3}}$$

$$= 1{,}6$$

Pengaruh tegangan padat menggunakan cairan.

Diketahui :

Mean : 91 ± 1

$\theta = 1{,}6$

Jawab :

$$Cos\ 1{,}6 = -1 + 2\sqrt{\frac{\gamma C}{\gamma L}}$$

$$2\sqrt{\frac{\gamma C}{\gamma L}} = 1 + \cos(1{,}6)$$

$$\sqrt{\frac{\gamma C}{\gamma L}} = \frac{1+\cos\theta}{2}$$

$$\sqrt{\frac{\gamma C}{\gamma L}} = \left(\frac{1+\cos(1{,}6)}{2}\right)^2 . 72{,}8$$

$$\gamma C = 91\ \pm 1\ mN\ m^{-1}$$

- Perhitungan mencari nilai rata-rata pada mesh 60 komposisi 80%:20% dan waktu pemasakan 3 jam.

$$\bar{X}\ = \frac{\sum xi}{n}$$

$$= \frac{93+92+91}{3}$$

$$= 92°$$

Mencari simpangan baku

$$S = \sqrt{\frac{\sum(xi-\bar{X})^2}{n}}$$

$$S = \sqrt{\frac{\sum(93-\bar{92})^2+(92-92)^2+(93-92)^2}{3}}$$

$$= 1$$

Pengaruh tegangan padat menggunakan cairan.

Diketahui :

Mean : 92 ± 1

$\theta = 1{,}6$

Jawab :

$$Cos\ 1{,}6 = -1 + 2\sqrt{\frac{\gamma C}{\gamma L}}$$

$$2\sqrt{\frac{\gamma C}{\gamma L}} = 1 + \cos(1{,}6)$$

$$\sqrt{\frac{\gamma C}{\gamma L}} = \frac{1+\cos\theta}{2}$$

$$\sqrt{\frac{\gamma C}{\gamma L}} = \left(\frac{1+\cos(1{,}6)}{2}\right)^2 . 72{,}8$$

$$\gamma C = 92\ \pm 1\ mN\ m^{-1}$$

- Perhitungan mencari nilai rata-rata pada mesh 40 komposisi 80%:20% dan waktu pemasakan 1 jam.

$$\bar{X}\ = \frac{\sum xi}{n}$$

$$= \frac{80+76+81}{3}$$

$$= 79°$$

Mencari simpangan baku

$$S = \sqrt{\frac{\sum(xi-\bar{X})^2}{n}}$$

$$S = \sqrt{\frac{\sum(80-\bar{79})^2+(76-79)^2+(81-79)^2}{3}}$$

$$= 2{,}6$$

Pengaruh tegangan padat menggunakan cairan.

Diketahui :

Mean : 79 ± 2,6

$\theta = 1{,}4$

Jawab :

$$Cos\ 1{,}4 = -1 + 2\sqrt{\frac{\gamma C}{\gamma L}}$$

$$2\sqrt{\frac{\gamma C}{\gamma L}} = 1 + \cos(1{,}4)$$

$$\sqrt{\frac{\gamma C}{\gamma L}} = \frac{1+\cos\theta}{2}$$

$$\sqrt{\frac{\gamma C}{\gamma L}} = \left(\frac{1+\cos(1{,}4)}{2}\right)^2 . 72{,}8$$

$$\gamma C = 79\ \pm 1{,}4\ mN\ m^{-1}$$

- Perhitungan mencari nilai rata-rata pada mesh 40 komposisi 80%:20% dan waktu pemasakan 2 jam.

$$\bar{X} = \frac{\sum xi}{n}$$
$$= \frac{82+81+84}{3}$$
$$= 82{,}3°$$

Mencari simpangan baku

$$S = \sqrt{\frac{\sum(xi-\bar{X})^2}{n}}$$
$$S = \sqrt{\frac{\sum(82-8\bar{2},3)^2+(81-82,3)^2+(84-82,3)^2}{3}}$$
$$= 1{,}5$$

Pengaruh tegangan padat menggunakan cairan.

