


## LAMPIRAN

### Lampiran 1 (Data Pendukung)

| Bulan        | Jumlah Produksi (Unit) | Jenis Cacat     |                |              |        | Jumlah Cacat |
|--------------|------------------------|-----------------|----------------|--------------|--------|--------------|
|              |                        | Color Variation | Door Operation | Rough Finish | Marble |              |
| Januari 22   | 870                    | 14              | 17             | 19           | 6      | 56           |
| Februari 22  | 695                    | 2               | 9              | 14           | 2      | 27           |
| Maret 22     | 490                    | 5               | 3              | 1            | 5      | 14           |
| April 22     | 850                    | 16              | 7              | 6            | 1      | 30           |
| Mai 22       | 910                    | 4               | 19             | 26           | 12     | 61           |
| Juni 22      | 735                    | 5               | 6              | 5            | 1      | 17           |
| Juli 22      | 690                    | 8               | 6              | 15           | 1      | 30           |
| Agustus 22   | 890                    | 1               | 9              | 9            | 3      | 22           |
| September 22 | 911                    | 2               | 4              | 1            | 3      | 10           |
| Oktober 22   | 740                    | 8               | 8              | 15           | 4      | 35           |
| November 22  | 960                    | 10              | 5              | 17           | 6      | 38           |
| Desember 22  | 885                    | 29              | 21             | 26           | 9      | 85           |
| Januari 23   | 890                    | 6               | 10             | 15           | 3      | 34           |
| Februari 23  | 850                    | 2               | 1              | 9            | 3      | 15           |

  
 P.T. ROMI VIOLETA  
 (M. Nur)

### Checksheet produksi Enzo Bar Cabinet

**SURAT KETERANGAN**

PT. Romi Violeta menyatakan dengan sesungguhnya bahwa:

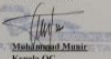
Nama : Ady Perdana Putra  
 NIM : 1411906071  
 Instansi : Universitas 17 Agustus 1945 Surabaya

Adalah benar bahwasanya yang bersangkutan melibatkan bagian Quality Control PT. Romi Violeta dalam menentukan nilai pada FMEA beserta usulan perbaikan yang didapatkan dari hasil analisis Tapes Akhir yang bersangkutan.

Demikian surat keterangan ini dibuat untuk dipergunakan dengan sebagaimana mestinya.

Sidoarjo, 30 Mei 2023

PT. Romi Violeta

  
 M. Nur  
 Kepala QC

Surat Keterangan penentuan rating S, O, D guna menentukan RPN pada FMEA



Master Color Panel



Cacat Color Variation



Cacat Door Operation



Cacat Rough Finish



Cacat Marble



Briefing setelah perbaikan di ruang meeting



Briefing setelah perbaikan di ruang produksi

Lampiran 2 (Lanjutan Perhitungan Peta Kendali P)

Lanjutan Perhitungan Peta Kendali P

**a. Proporsi**

$$1. \quad p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{27}{695} = 0,0388$$

$$2. \quad p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{12}{450} = 0,0267$$

$$3. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{24}{650} = 0,0369$$

$$4. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{68}{910} = 0,0747$$

$$5. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{11}{725} = 0,0152$$

$$6. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{26}{490} = 0,0531$$

$$7. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{22}{630} = 0,0349$$

$$8. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{9}{880} = 0,0102$$

$$9. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{32}{740} = 0,0432$$

$$10. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{36}{960} = 0,0375$$

$$11. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{79}{1005} = 0,0786$$

$$12. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{32}{890} = 0,0360$$

$$13. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{21}{650} = 0,0323$$

#### b. UCL

1. Februari 2022

$$\bar{p} = 0,0433$$

$$n = 695$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0433 + 3 \sqrt{\frac{0,0433(1-0,0433)}{695}} = 0,0664$$

2. Maret 2022

$$\bar{p} = 0,0433$$

$$n = 450$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0433 + 3 \sqrt{\frac{0,0433(1-0,0433)}{450}} = 0,0720$$

3. April 2022

$$\bar{p} = 0,0433$$

$$n = 650$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0433 + 3 \sqrt{\frac{0,0433(1-0,0433)}{650}} = 0,0672$$

4. Juni 2022

$$\bar{p} = 0,0433$$

$$n = 910$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0433 + 3 \sqrt{\frac{0,0433(1-0,0433)}{910}} = 0,0635$$

5. Juni 2022

$$\bar{p} = 0,0433$$

$$n = 725$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0433 + 3 \sqrt{\frac{0,0433(1-0,0433)}{725}} = 0,0659$$

6. Juli 2022

$$\bar{p} = 0,0433$$

$$n = 490$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0433 + 3 \sqrt{\frac{0,0433(1-0,0433)}{490}} = 0,0708$$

