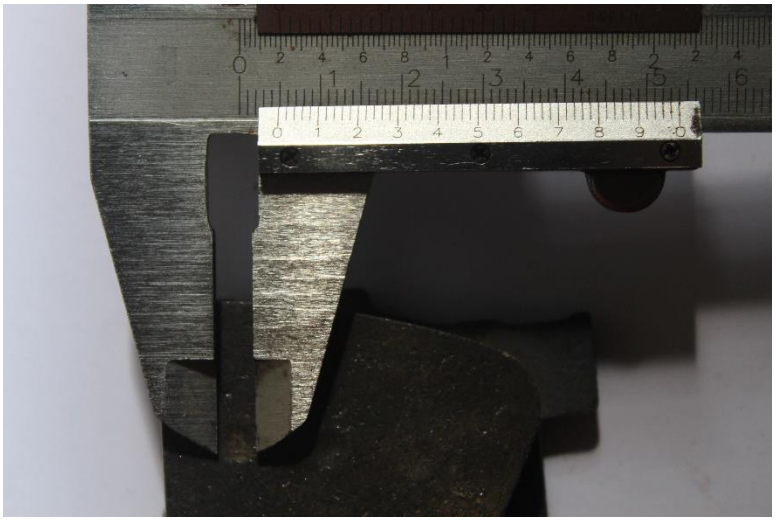
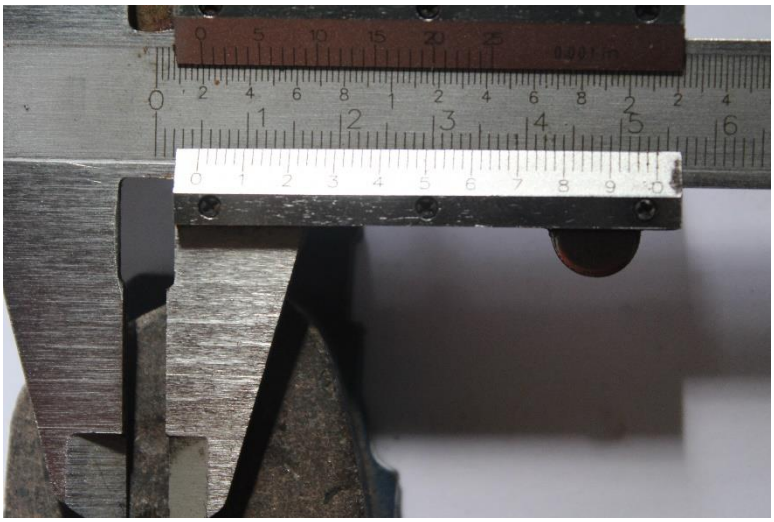
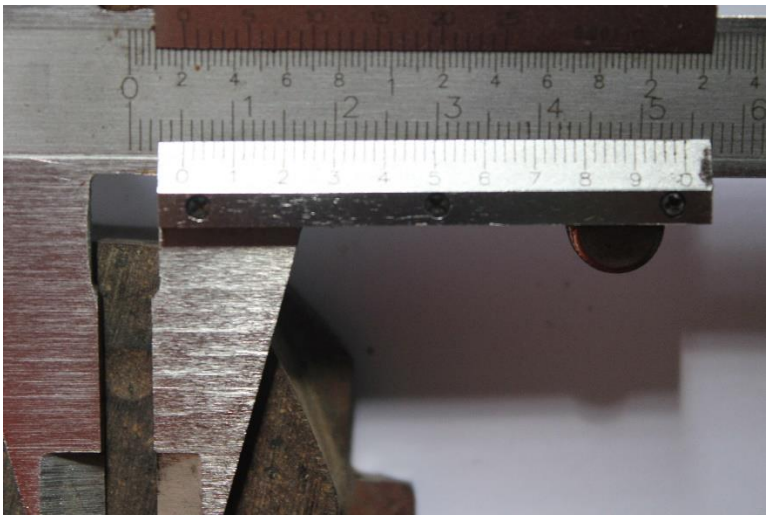
Gambar proses pengukuran diameter bekas indentasi.