Diketahui :

Mean : 82,3 ± 1,5

$\theta = 1{,}5$

Jawab :

$$Cos\ 1{,}5 = -1 + 2\sqrt{\frac{\gamma C}{\gamma L}}$$
$$2\sqrt{\frac{\gamma C}{\gamma L}} = 1 + \cos(1{,}5)$$
$$\sqrt{\frac{\gamma C}{\gamma L}} = \frac{1+\cos\theta}{2}$$
$$\sqrt{\frac{\gamma C}{\gamma L}} = \left(\frac{1+\cos(1{,}5)}{2}\right)^2 . 72{,}8$$
$$\gamma C = 82{,}3 \pm 1{,}5\ mN\ m^{-1}$$

- Perhitungan mencari nilai rata-rata pada mesh 40 komposisi 80%:20% dan waktu pemasakan 3 jam.

$$\bar{X} = \frac{\sum xi}{n}$$
$$= \frac{88+86+89}{3}$$
$$= 86°$$

Mencari simpangan baku

$$S = \sqrt{\frac{\sum(xi-\bar{X})^2}{n}}$$
$$S = \sqrt{\frac{\sum(88-\bar{8}6)^2+(86-86)^2+(84-86)^2}{3}}$$
$$= 2$$

Pengaruh tegangan padat menggunakan cairan.

Diketahui :

Mean : 86 ± 2

$\theta = 1{,}4$

Jawab :

$$Cos\ 1{,}4 = -1 + 2\sqrt{\frac{\gamma C}{\gamma L}}$$

$$2\sqrt{\frac{\gamma C}{\gamma L}} = 1 + \cos(1{,}4)$$

$$\sqrt{\frac{\gamma C}{\gamma L}} = \frac{1+\cos\theta}{2}$$

$$\sqrt{\frac{\gamma C}{\gamma L}} = \left(\frac{1+\cos(1{,}4)}{2}\right)^2 . 72{,}8$$

$$\gamma C = 86\ \pm 1{,}4\ mN\ m^{-1}$$

- Perhitungan mencari nilai rata-rata pada mesh 18 komposisi 80%:20% dan waktu pemasakan 1 jam.

$$\bar{X}\ = \frac{\sum xi}{n}$$

$$= \frac{64+69+64}{3}$$

$$= 65{,}6°$$

Mencari simpangan baku

$$S = \sqrt{\frac{\sum(xi-\bar{X})^2}{n}}$$

$$S = \sqrt{\frac{\sum(64-65{,}6)^2+(69-65{,}6)^2+(64-65{,}6)^2}{3}}$$

$$= 2{,}8$$

Pengaruh tegangan padat menggunakan cairan.

Diketahui :

Mean : 65,6 ± 2,8

$\theta = 1{,}1$

Jawab :

$$Cos\ 1{,}1 = -1 + 2\sqrt{\frac{\gamma C}{\gamma L}}$$

$$2\sqrt{\frac{\gamma C}{\gamma L}} = 1 + \cos(1{,}1)$$

$$\sqrt{\frac{\gamma C}{\gamma L}} = \frac{1+\cos\theta}{2}$$

$$\sqrt{\frac{\gamma C}{\gamma L}} = \left(\frac{1+\cos(1{,}1)}{2}\right)^2 . 72{,}8$$

$$\gamma C = 65{,}6\ \pm 2{,}8\ mN\ m^{-1}$$

- Perhitungan mencari nilai rata-rata pada mesh 18 komposisi 80%:20% dan waktu pemasakan 2 jam.

$$\bar{X} = \frac{\sum xi}{n}$$
$$= \frac{66+72+69}{3}$$
$$= 69°$$

Mencari simpangan baku

$$S = \sqrt{\frac{\sum(xi-\bar{X})^2}{n}}$$
$$S = \sqrt{\frac{\sum(66-\bar{69})^2+(72-69)^2+(69-69)^2}{3}}$$
$$= 3$$

Pengaruh tegangan padat menggunakan cairan.