7. Agustus 2022

$$\bar{p} = 0,0433$$

$$n = 630$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0433 + 3 \sqrt{\frac{0,0433(1-0,0433)}{630}} = 0,0676$$

8. September 2022

$$\bar{p} = 0,0433$$

$$n = 880$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0433 + 3 \sqrt{\frac{0,0433(1-0,0433)}{880}} = 0,0638$$

9. Oktober 2022

$$\bar{p} = 0,0433$$

$$n = 740$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0433 + 3 \sqrt{\frac{0,0433(1-0,0433)}{740}} = 0,0657$$

10. November 2022

$$\bar{p} = 0,0433$$

$$n = 960$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0433 + 3 \sqrt{\frac{0,0433(1-0,0433)}{960}} = 0,0630$$

11. Desember 2022

$$\bar{p} = 0,0433$$

$$n = 1005$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0433 + 3 \sqrt{\frac{0,0433(1-0,0433)}{1005}} = 0,0625$$

12. Januari 2023

$$\bar{p} = 0,0433$$

$$n = 890$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0433 + 3 \sqrt{\frac{0,0433(1-0,0433)}{890}} = 0,0637$$

13. Februari 2023

$$\bar{p} = 0,0433$$

$$n = 650$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0433 + 3 \sqrt{\frac{0,0433(1-0,0433)}{650}} = 0,0672$$

**c. LCL**

1. Februari 2022

$$\bar{p} = 0,0433$$

$$n = 695$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0433 - 3 \sqrt{\frac{0,0433(1-0,0433)}{695}} = 0,0201$$

2. Maret 2022

$$\bar{p} = 0,0433$$

$$n = 450$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0433 - 3 \sqrt{\frac{0,0433(1-0,0433)}{450}} = 0,0145$$

3. April 2022

$$\bar{p} = 0,0433$$

$$n = 650$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0433 - 3 \sqrt{\frac{0,0433(1-0,0433)}{650}} = 0,0193$$

4. Juni 2022

$$\bar{p} = 0,0433$$

$$n = 910$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0433 - 3 \sqrt{\frac{0,0433(1-0,0433)}{910}} = 0,0230$$

5. Juni 2022



$$\bar{p} = 0,0433$$

$$n = 725$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0433 - 3 \sqrt{\frac{0,0433(1-0,0433)}{725}} = 0,0206$$

6. Juli 2022

$$\bar{p} = 0,0433$$

$$n = 490$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0433 - 3 \sqrt{\frac{0,0433(1-0,0433)}{490}} = 0,0157$$

7. Agustus 2022

$$\bar{p} = 0,0433$$

$$n = 630$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0433 - 3 \sqrt{\frac{0,0433(1-0,0433)}{630}} = 0,0189$$

8. September 2022

$$\bar{p} = 0,0433$$

$$n = 880$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0433 - 3 \sqrt{\frac{0,0433(1-0,0433)}{880}} = 0,0227$$

9. Oktober 2022

$$\bar{p} = 0,0433$$

$$n = 740$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0433 - 3 \sqrt{\frac{0,0433(1-0,0433)}{740}} = 0,0208$$

10. November 2022

$$\bar{p} = 0,0433$$

$$n = 960$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0433 - 3 \sqrt{\frac{0,0433(1-0,0433)}{960}} = 0,0236$$

11. Desember 2022

$$\bar{p} = 0,0433$$

$$n = 1005$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0433 - 3 \sqrt{\frac{0,0433(1-0,0433)}{1005}} = 0,0240$$

12. Januari 2023

$$\bar{p} = 0,0433$$

$$n = 890$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0433 - 3 \sqrt{\frac{0,0433(1-0,0433)}{890}} = 0,0228$$

13. Februari 2023

$$\bar{p} = 0,0433$$

$$n = 650$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0433 - 3 \sqrt{\frac{0,0433(1-0,0433)}{650}} = 0,0193$$

Color Variation

**a. Proporsi**

$$1. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{2}{695} = 0,0029$$

$$2. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{5}{450} = 0,0111$$

$$3. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{10}{650} = 0,0154$$

$$4. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{11}{910} = 0,0121$$

$$5. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{3}{725} = 0,0041$$

$$6. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{11}{490} = 0,0224$$

$$7. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{1}{630} = 0,0016$$

$$8. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{2}{880} = 0,0023$$

$$9. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{8}{740} = 0,0108$$

$$10. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{10}{960} = 0,0104$$

$$11. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{23}{1005} = 0,0229$$

$$12. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{6}{890} = 0,0067$$

$$13. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{2}{650} = 0,0031$$

#### b. UCL

1. Februari 2022

$$\bar{p} = 0,0102$$

$$n = 695$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0102 + 3 \sqrt{\frac{0,0102(1-0,0102)}{695}} = 0,0217$$

2. Maret 2022

$$\bar{p} = 0,0102$$

$$n = 450$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0102 + 3 \sqrt{\frac{0,0102(1-0,0102)}{450}} = 0,0244$$