Perhitunngan nilai kekerasan Brinell spesimen kampas rem Indopart.

1. Spesimen Imitasi pengujian 1 :

$$HBW = 0{,}102 \times \frac{2 \times F}{\pi \times D \times (D - \sqrt{D^2 - d^2})}$$

$$HBW = 0{,}102 \times \frac{2 \times 250}{\pi \times 10 \times (10 - \sqrt{10^2 - 4{,}72^2})}$$

$$HBW = 1{,}37\ HBN$$

2. Spesimen Imitasi pengujian 2 :

$$HBW = 0{,}102 \times \frac{2 \times F}{\pi \times D \times (D - \sqrt{D^2 - d^2})}$$

$$HBW = 0{,}102 \times \frac{2 \times 250}{\pi \times 10 \times (10 - \sqrt{10^2 - 4{,}7^2})}$$

$$HBW = 1{,}38\ HBN$$

3. Spesimen Imitasi pengujian 3 :

$$HBW = 0{,}102 \times \frac{2 \times F}{\pi \times D \times (D - \sqrt{D^2 - d^2})}$$

$$HBW = 0{,}102 \times \frac{2 \times 250}{\pi \times 10 \times (10 - \sqrt{10^2 - 4{,}52^2})}$$

$$HBW = 1{,}5\ HBN$$

4. Spesimen Imitasi pengujian 4 :

$$HBW = 0{,}102 \times \frac{2 \times F}{\pi \times D \times (D - \sqrt{D^2 - d^2})}$$

$$HBW = 0{,}102 \times \frac{2 \times 250}{\pi \times 10 \times (10 - \sqrt{10^2 - 4{,}96^2})}$$

$$HBW = 1{,}23\ HBN$$

5. Spesimen Imitasi pengujian 5 :

$$HBW = 0{,}102 \times \frac{2 \times F}{\pi \times D \times (D - \sqrt{D^2 - d^2})}$$

$$HBW = 0{,}102 \times \frac{2 \times 250}{\pi \times 10 \times (10 - \sqrt{10^2 - 4{,}7^2})}$$

$$HBW = 1{,}59$$

Rata-rata HBW :

$$\overline{HBW} = \frac{1{,}37 + 1{,}38 + 1{,}5 + 1{,}23 + 1{,}59}{5}$$

$$\overline{HBW} = 1{,}42$$

Perhitungan nilai kekerasan Brinell spesimen kampas rem SGP.

1. Spesimen Orisinil pengujian 1.

$$HBW = 0{,}102 \times \frac{2 \times F}{\pi \times D \times (D - \sqrt{D^2 - d^2})}$$

$$HBW = 0{,}102 \times \frac{2 \times 250}{\pi \times 10 \times (10 - \sqrt{10^2 - 5{,}1^2})}$$

$$HBW = 1{,}16$$

2. Spesimen Orisinil pengujian 2.

$$HBW = 0{,}102 \times \frac{2 \times F}{\pi \times D \times (D - \sqrt{D^2 - d^2})}$$

$$HBW = 0{,}102 \times \frac{2 \times 250}{\pi \times 10 \times (10 - \sqrt{10^2 - 4{,}72^2})}$$

$$HBW = 1{,}37$$

3. Spesimen Orisinil pengujian 3.

$$HBW = 0{,}102 \times \frac{2 \times F}{\pi \times D \times (D - \sqrt{D^2 - d^2})}$$

$$HBW = 0{,}102 \times \frac{2 \times 250}{\pi \times 10 \times (10 - \sqrt{10^2 - 4{,}84^2})}$$

$$HBW = 1{,}30$$

4. Spesimen Orisinil pengujian 4.

$$HBW = 0{,}102 \times \frac{2 \times 250}{\pi \times 10 \times (10 - \sqrt{10^2 - 4{,}84^2})}$$