Diketahui :

Mean : 69 ± 3

$\theta = 1{,}2$

Jawab :

$$Cos\ 1{,}2 = -1 + 2\sqrt{\frac{\gamma C}{\gamma L}}$$
$$2\sqrt{\frac{\gamma C}{\gamma L}} = 1 + \cos(1{,}2)$$
$$\sqrt{\frac{\gamma C}{\gamma L}} = \frac{1+\cos\theta}{2}$$
$$\sqrt{\frac{\gamma C}{\gamma L}} = \left(\frac{1+\cos(1{,}2)}{2}\right)^2 . 72{,}8$$
$$\gamma C = 69 \pm 3\ mN\ m^{-1}$$

- Perhitungan mencari nilai rata-rata pada mesh 18 komposisi 80%:20% dan waktu pemasakan 3 jam.

$$\bar{X} = \frac{\sum xi}{n}$$
$$= \frac{77+75+73}{3}$$
$$= 75°$$

Mencari simpangan baku

$$S = \sqrt{\frac{\sum(xi-\bar{X})^2}{n}}$$
$$S = \sqrt{\frac{\sum(77-\bar{75})^2+(75-75)^2+(73-75)^2}{3}}$$
$$= 4{,}1$$

Pengaruh tegangan padat menggunakan cairan.

Diketahui :

Mean : 75 ± 4,1

$\theta = 1{,}1$

Jawab :

$$Cos\ 1{,}1 = -1 + 2\sqrt{\frac{\gamma C}{\gamma L}}$$

$$2\sqrt{\frac{\gamma C}{\gamma L}} = 1 + \cos(1{,}1)$$

$$\sqrt{\frac{\gamma C}{\gamma L}} = \frac{1+\cos\theta}{2}$$

$$\sqrt{\frac{\gamma C}{\gamma L}} = \left(\frac{1+\cos(1{,}1)}{2}\right)^2 . 72{,}8$$

$$\gamma C = 75\ \pm 1{,}1\ mN\ m^{-1}$$

- Perhitungan mencari nilai rata-rata pada mesh 60 komposisi 50%:50% dan waktu pemasakan 1 jam.

$$\bar{X}\ = \frac{\sum xi}{n}$$

$$= \frac{91+85+88}{3}$$

$$= 88°$$

Mencari simpangan baku

$$S = \sqrt{\frac{\sum(xi-\bar{X})^2}{n}}$$

$$S = \sqrt{\frac{\sum(91-\bar{88})^2+(85-88)^2+(88-88)^2}{3}}$$

$$= 3$$

Pengaruh tegangan padat menggunakan cairan.

Diketahui :

Mean : 88 ± 3

$\theta = 1{,}5$

Jawab :

$$Cos\ 1{,}5 = -1 + 2\sqrt{\frac{\gamma C}{\gamma L}}$$

$$2\sqrt{\frac{\gamma C}{\gamma L}} = 1 + \cos(1{,}5)$$

$$\sqrt{\frac{\gamma C}{\gamma L}} = \frac{1+\cos\theta}{2}$$

$$\sqrt{\frac{\gamma C}{\gamma L}} = \left(\frac{1+\cos(1{,}5)}{2}\right)^2 . 72{,}8$$

$$\gamma C = 88\ \pm 1{,}5\ mN\ m^{-1}$$

- Perhitungan mencari nilai rata-rata pada mesh 60 komposisi 50%:50% dan waktu pemasakan 2 jam.

$$\bar{X} = \frac{\sum xi}{n}$$
$$= \frac{92+89+91}{3}$$
$$= 90{,}6°$$

Mencari simpangan baku

$$S = \sqrt{\frac{\sum(xi-\bar{X})^2}{n}}$$
$$S = \sqrt{\frac{\sum(92-90{,}6)^2+(89-90{,}6)^2+(91-90{,}6)^2}{3}}$$
$$= 1{,}5$$

Pengaruh tegangan padat menggunakan cairan.

Diketahui :

Mean : 90,6 ± 1,5

$\theta = 1{,}6$

Jawab :

$$Cos\ 1{,}6 = -1 + 2\sqrt{\frac{\gamma C}{\gamma L}}$$
$$2\sqrt{\frac{\gamma C}{\gamma L}} = 1 + \cos(1{,}6)$$
$$\sqrt{\frac{\gamma C}{\gamma L}} = \frac{1+\cos\theta}{2}$$
$$\sqrt{\frac{\gamma C}{\gamma L}} = \left(\frac{1+\cos(1{,}6)}{2}\right)^2 . 72{,}8$$
$$\gamma C = 87{,}6 \pm 1{,}6\ mN\ m^{-1}$$

- Perhitungan mencari nilai rata-rata pada mesh 60 komposisi 50%:50% dan waktu pemasakan 3 jam.

$$\bar{X} = \frac{\sum xi}{n}$$
$$= \frac{91+92+93}{3}$$
$$= 92°$$

Mencari simpangan baku

$$S = \sqrt{\frac{\sum(xi-\bar{X})^2}{n}}$$
$$S = \sqrt{\frac{\sum(91-92)^2+(92-92)^2+(93-92)^2}{3}}$$
$$= 1$$

Pengaruh tegangan padat menggunakan cairan.