3. April 2022

$$\bar{p} = 0,0102$$

$$n = 650$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0102 + 3 \sqrt{\frac{0,0102(1-0,0102)}{650}} = 0,0221$$

4. Mei 2022

$$\bar{p} = 0,0102$$

$$n = 910$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0102 + 3 \sqrt{\frac{0,0102(1-0,0102)}{910}} = 0,0202$$

5. Juni 2022

$$\bar{p} = 0,0102$$

$$n = 725$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0102 + 3 \sqrt{\frac{0,0102(1-0,0102)}{725}} = 0,0214$$

6. Juli 2022

$$\bar{p} = 0,0102$$

$$n = 490$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0102 + 3 \sqrt{\frac{0,0102(1-0,0102)}{490}} = 0,0239$$

7. Agustus 2022

$$\bar{p} = 0,0102$$

$$n = 630$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0102 + 3 \sqrt{\frac{0,0102(1-0,0102)}{630}} = 0,0222$$

8. September 2022

$$\bar{p} = 0,0102$$

$$n = 880$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0102 + 3 \sqrt{\frac{0,0102(1-0,0102)}{880}} = 0,0204$$

9. Oktober 2022

$$\bar{p} = 0,0102$$

$$n = 740$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0102 + 3 \sqrt{\frac{0,0102(1-0,0102)}{740}} = 0,0213$$

10. November 2022

$$\bar{p} = 0,0102$$

$$n = 960$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0102 + 3 \sqrt{\frac{0,0102(1-0,0102)}{960}} = 0,0200$$

11. Desember 2022

$$\bar{p} = 0,0102$$

$$n = 1005$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0102 + 3 \sqrt{\frac{0,0102(1-0,0102)}{1005}} = 0,0197$$

12. Januari 2023

$$\bar{p} = 0,0102$$

$$n = 890$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0102 + 3 \sqrt{\frac{0,0102(1-0,0102)}{890}} = 0,0203$$

13. Februari 2023

$$\bar{p} = 0,0102$$

$$n = 650$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0102 + 3 \sqrt{\frac{0,0102(1-0,0102)}{650}} = 0,0221$$

**c. LCL**

1. Februari 2022

$$\bar{p} = 0,0102$$

$$n = 695$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0102 - 3 \sqrt{\frac{0,0102(1-0,0102)}{695}} = -0,0012$$

2. Maret 2022

$$\bar{p} = 0,0102$$

$$n = 450$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0102 - 3 \sqrt{\frac{0,0102(1-0,0102)}{450}} = -0,0040$$

3. April 2022

$$\bar{p} = 0,0102$$

$$n = 650$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0102 - 3 \sqrt{\frac{0,0102(1-0,0102)}{650}} = -0,0016$$

4. Mei 2022

$$\bar{p} = 0,0102$$

$$n = 910$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0102 - 3 \sqrt{\frac{0,0102(1-0,0102)}{910}} = 0,0002$$

5. Juni 2022

$$\bar{p} = 0,0102$$

$$n = 725$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0102 - 3 \sqrt{\frac{0,0102(1-0,0102)}{725}} = -0,0010$$

6. Juli 2022

$$\bar{p} = 0,0102$$

$$n = 490$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0102 - 3 \sqrt{\frac{0,0102(1-0,0102)}{490}} = -0,0034$$

7. Agustus 2022

$$\bar{p} = 0,0102$$

$$n = 630$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0102 - 3 \sqrt{\frac{0,0102(1-0,0102)}{630}} = -0,0018$$

8. September 2022

$$\bar{p} = 0,0102$$

$$n = 880$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0102 - 3 \sqrt{\frac{0,0102(1-0,0102)}{880}} = 0,0000$$

9. Oktober 2022

$$\bar{p} = 0,0102$$

$$n = 740$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0102 - 3 \sqrt{\frac{0,0102(1-0,0102)}{740}} = -0,0009$$

10. November 2022

$$\bar{p} = 0,0102$$

$$n = 960$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0102 - 3 \sqrt{\frac{0,0102(1-0,0102)}{960}} = 0,0005$$

11. Desember 2022

$$\bar{p} = 0,0102$$

$$n = 1005$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0102 - 3 \sqrt{\frac{0,0102(1-0,0102)}{1005}} = 0,0007$$

12. Januari 2023

$$\bar{p} = 0,0102$$

$$n = 890$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0102 - 3 \sqrt{\frac{0,0102(1-0,0102)}{890}} = 0,0001$$

13. Februari 2023

$$\bar{p} = 0,0102$$

$$n = 650$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0102 - 3 \sqrt{\frac{0,0102(1-0,0102)}{650}} = -0,0016$$