$$HBW = 1{,}30$$

5. Spesimen Orisinil pengujian 5.

$$HBW = 0{,}102 \times \frac{2 \times F}{\pi \times D \times (D - \sqrt{D^2 - d^2})}$$

$$HBW = 0{,}102 \times \frac{2 \times 250}{\pi \times 10 \times (10 - \sqrt{10^2 - 5{,}14})}$$

$$HBW = 1{,}14$$

Rata-rata HBW:

$$\overline{HBW} = \frac{(1{,}16 + 1{,}37 + 1{,}30 + 1{,}30 + 1{,}14)}{5}$$

$$\overline{HBW} = 1{,}25$$

Perhitungan nilai kekerasan Brinell spesimen kampas rem serbuk kayu (X).

1. Spesimen X pengujian 1.

$$HBW = 0{,}102 \times \frac{2 \times 250}{\pi \times 10 \times (10 - \sqrt{10^2 - 5{,}5})}$$

$$HBW = 0{,}98$$

2. Spesimen X pengujian 2.

$$HBW = 0{,}102 \times \frac{2 \times 250}{\pi \times 10 \times (10 - \sqrt{10^2 - 5{,}26})}$$

$$HBW = 1{,}08$$

3. Spesimen X pengujian 3.

$$HBW = 0{,}102 \times \frac{2 \times 250}{\pi \times 10 \times (10 - \sqrt{10^2 - 5{,}64})}$$

$$HBW = 0{,}93$$

4. Spesimen X pengujian 4.

$$HBW = 0{,}102 \times \frac{2 \times 250}{\pi \times 10 \times (10 - \sqrt{10^2 - 5{,}5})}$$

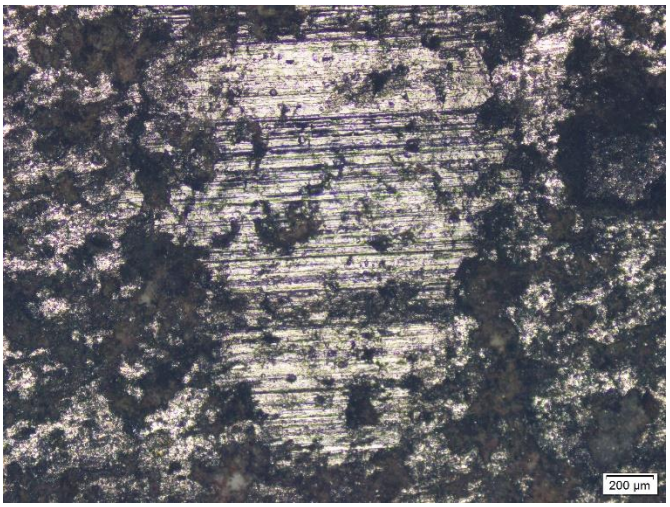
$$HBW = 0{,}98$$

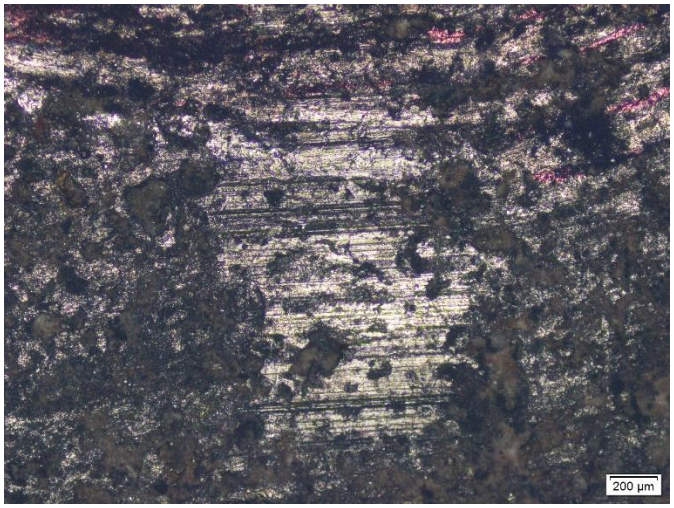
5. Spesimen X pengujian 5.