Diketahui :

Mean : 92 ± 1

$\theta = 1{,}6$

Jawab :

$$Cos\ 1{,}6 = -1 + 2\sqrt{\frac{\gamma C}{\gamma L}}$$

$$2\sqrt{\frac{\gamma C}{\gamma L}} = 1 + \cos(1{,}6)$$

$$\sqrt{\frac{\gamma C}{\gamma L}} = \frac{1+\cos\theta}{2}$$

$$\sqrt{\frac{\gamma C}{\gamma L}} = \left(\frac{1+\cos(1{,}6)}{2}\right)^2 . 72{,}8$$

$$\gamma C = 92 \pm 1\ mN\ m^{-1}$$

- Perhitungan mencari nilai rata-rata pada mesh 40 komposisi 50%:50% dan waktu pemasakan 1 jam.

$$\bar{X} = \frac{\sum xi}{n}$$

$$= \frac{75+73+81}{3}$$

$$= 76{,}6°$$

Mencari simpangan baku

$$S = \sqrt{\frac{\sum(xi-\bar{X})^2}{n}}$$

$$S = \sqrt{\frac{\sum(75-76{,}6)^2+(73-76{,}6)^2+(81-76{,}6)^2}{3}}$$

$$= 1{,}3$$

Pengaruh tegangan padat menggunakan cairan.

Diketahui :

Mean : 76,6 ± 4

$\theta = 1{,}3$

Jawab :

$$Cos\ 1{,}3 = -1 + 2\sqrt{\frac{\gamma C}{\gamma L}}$$

$$2\sqrt{\frac{\gamma C}{\gamma L}} = 1 + \cos(1{,}3)$$

$$\sqrt{\frac{\gamma C}{\gamma L}} = \frac{1+\cos\theta}{2}$$

$$\sqrt{\frac{\gamma C}{\gamma L}} = \left(\frac{1+\cos(1{,}3)}{2}\right)^2 . 72{,}8$$

$$\gamma C = 76{,}6 \pm 4\ mN\ m^{-1}$$

- Perhitungan mencari nilai rata-rata pada mesh 40 komposisi 50%:50% dan waktu pemasakan 2 jam.

$$\bar{X} = \frac{\sum xi}{n}$$
$$= \frac{84+78+81}{3}$$
$$= 81{,}6°$$

Mencari simpangan baku

$$S = \sqrt{\frac{\sum(xi-\bar{X})^2}{n}}$$
$$S = \sqrt{\frac{\sum(84-81{,}6)^2+(78-81{,}6)^2+(81-81{,}6)^2}{3}}$$
$$= 3{,}2$$

Pengaruh tegangan padat menggunakan cairan.

Diketahui :

Mean : 81,6 ± 3,2

$\theta = 1{,}4$

Jawab :

$$Cos\ 1{,}4 = -1 + 2\sqrt{\frac{\gamma C}{\gamma L}}$$
$$2\sqrt{\frac{\gamma C}{\gamma L}} = 1 + \cos(1{,}4)$$
$$\sqrt{\frac{\gamma C}{\gamma L}} = \frac{1+\cos\theta}{2}$$
$$\sqrt{\frac{\gamma C}{\gamma L}} = \left(\frac{1+\cos(1{,}4)}{2}\right)^2 . 72{,}8$$
$$\gamma C = 81{,}6 \pm 3{,}2\ mN\ m^{-1}$$

- Perhitungan mencari nilai rata-rata pada mesh 40 komposisi 50%:50% dan waktu pemasakan 3 jam.

$$\bar{X} = \frac{\sum xi}{n}$$
$$= \frac{87+91+91}{3}$$
$$= 89{,}6°$$

Mencari simpangan baku

$$S = \sqrt{\frac{\sum(xi-\bar{X})^2}{n}}$$
$$S = \sqrt{\frac{\sum(87-89{,}6)^2+(91-89{,}6)^2+(91-89{,}6)^2}{3}}$$
$$= 2{,}3$$

Pengaruh tegangan padat menggunakan cairan.