Door Operation

**a. Proporsi**

$$1. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{9}{695} = 0,0129$$

$$2. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{3}{450} = 0,0067$$

$$3. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{7}{650} = 0,0108$$

$$4. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{19}{910} = 0,0209$$



$$5. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{2}{725} = 0,0028$$

$$6. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{2}{490} = 0,0041$$

$$7. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{9}{630} = 0,0143$$

$$8. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{4}{880} = 0,0045$$

$$9. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{8}{740} = 0,0108$$

$$10. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{3}{960} = 0,0031$$

$$11. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{21}{1005} = 0,0209$$

$$12. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{10}{890} = 0,0112$$

$$13. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{1}{650} = 0,0015$$

## b. UCL

1. Februari 2022

$$\bar{p} = 0,0109$$

$$n = 695$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0109 + 3 \sqrt{\frac{0,0109(1-0,0109)}{695}} = 0,0227$$

2. Maret 2022

$$\bar{p} = 0,0109$$

$$n = 450$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0109 + 3 \sqrt{\frac{0,0109(1-0,0109)}{450}} = 0,0256$$

3. April 2022

$$\bar{p} = 0,0109$$

$$n = 650$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0109 + 3 \sqrt{\frac{0,0109(1-0,0109)}{650}} = 0,0231$$

4. Mei 2022

$$\bar{p} = 0,0109$$

$$n = 910$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0109 + 3 \sqrt{\frac{0,0109(1-0,0109)}{910}} = 0,0212$$

5. Juni 2022

$$\bar{p} = 0,0109$$

$$n = 725$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0109 + 3 \sqrt{\frac{0,0109(1-0,0109)}{725}} = 0,0224$$

6. Juli 2022

$$\bar{p} = 0,0109$$

$$n = 490$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0109 + 3 \sqrt{\frac{0,0109(1-0,0109)}{490}} = 0,0249$$

7. Agustus 2022

$$\bar{p} = 0,0109$$

$$n = 630$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0109 + 3 \sqrt{\frac{0,0109(1-0,0109)}{630}} = 0,0233$$

8. September 2022

$$\bar{p} = 0,0109$$

$$n = 880$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0109 + 3 \sqrt{\frac{0,0109(1-0,0109)}{880}} = 0,0214$$

9. Oktober 2022

$$\bar{p} = 0,0109$$

$$n = 740$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0109 + 3 \sqrt{\frac{0,0109(1-0,0109)}{740}} = 0,0223$$

10. November 2022

$$\bar{p} = 0,0109$$

$$n = 960$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0109 + 3 \sqrt{\frac{0,0109(1-0,0109)}{960}} = 0,0209$$

11. Desember 2022

$$\bar{p} = 0,0109$$

$$n = 1005$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0109 + 3 \sqrt{\frac{0,0109(1-0,0109)}{1005}} = 0,0207$$

12. Januari 2023

$$\bar{p} = 0,0109$$

$$n = 890$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0109 + 3 \sqrt{\frac{0,0109(1-0,0109)}{890}} = 0,0213$$

13. Februari 2023

$$\bar{p} = 0,0109$$

$$n = 650$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0109 + 3 \sqrt{\frac{0,0109(1-0,0109)}{650}} = 0,0231$$

**c. LCL**

1. Februari 2022

$$\bar{p} = 0,0109$$

$$n = 695$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0109 - 3 \sqrt{\frac{0,0109(1-0,0109)}{695}} = -0,0009$$

2. Maret 2022

$$\bar{p} = 0,0109$$

$$n = 450$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0109 - 3 \sqrt{\frac{0,0109(1-0,0109)}{450}} = -0,0038$$

3. April 2022

$$\bar{p} = 0,0109$$

$$n = 650$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0109 - 3 \sqrt{\frac{0,0109(1-0,0109)}{650}} = -0,0013$$

4. Mei 2022

$$\bar{p} = 0,0109$$

$$n = 910$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0109 - 3 \sqrt{\frac{0,0109(1-0,0109)}{910}} = 0,0006$$

5. Juni 2022

$$\bar{p} = 0,0109$$

$$n = 725$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0109 - 3 \sqrt{\frac{0,0109(1-0,0109)}{725}} = -0,0007$$

6. Juli 2022

$$\bar{p} = 0,0109$$

$$n = 490$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0109 - 3 \sqrt{\frac{0,0109(1-0,0109)}{490}} = -0,0032$$

7. Agustus 2022

$$\bar{p} = 0,0109$$

$$n = 630$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0109 - 3 \sqrt{\frac{0,0109(1-0,0109)}{630}} = -0,0015$$

8. September 2022

$$\bar{p} = 0,0109$$

$$n = 880$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0109 - 3 \sqrt{\frac{0,0109(1-0,0109)}{880}} = 0,0004$$

9. Oktober 2022

$$\bar{p} = 0,0109$$

$$n = 740$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0109 - 3 \sqrt{\frac{0,0109(1-0,0109)}{740}} = -0,0006$$