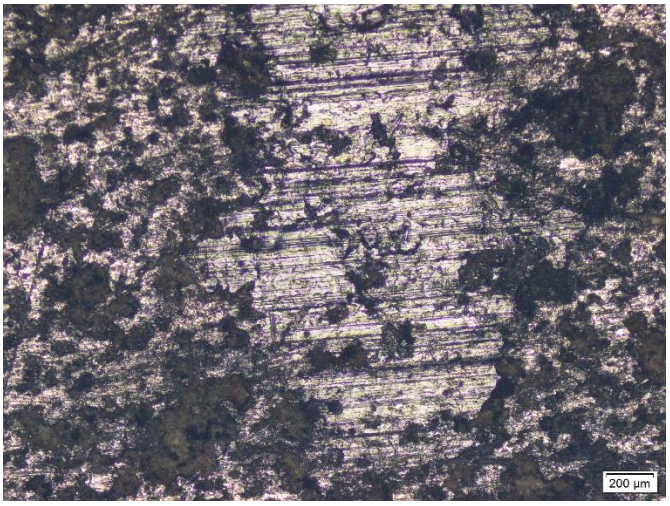
$$HBW = 0{,}102 \times \frac{2 \times 250}{\pi \times 10 \times (10 - \sqrt{10^2 - 5{,}48})}$$

$$HBW = 0{,}99$$

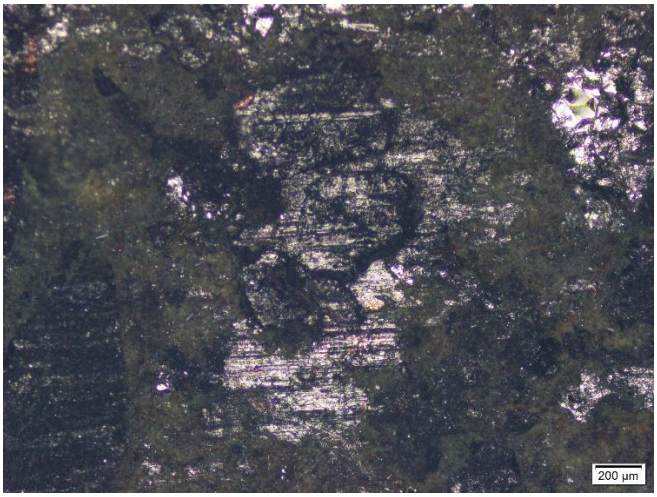
Gambar hasil fotomikro uji keausan abrasif spesimen Imitasi.