Diketahui :

Mean : 89,6 ± 2,3

$\theta = 1{,}6$

Jawab :

$$Cos\ 1{,}6 = -1 + 2\sqrt{\frac{\gamma C}{\gamma L}}$$

$$2\sqrt{\frac{\gamma C}{\gamma L}} = 1 + \cos(1{,}6)$$

$$\sqrt{\frac{\gamma C}{\gamma L}} = \frac{1+\cos\theta}{2}$$

$$\sqrt{\frac{\gamma C}{\gamma L}} = \left(\frac{1+\cos(1{,}6)}{2}\right)^2 . 72{,}8$$

$$\gamma C = 89{,}6 \pm 2{,}3\ mN\ m^{-1}$$

- Perhitungan mencari nilai rata-rata pada mesh 18 komposisi 50%:50% dan waktu pemasakan 1 jam.

$$\bar{X} = \frac{\sum xi}{n}$$

$$= \frac{63+65+64}{3}$$

$$= 64°$$

Mencari simpangan baku

$$S = \sqrt{\frac{\sum(xi-\bar{X})^2}{n}}$$

$$S = \sqrt{\frac{\sum(63-64)^2+(65-64)^2+(64-64)^2}{3}}$$

$$= 1$$

Pengaruh tegangan padat menggunakan cairan.

Diketahui :

Mean : 64 ± 1

$\theta = 1{,}1$

Jawab :

$$Cos\ 1{,}1 = -1 + 2\sqrt{\frac{\gamma C}{\gamma L}}$$

$$2\sqrt{\frac{\gamma C}{\gamma L}} = 1 + \cos(1{,}1)$$

$$\sqrt{\frac{\gamma C}{\gamma L}} = \frac{1+\cos\theta}{2}$$

$$\sqrt{\frac{\gamma C}{\gamma L}} = \left(\frac{1+\cos(1{,}1)}{2}\right)^2 . 72{,}8$$

$$\gamma C = 64\ \pm 1{,}1\ mN\ m^{-1}$$

- Perhitungan mencari nilai rata-rata pada mesh 18 komposisi 50%:50% dan waktu pemasakan 2 jam.

$$\bar{X} = \frac{\sum xi}{n}$$
$$= \frac{64+62+70}{3}$$
$$= 65{,}3°$$

Mencari simpangan baku

$$S = \sqrt{\frac{\sum(xi-\bar{X})^2}{n}}$$
$$S = \sqrt{\frac{\sum(64-65{,}3)^2+(62-65{,}3)^2+(70-65{,}3)^2}{3}}$$
$$= 4{,}1$$

Pengaruh tegangan padat menggunakan cairan.

Diketahui :

Mean : 65,3 ± 4,1

$\theta = 1{,}1$

Jawab :

$$Cos\ 1{,}1 = -1 + 2\sqrt{\frac{\gamma C}{\gamma L}}$$
$$2\sqrt{\frac{\gamma C}{\gamma L}} = 1 + \cos(1{,}1)$$
$$\sqrt{\frac{\gamma C}{\gamma L}} = \frac{1+\cos\theta}{2}$$
$$\sqrt{\frac{\gamma C}{\gamma L}} = \left(\frac{1+\cos(1{,}1)}{2}\right)^2 . 72{,}8$$
$$\gamma C = 65{,}3 \pm 4{,}1\ mN\ m^{-1}$$

- Perhitungan mencari nilai rata-rata pada mesh 18 komposisi 50%:50% dan waktu pemasakan 3 jam.

$$\bar{X} = \frac{\sum xi}{n}$$
$$= \frac{73+70+78}{3}$$
$$= 73{,}6°$$

Mencari simpangan baku

$$S = \sqrt{\frac{\sum(xi-\bar{X})^2}{n}}$$
$$S = \sqrt{\frac{\sum(73-73{,}6)^2+(70-73{,}6)^2+(73{,}6-73{,}6)^2}{3}}$$
$$= 4$$

Pengaruh tegangan padat menggunakan cairan.