10. November 2022

$$\bar{p} = 0,0109$$

$$n = 960$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0109 - 3 \sqrt{\frac{0,0109(1-0,0109)}{960}} = 0,0008$$

11. Desember 2022

$$\bar{p} = 0,0109$$

$$n = 1005$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0109 - 3 \sqrt{\frac{0,0109(1-0,0109)}{1005}} = 0,0011$$

12. Januari 2023

$$\bar{p} = 0,0109$$

$$n = 890$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0109 - 3 \sqrt{\frac{0,0109(1-0,0109)}{890}} = 0,0005$$

13. Februari 2023

$$\bar{p} = 0,0109$$

$$n = 650$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0109 - 3 \sqrt{\frac{0,0109(1-0,0109)}{650}} = -0,0013$$

Rough Finish

**a. Proporsi**

$$1. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{14}{695} = 0,0201$$

$$2. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{1}{450} = 0,0022$$

$$4. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{6}{650} = 0,0092$$

$$5. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{26}{910} = 0,0286$$

$$6. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{5}{725} = 0,0069$$

$$7. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{12}{490} = 0,0245$$

$$8. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{9}{630} = 0,0143$$

$$9. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{1}{880} = 0,0011$$

$$10. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{12}{740} = 0,0162$$

$$11. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{17}{960} = 0,0177$$

$$12. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{26}{1005} = 0,0259$$

$$13. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{13}{890} = 0,0146$$

$$14. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{9}{650} = 0,013$$

## b. UCL

1. Februari 2022

$$\bar{p} = 0,0161$$

$$n = 695$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0161 + 3 \sqrt{\frac{0,0161(1-0,0161)}{695}} = 0,0304$$

2. Maret 2022

$$\bar{p} = 0,0161$$

$$n = 450$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0161 + 3 \sqrt{\frac{0,0161(1-0,0161)}{450}} = 0,0339$$

3. April 2022

$$\bar{p} = 0,0161$$

$$n = 650$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0161 + 3 \sqrt{\frac{0,0161(1-0,0161)}{650}} = 0,0309$$

4. Mei 2022

$$\bar{p} = 0,0161$$

$$n = 910$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0161 + 3 \sqrt{\frac{0,0161(1-0,0161)}{910}} = 0,0286$$

5. Juni 2022

$$\bar{p} = 0,0161$$

$$n = 725$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0161 + 3 \sqrt{\frac{0,0161(1-0,0161)}{725}} = 0,0301$$

6. Juli 2022

$$\bar{p} = 0,0161$$

$$n = 490$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0161 + 3 \sqrt{\frac{0,0161(1-0,0161)}{490}} = 0,0331$$

7. Agustus 2022

$$\bar{p} = 0,0161$$

$$n = 630$$



$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0161 + 3 \sqrt{\frac{0,0161(1-0,0161)}{630}} = 0,0311$$

8. September 2022

$$\bar{p} = 0,0161$$

$$n = 880$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0161 + 3 \sqrt{\frac{0,0161(1-0,0161)}{880}} = 0,0288$$

9. Oktober 2022

$$\bar{p} = 0,0161$$

$$n = 740$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0161 + 3 \sqrt{\frac{0,0161(1-0,0161)}{740}} = 0,0300$$

10. November 2022

$$\bar{p} = 0,0161$$

$$n = 960$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0161 + 3 \sqrt{\frac{0,0161(1-0,0161)}{960}} = 0,0283$$

11. Desember 2022

$$\bar{p} = 0,0161$$

$$n = 1005$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0161 + 3 \sqrt{\frac{0,0161(1-0,0161)}{1005}} = 0,0280$$

12. Januari 2023

$$\bar{p} = 0,0161$$

$$n = 890$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0161 + 3 \sqrt{\frac{0,0161(1-0,0161)}{890}} = 0,0287$$

13. Februari 2023

$$\bar{p} = 0,0161$$

$$n = 650$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0161 + 3 \sqrt{\frac{0,0161(1-0,0161)}{650}} = 0,0309$$

**c. LCL**

1. Februari 2022

$$\bar{p} = 0,0161$$

$$n = 695$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0161 - 3 \sqrt{\frac{0,0161(1-0,0161)}{695}} = 0,0018$$

2. Maret 2022

$$\bar{p} = 0,0161$$

$$n = 450$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0161 - 3 \sqrt{\frac{0,0161(1-0,0161)}{450}} = -0,0017$$

3. April 2022

$$\bar{p} = 0,0161$$

$$n = 650$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0161 - 3 \sqrt{\frac{0,0161(1-0,0161)}{650}} = 0,0013$$

4. Mei 2022

$$\bar{p} = 0,0161$$

$$n = 910$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0161 - 3 \sqrt{\frac{0,0161(1-0,0161)}{910}} = 0,0036$$