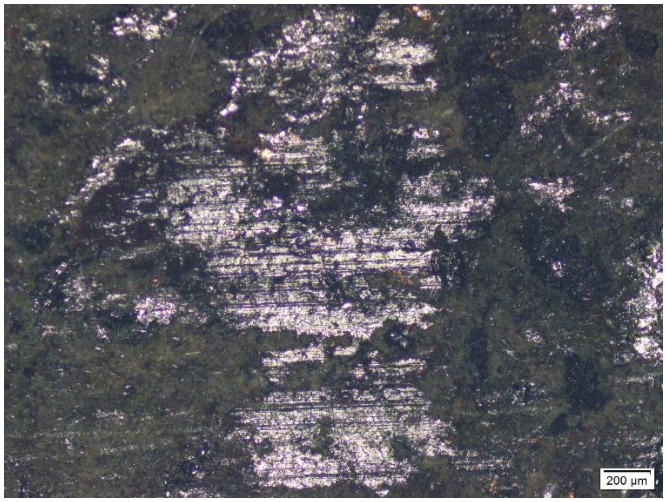




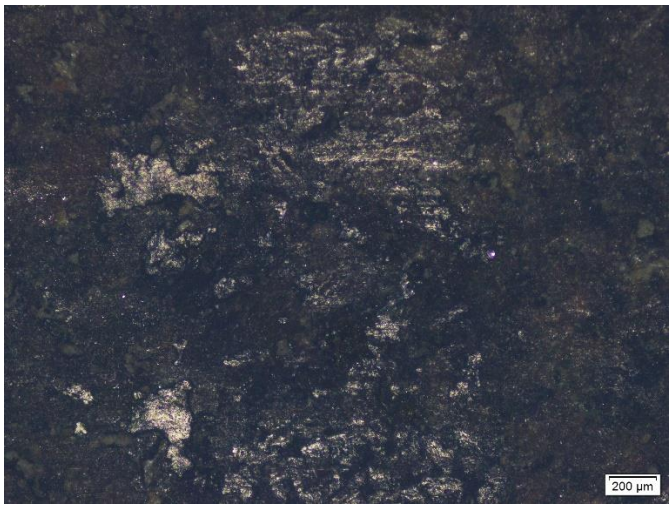


Gambar hasil fotomikro uji keausan abrasif spesimen Orisinil.





Gambar hasil fotomikro kampas rem serbuk kayu (X)



Perhitungan nilai keausan abrasif spesifik spesimen Imitasi.

1. Pengujian 1

$$Ws = \frac{B.b^3}{8.r.Po.lo}$$

$$Ws = \frac{3 \times 0{,}93^3}{8 \times 1{,}5 \times 2{,}12 \times 66{,}6}$$

$$Ws = 0{,}14$$

2. Pengujian 2

$$Ws = \frac{3 \times 1{,}39^3}{8 \times 1{,}5 \times 2{,}12 \times 66{,}6}$$

$$Ws = 0{,}47$$

3. Pengujian 3

$$Ws = \frac{3 \times 0{,}74^3}{8 \times 1{,}5 \times 2{,}12 \times 66{,}6}$$

$$Ws = 0{,}07$$

Ws rata-rata:

$$\overline{Ws} = \frac{0{,}14 + 0{,}47 + 0{,}07}{3} = 0{,}23$$

Perhitungan nilai keausan abrasif spesifik Orisinil.

1. Pengujian 1

$$Ws = \frac{B.b^3}{8.r.Po.lo}$$

$$Ws = \frac{3 \times 1{,}07^3}{8 \times 1{,}5 \times 2{,}12 \times 66{,}6}$$

$$Ws = 0{,}22$$

2. Pengujian 2

$$Ws = \frac{3 \times 1{,}39^3}{8 \times 1{,}5 \times 2{,}12 \times 66{,}6}$$

$$Ws = 0{,}21$$

3. Pengujian 3

$$Ws = \frac{3 \times 0{,}73^3}{8 \times 1{,}5 \times 2{,}12 \times 66{,}6}$$

$$Ws = 0{,}07$$

Ws rata-rata:

$$\overline{Ws} = \frac{0{,}22 + 0{,}21 + 0{,}07}{3} = 0{,}16$$

Perhitungan nilai keausan abrasif spesifik kampas rem serbuk kayu (X)

1. Pengujian 1

$$Ws = \frac{B.b^3}{8.r.Po.lo}$$

$$Ws = \frac{3 \times 1{,}02^3}{8 \times 1{,}5 \times 2{,}12 \times 66{,}6}$$

$$Ws = 0{,}19$$

2. Pengujian 2

$$Ws = \frac{3 \times 1{,}18^3}{8 \times 1{,}5 \times 2{,}12 \times 66{,}6}$$

$$Ws = 0{,}29$$

3. Pengujian 3

$$Ws = \frac{3 \times 1{,}07^3}{8 \times 1{,}5 \times 2{,}12 \times 66{,}6}$$

$$Ws = 0{,}29$$

Ws rata-rata:

$$\overline{Ws} = \frac{0{,}19 + 0{,}29 + 0{,}29}{3} = 0{,}26$$