Diketahui :

Mean : 73,6 ± 4

$\theta = 1{,}3$

Jawab :

$$Cos\ 1{,}3 = -1 + 2\sqrt{\frac{\gamma C}{\gamma L}}$$

$$2\sqrt{\frac{\gamma C}{\gamma L}} = 1 + \cos(1{,}3)$$

$$\sqrt{\frac{\gamma C}{\gamma L}} = \frac{1+\cos\theta}{2}$$

$$\sqrt{\frac{\gamma C}{\gamma L}} = \left(\frac{1+\cos(1{,}3)}{2}\right)^2 . 72{,}8$$

$$\gamma C = 73{,}6 \pm 4\ mN\ m^{-1}$$

- Perhitungan mencari nilai rata-rata pada mesh 60 komposisi 20%:80% dan waktu pemasakan 1 jam.

$$\bar{X} = \frac{\sum xi}{n}$$

$$= \frac{89+87+90}{3}$$

$$= 88{,}6°$$

Mencari simpangan baku

$$S = \sqrt{\frac{\sum(xi-\bar{X})^2}{n}}$$

$$S = \sqrt{\frac{\sum(89-88{,}6)^2+(87-88{,}6)^2+(90-88{,}6)^2}{3}}$$

$$= 1{,}5$$

Pengaruh tegangan padat menggunakan cairan.

Diketahui :

Mean : 88,6 ± 1,5

$\theta = 1{,}5$

Jawab :

$$Cos\ 1{,}5 = -1 + 2\sqrt{\frac{\gamma C}{\gamma L}}$$

$$2\sqrt{\frac{\gamma C}{\gamma L}} = 1 + \cos(1{,}5)$$

$$\sqrt{\frac{\gamma C}{\gamma L}} = \frac{1+\cos\theta}{2}$$

$$\sqrt{\frac{\gamma C}{\gamma L}} = \left(\frac{1+\cos(1{,}5)}{2}\right)^2 . 72{,}8$$

$$\gamma C = 88{,}6\ \pm 1{,}5\ mN\ m^{-1}$$

- Perhitungan mencari nilai rata-rata pada mesh 60 komposisi 20%:80% dan waktu pemasakan 2 jam.

$$\bar{X} = \frac{\sum xi}{n}$$
$$= \frac{90+91+88}{3}$$
$$= 89{,}6°$$

Mencari simpangan baku

$$S = \sqrt{\frac{\sum(xi-\bar{X})^2}{n}}$$
$$S = \sqrt{\frac{\sum(90-8\bar{9},6)^2+(91-89,6)^2+(88-89,6)^2}{3}}$$
$$= 1{,}5$$

Pengaruh tegangan padat menggunakan cairan.

Diketahui :

Mean : 89,6 ± 1,5

$\theta = 1{,}5$

Jawab :

$$Cos\ 1{,}5 = -1 + 2\sqrt{\frac{\gamma C}{\gamma L}}$$
$$2\sqrt{\frac{\gamma C}{\gamma L}} = 1 + \cos(1{,}5)$$
$$\sqrt{\frac{\gamma C}{\gamma L}} = \frac{1+\cos\theta}{2}$$
$$\sqrt{\frac{\gamma C}{\gamma L}} = \left(\frac{1+\cos(1{,}5)}{2}\right)^2 . 72{,}8$$
$$\gamma C = 89{,}6 \pm 1{,}5\ mN\ m^{-1}$$

- Perhitungan mencari nilai rata-rata pada mesh 60 komposisi 20%:80% dan waktu pemasakan 3 jam.

$$\bar{X} = \frac{\sum xi}{n}$$
$$= \frac{91+93+91}{3}$$
$$= 91{,}6°$$

Mencari simpangan baku

$$S = \sqrt{\frac{\sum(xi-\bar{X})^2}{n}}$$
$$S = \sqrt{\frac{\sum(91-9\bar{1},6)^2+(93-91,6)^2+(91-91,6)^2}{3}}$$
$$= 1{,}1$$

Pengaruh tegangan padat menggunakan cairan.