5. Juni 2022

$$\bar{p} = 0,0161$$

$$n = 725$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0161 - 3 \sqrt{\frac{0,0161(1-0,0161)}{725}} = 0,0021$$

6. Juli 2022

$$\bar{p} = 0,0161$$

$$n = 490$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0161 - 3 \sqrt{\frac{0,0161(1-0,0161)}{490}} = -0,0010$$

7. Agustus 2022

$$\bar{p} = 0,0161$$

$$n = 630$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0161 - 3 \sqrt{\frac{0,0161(1-0,0161)}{630}} = 0,0011$$

8. September 2022

$$\bar{p} = 0,0161$$

$$n = 880$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0161 - 3 \sqrt{\frac{0,0161(1-0,0161)}{880}} = 0,0034$$

9. Oktober 2022

$$\bar{p} = 0,0161$$

$$n = 740$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0161 - 3 \sqrt{\frac{0,0161(1-0,0161)}{740}} = 0,0022$$

10. November 2022

$$\bar{p} = 0,0161$$

$$n = 960$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0161 - 3 \sqrt{\frac{0,0161(1-0,0161)}{960}} = 0,0039$$

11. Desember 2022

$$\bar{p} = 0,0161$$

$$n = 1005$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0161 - 3 \sqrt{\frac{0,0161(1-0,0161)}{1005}} = 0,0042$$

12. Januari 2023

$$\bar{p} = 0,0161$$

$$n = 890$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0161 - 3 \sqrt{\frac{0,0161(1-0,0161)}{890}} = 0,0034$$

13. Februari 2023

$$\bar{p} = 0,0161$$

$$n = 650$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0161 - 3 \sqrt{\frac{0,0161(1-0,0161)}{650}} = 0,0013$$

Marble

**a. Proporsi**

$$1. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{2}{695} = 0,0029$$

$$2. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{3}{450} = 0,0067$$

$$3. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{1}{650} = 0,0015$$

$$4. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{12}{910} = 0,00132$$

$$5. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{1}{725} = 0,0014$$

$$6. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{1}{490} = 0,0020$$

$$7. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{3}{630} = 0,0048$$

$$8. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{2}{880} = 0,0023$$

$$9. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{4}{740} = 0,0054$$

$$10. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{6}{960} = 0,0063$$

$$11. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{9}{1005} = 0,0090$$

$$12. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{3}{890} = 0,0034$$

$$13. p = \frac{\text{Jumlah Cacat}}{\text{Total yang diinspeksi}} = \frac{9}{650} = 0,0138$$

#### b. UCL

1. Februari 2022

$$\bar{p} = 0,0061$$

$$n = 695$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0061 + 3 \sqrt{\frac{0,0061(1-0,0061)}{695}} = 0,0149$$

2. Maret 2022

$$\bar{p} = 0,0061$$

$$n = 450$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0061 + 3 \sqrt{\frac{0,0061(1-0,0061)}{450}} = 0,0170$$

3. April 2022

$$\bar{p} = 0,0061$$

$$n = 650$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0061 + 3 \sqrt{\frac{0,0061(1-0,0061)}{650}} = 0,0152$$

4. Mei 2022

$$\bar{p} = 0,0061$$

$$n = 910$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0061 + 3 \sqrt{\frac{0,0061(1-0,0061)}{910}} = 0,0138$$

5. Juni 2022

$$\bar{p} = 0,0061$$

$$n = 725$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0061 + 3 \sqrt{\frac{0,0061(1-0,0061)}{725}} = 0,0147$$

6. Juli 2022

$$\bar{p} = 0,0061$$

$$n = 490$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0061 + 3 \sqrt{\frac{0,0061(1-0,0061)}{490}} = 0,0166$$

7. Agustus 2022

$$\bar{p} = 0,0061$$

$$n = 630$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0061 + 3 \sqrt{\frac{0,0061(1-0,0061)}{630}} = 0,0153$$

8. September 2022

$$\bar{p} = 0,0061$$

$$n = 880$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0061 + 3 \sqrt{\frac{0,0061(1-0,0061)}{880}} = 0,0139$$

9. Oktober 2022

$$\bar{p} = 0,0061$$

$$n = 740$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0061 + 3 \sqrt{\frac{0,0061(1-0,0061)}{740}} = 0,0146$$

10. November 2022

$$\bar{p} = 0,0061$$

$$n = 960$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0061 + 3 \sqrt{\frac{0,0061(1-0,0061)}{960}} = 0,0136$$

11. Desember 2022

$$\bar{p} = 0,0061$$

$$n = 1005$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0061 + 3 \sqrt{\frac{0,0061(1-0,0061)}{1005}} = 0,0134$$

12. Januari 2023

$$\bar{p} = 0,0061$$

$$n = 890$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0061 + 3 \sqrt{\frac{0,0061(1-0,0061)}{890}} = 0,0139$$