Diketahui :

Mean : 91,6 ± 1,1

$\theta = 1{,}6$

Jawab :

$$Cos\ 1{,}6 = -1 + 2\sqrt{\frac{\gamma C}{\gamma L}}$$

$$2\sqrt{\frac{\gamma C}{\gamma L}} = 1 + \cos(1{,}6)$$

$$\sqrt{\frac{\gamma C}{\gamma L}} = \frac{1+\cos\theta}{2}$$

$$\sqrt{\frac{\gamma C}{\gamma L}} = \left(\frac{1+\cos(1{,}6)}{2}\right)^2 . 72{,}8$$

$$\gamma C = 91{,}6\ \pm 1{,}1\ mN\ m^{-1}$$

- Perhitungan mencari nilai rata-rata pada mesh 40 komposisi 20%:80% dan waktu pemasakan 1 jam.

$$\bar{X}\ = \frac{\sum xi}{n}$$

$$= \frac{79+81+78}{3}$$

$$= 79{,}3°$$

Mencari simpangan baku

$$S = \sqrt{\frac{\sum(xi-\bar{X})^2}{n}}$$

$$S = \sqrt{\frac{\sum(79-79{,}3)^2+(81-79{,}3)^2+(78-79{,}3)^2}{3}}$$

$$= 1{,}5$$

Pengaruh tegangan padat menggunakan cairan.

Diketahui :

Mean : 79,3± 1,5

$\theta = 1{,}4$

Jawab :

$$Cos\ 1{,}5 = -1 + 2\sqrt{\frac{\gamma C}{\gamma L}}$$

$$2\sqrt{\frac{\gamma C}{\gamma L}} = 1 + \cos(1{,}4)$$

$$\sqrt{\frac{\gamma C}{\gamma L}} = \frac{1+\cos\theta}{2}$$

$$\sqrt{\frac{\gamma C}{\gamma L}} = \left(\frac{1+\cos(1{,}4)}{2}\right)^2 . 72{,}8$$

$$\gamma C = 79{,}3\ \pm 1{,}5\ mN\ m^{-1}$$

- Perhitungan mencari nilai rata-rata pada mesh 40 komposisi 20%:80% dan waktu pemasakan 2 jam.

$\bar{X} = \frac{\sum xi}{n}$

$= \frac{85+88+90}{3}$

$= 87{,}6°$

Mencari simpangan baku

$S = \sqrt{\frac{\sum(xi-\bar{X})^2}{n}}$

$S = \sqrt{\frac{\sum(85-87{,}6)^2+(88-87{,}6)^2+(90-87{,}6)^2}{3}}$

$= 2{,}5$

Pengaruh tegangan padat menggunakan cairan.

Diketahui :

Mean : 87,6 ± 1,5

$\theta = 1{,}2$

Jawab :

$Cos\ 1{,}2 = -1 + 2\sqrt{\frac{\gamma C}{\gamma L}}$

$2\sqrt{\frac{\gamma C}{\gamma L}} = 1 + \cos(1{,}2)$

$\sqrt{\frac{\gamma C}{\gamma L}} = \frac{1+\cos\theta}{2}$

$\sqrt{\frac{\gamma C}{\gamma L}} = \left(\frac{1+\cos(1{,}2)}{2}\right)^2 . 72{,}8$

$\gamma C = 87{,}6 \pm 1{,}5\ mN\ m^{-1}$

- Perhitungan mencari nilai rata-rata pada mesh 40 komposisi 20%:80% dan waktu pemasakan 3 jam.

$\bar{X} = \frac{\sum xi}{n}$

$= \frac{91+92+90}{3}$

$= 91°$

Mencari simpangan baku

$S = \sqrt{\frac{\sum(xi-\bar{X})^2}{n}}$

$S = \sqrt{\frac{\sum(91-91)^2+(92-91)^2+(90-91)^2}{3}}$

$= 1$

Pengaruh tegangan padat menggunakan cairan.