13. Februari 2023

$$\bar{p} = 0,0061$$

$$n = 650$$

$$UCL = \bar{p} + 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0061 + 3 \sqrt{\frac{0,0061(1-0,0061)}{650}} = 0,0152$$

**c. LCL**

1. Februari 2022

$$\bar{p} = 0,0061$$

$$n = 695$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0061 - 3 \sqrt{\frac{0,0061(1-0,0061)}{695}} = -0,0028$$

2. Maret 2022

$$\bar{p} = 0,0061$$

$$n = 450$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0061 - 3 \sqrt{\frac{0,0061(1-0,0061)}{450}} = -0,0049$$

3. April 2022

$$\bar{p} = 0,0061$$

$$n = 650$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0061 - 3 \sqrt{\frac{0,0061(1-0,0061)}{650}} = -0,0031$$

4. Mei 2022

$$\bar{p} = 0,0061$$

$$n = 910$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0061 - 3 \sqrt{\frac{0,0061(1-0,0061)}{910}} = -0,0017$$

5. Juni 2022



$$\bar{p} = 0,0061$$

$$n = 725$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0061 - 3 \sqrt{\frac{0,0061(1-0,0061)}{725}} = -0,0026$$

6. Juli 2022

$$\bar{p} = 0,0061$$

$$n = 490$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0061 - 3 \sqrt{\frac{0,0061(1-0,0061)}{490}} = -0,0045$$

7. Agustus 2022

$$\bar{p} = 0,0061$$

$$n = 630$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0061 - 3 \sqrt{\frac{0,0061(1-0,0061)}{630}} = -0,0032$$

8. September 2022

$$\bar{p} = 0,0061$$

$$n = 880$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0061 - 3 \sqrt{\frac{0,0061(1-0,0061)}{880}} = -0,0018$$

9. Oktober 2022

$$\bar{p} = 0,0061$$

$$n = 740$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0061 - 3 \sqrt{\frac{0,0061(1-0,0061)}{740}} = -0,0025$$

10. November 2022

$$\bar{p} = 0,0061$$

$$n = 960$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0061 - 3 \sqrt{\frac{0,0061(1-0,0061)}{960}} = -0,0015$$

11. Desember 2022

$$\bar{p} = 0,0061$$

$$n = 1005$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0061 - 3 \sqrt{\frac{0,0061(1-0,0061)}{1005}} = -0,0013$$

12. Januari 2023

$$\bar{p} = 0,0061$$

$$n = 890$$

$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0061 - 3 \sqrt{\frac{0,0061(1-0,0061)}{890}} = -0,0017$$


13. Februari 2023

$$\bar{p} = 0,0061$$

$$n = 650$$


$$LCL = \bar{p} - 3 \left( \sqrt{\frac{p(1-p)}{n}} \right) = 0,0061 - 3 \sqrt{\frac{0,0061(1-0,0061)}{650}} = -0,0031$$

















## Lampiran 3 (Kartu Bimbingan)


**JURNAL BIMBINGAN TUGAS AKHIR**  
**PRODI TEKNIK INDUSTRI**  
**SEMESTER GENAP 2022/2023**


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Nama : **ADY PERDANA PUTRA**  
 NBI : **1411900071**  
 Judul Penelitian : **ANALISIS PENGENDALIAN KUALITAS**  
**PEOPLE ENZO DAP CABINET CLINA MEMENUHI PERMINTAAN**  
**KUMHAR LUAR NEGERI PADA PERUSAHAAN PT. POMI VIOLETA**  
 Dosen Pembimbing: **SITI MUHIMATUL KHOIRAH, ST, MT**



| No. | Tanggal   | Materi Bimbingan | Catatan Pembimbing                       | Paraf Pembimbing   |
|-----|-----------|------------------|--|--|
| 1.  | 13/3/2023 | DAB I            | Latar belakang + judul                   |    |
| 2.  | 14/3/2023 | DAB I            | Latar belakang                           |    |
| 3.  | 14/3/2023 | DAB I            | Tinjauan pustaka                         |    |
| 4.  | 15/3/2023 | DAB II           | Penelitian pendahuluan                   |    |
| 5.  | 15/3/2023 | DAB II           | Flowchart                                |   |
| 6.  | 16/3/2023 | DAB I + II + III | Review                                   |  |
| 7.  | 17/3/2023 | DAB IV           | pengolahan data                          |  |
| 8.  | 17/3/2023 | DAB W            | histogram                                |  |
| 9.  | 17/3/2023 | DAB IV           | pareto                                   |  |
| 10. | 20/3/2023 | DAB IV           | Peta kendali                             |  |
| 11. | 24/3/2023 | DAB IV           | Peta kendali rough + smooth              |  |
| 12. | 25/3/2023 | DAB IV           | <del>fishbone</del> Fishbone Diagram     |  |
| 13. | 29/3/2023 | DAB IV           | analisa FMEA                             |  |
| 14. | 26/3/2023 | DAB V            | perbaikan rekomendasi                    |  |
| 15. | 29/3/2023 | DAB V            | <del>kesimpulan</del> Kesimpulan & saran |  |
| 16. | 31/3/2023 | ACC              | ACC sidang                               |  |