Diketahui :

Mean : 91 ± 1

$\theta = 1{,}6$

Jawab :

$$Cos\ 1{,}6 = -1 + 2\sqrt{\frac{\gamma C}{\gamma L}}$$

$$2\sqrt{\frac{\gamma C}{\gamma L}} = 1 + \cos(1{,}6)$$

$$\sqrt{\frac{\gamma C}{\gamma L}} = \frac{1+\cos\theta}{2}$$

$$\sqrt{\frac{\gamma C}{\gamma L}} = \left(\frac{1+\cos(1{,}6)}{2}\right)^2 . 72{,}8$$

$$\gamma C = 91 \pm 1\ mN\ m^{-1}$$

- Perhitungan mencari nilai rata-rata pada mesh 18 komposisi 20%:80% dan waktu pemasakan 1 jam.

$$\bar{X} = \frac{\sum xi}{n}$$

$$= \frac{69+65+70}{3}$$

$$= 68°$$

Mencari simpangan baku

$$S = \sqrt{\frac{\sum(xi-\bar{X})^2}{n}}$$

$$S = \sqrt{\frac{\sum(69-\bar{68})^2+(65-68)^2+(70-68)^2}{3}}$$

$$= 2{,}6$$

Pengaruh tegangan padat menggunakan cairan.

Diketahui :

Mean : 68 ± 2,6

$\theta = 1{,}2$

Jawab :

$$Cos\ 1{,}2 = -1 + 2\sqrt{\frac{\gamma C}{\gamma L}}$$

$$2\sqrt{\frac{\gamma C}{\gamma L}} = 1 + \cos(1{,}2)$$

$$\sqrt{\frac{\gamma C}{\gamma L}} = \frac{1+\cos\theta}{2}$$

$$\sqrt{\frac{\gamma C}{\gamma L}} = \left(\frac{1+\cos(1{,}2)}{2}\right)^2 . 72{,}8$$

$$\gamma C = 68\ \pm 2{,}6\ mN\ m^{-1}$$

- Perhitungan mencari nilai rata-rata pada mesh 18 komposisi 20%:80% dan waktu pemasakan 2 jam.

$$\bar{X} = \frac{\sum xi}{n}$$
$$= \frac{71+73+70}{3}$$
$$= 71{,}3°$$

Mencari simpangan baku

$$S = \sqrt{\frac{\sum(xi-\bar{X})^2}{n}}$$
$$S = \sqrt{\frac{\sum(71-71{,}3)^2+(73-71{,}3)^2+(70-71{,}3)^2}{3}}$$
$$= 1{,}5$$

Pengaruh tegangan padat menggunakan cairan.

Diketahui :

Mean : 71,3 ± 1,5

$\theta = 1{,}2$

Jawab :

$$Cos\ 1{,}2 = -1 + 2\sqrt{\frac{\gamma C}{\gamma L}}$$
$$2\sqrt{\frac{\gamma C}{\gamma L}} = 1 + \cos(1{,}2)$$
$$\sqrt{\frac{\gamma C}{\gamma L}} = \frac{1+\cos\theta}{2}$$
$$\sqrt{\frac{\gamma C}{\gamma L}} = \left(\frac{1+\cos(1{,}2)}{2}\right)^2 . 72{,}8$$
$$\gamma C = 71{,}3 \pm 1{,}5\ mN\ m^{-1}$$

- Perhitungan mencari nilai rata-rata pada mesh 18 komposisi 20%:80% dan waktu pemasakan 3 jam.

$$\bar{X} = \frac{\sum xi}{n}$$
$$= \frac{79+77+75}{3}$$
$$= 77°$$

Mencari simpangan baku

$$S = \sqrt{\frac{\sum(xi-\bar{X})^2}{n}}$$
$$S = \sqrt{\frac{\sum(79-\bar{77})^2+(77-77)^2+(75-77)^2}{3}}$$

$= 2$

Pengaruh tegangan padat menggunakan cairan.

Diketahui :

Mean : 77 ± 2

$\theta = 1{,}3$

Jawab :

$$Cos\ 1{,}3 = -1 + 2\sqrt{\frac{\gamma C}{\gamma L}}$$

$$2\sqrt{\frac{\gamma C}{\gamma L}} = 1 + \cos(1{,}3)$$

$$\sqrt{\frac{\gamma C}{\gamma L}} = \frac{1+\cos\theta}{2}$$

$$\sqrt{\frac{\gamma C}{\gamma L}} = \left(\frac{1+\cos(1{,}3)}{2}\right)^2 . 72{,}8$$

$$\gamma C = 77\ \pm 2\ mN\ m^{-1}$$