## Lampiran 4 (Surat Ijin Penelitian)



No. : 0012/HRD/SK/P/III/2023  
 Lampiran : -  
 Hal : Ijin Untuk Penelitian

**Kepada Yth,**  
 Dekan Fakultas Teknik  
 Universitas 17 Agustus 1945 Surabaya  
 di  
 Surabaya

Dengan hormat,


Sehubungan dengan adanya proposal dari Fakultas Teknik Universitas 17 Agustus 1945 Surabaya tertanggal 14 Maret 2023 yakni perihal permohonan izin penelitian tugas akhir kepada mahasiswa:

| NO. | NAMA              | NBI        | PELAKSANAAN             | DIVISI |
|-----|-------------------|------------|-------------------------|--------|
| 1.  | Ady Perdana Putra | 1411900071 | 16 Maret 2023 – Selesai | QC     |

Bersama ini kami sampaikan bahwa mahasiswa tersebut dapat kami terima untuk dapat melaksanakan penelitian tugas akhir di perusahaan kami terhitung mulai tanggal 16 Maret 2023 s.d selesai

Atas perhatiannya dan kerjasamanya, kami ucapkan terima kasih

Sidoarjo, 16 Maret 2023



**GATOT SUHADI, S.H., M.H.**  
 Manager HRD

Jl. Raya Buduran Km. 6 Sidoarjo 61252, Jawa Timur, Indonesia  
 Phone : (62/31) 8941052 (Hunting) Fax. (62/31) 8963449  
 Email : contact@romivioleta.com

Lampiran 5 (Lembar Revisi Sidang Tugas Akhir)

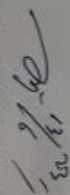
**UNIVERSITAS 17 AGUSTUS 1945 SURABAYA**  
**FAKULTAS TEKNIK**  
**PROGRAM STUDI TEKNIK INDUSTRI**


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**REVISI SIDANG TUGAS AKHIR**

NAMA : Ady Perdana Putra  
 NBI : 1411900071  
 JUDUL : ANALISIS PENGENDALIAN KUALITAS PRODUK ENZO BAR CABINET GUNA MEMENUHI PERMINTAAN BUYER LUAR NEGERI PADA PT. ROMI VIOLETA  
 BATAS BIMBINGAN REVISI : 1 Minggu setelah Sidang

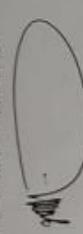
| NO | URAIAN   | BAB | HALAMAN | NO | URAIAN  | BAB | HALAMAN   |
|----|--|-----|---------|----|---|-----|---|
|    | <p style="text-align: right;"><i>Sangat Keren!</i><br/> <i>21/3/23</i><br/> <i>1/3/6</i></p> |     |         | 1. | Tambah diskrups produk JS   |     |   |
|    |  |     |         | 2  | menentukan spesifikasi<br>lakukan case JS diatas 2 LB<br>tdk bisa dibuktikan → buktikan |     | <p style="text-align: right;"><i>1/3/23</i><br/> <i>1/3/6</i></p> |

Telah Direvisi,  
 Dosen Penguji 1, 

Dosen Penguji 2, 

Dr. Ir. Saiful, M.Kes., JPU., ASEAN Eng

Ir. Siti Mundari, ST., MT

Surabaya, 07 Juni 2023  
 Mengetahui  
 Dosen Pembimbing,  
  
 Siti Muhtarom Khoiroh, ST., MT

## BIOGRAFI



Ady Perdana Putra, dilahirkan di Banjarmasin, 23 Maret 2001. Merupakan anak pertama dari 3 bersaudara dan dari pasangan Bapak Sepri Heri Ady dan Ibu Miati. Riwayat pendidikan peneliti dimulai dari SDN Lidah Kulon 1 Surabaya dan selesai pada tahun 2013, ditahun yang sama peneliti melanjutkan pendidikan di MTs. Negeri 2 Surabaya dan selesai pada tahun 2016. Kemudian melanjutkan ke jenjang berikutnya SMA Wachid Hasyim 2 Taman Sidoarjo, dan tamat pada tahun 2019. Pada tahun 2019 peneliti melanjutkan pendidikan di perguruan tinggi di Universitas 17 Agustus 1945 Surabaya dengan mengambil jurusan Teknik Industri dan berhasil lulus tepat 8 semester di tahun 2023.

Penulis dapat dihubungi melalui email [putraaady23@gmail.com](mailto:putraaady23@gmail.com)