CHAPTER 7
CONCLUSION AND RECOMMENDATION

7.1. Conclusion
There are problems at spinning work center. The air around ring frame machine is dusty and that causes the surfaces of yarn produced by this machine defected (not aligned). The defect product must be cut at the finishing work center; this prolongs production processes, creating a bottleneck at this work center. Therefore, the real production does not reach the production target (late of production) that causes profit loss. The root problem is the dust cleaner machine cannot absorb dust optimally, because lack of hole at exhaust arm.

Based on those problems, this research propose a design improvement of dust cleaner machine by adding an appropriate number of exhaust systems, to maximize the ability of absorbing the dust in order to help PT. Kusumaputra Santosa clean the air condition in the spinning work center.

The improvements of dust cleaner machine by add ten holes at exhaust arm can maximize the ability of absorbing dust around spinning work center at PT Kusumaputra Santosa. This statement proved after long experiment. List below will show you about the decline of dust level in the air.

1. The dust level at Ring Spinning 1 decrease from 1.00 mg/m$^3$ to 0.7 mg/m$^3$
2. The dust level at Ring Spinning 2 decrease from 1.33 mg/m$^3$ to 0.7 mg/m$^3$
3. The dust level at Ring Spinning 3 decrease from 0.66 mg/m$^3$ to 0.33 mg/m$^3$
4. The dust level at Ring Spinning 4 decrease from 0.66 mg/m$^3$ to 0.33 mg/m$^3$

Applying new design of dust cleaner machine can clean up the air at spinning work center. Then because of that, the root of the problem as explained in the background can be solved one by one. Clean air increases the quality of yarn, so the defect product can be reduced. This can be seen from the number of cut and joint yarn at finishing work center, from the average of 10.3 decrease to 7.8, so the level of bottleneck can be reduced and production process can be fast.

The production process is fast, the level of production is increase, it can be shown at yarn type 32 CD and 30 CD. Yarn type 32 CD increases from 0.38 bale/day become 0.447 bale/day, yarn type 30 CD increase from 0.25 bale/day become 0.3 bale/day.
7.2. Recommendation

Based on three data above can be conclude that new design of dust cleaner machine works as desired, so the company can apply it to maximize production process.

The company can replace the old dust cleaner machine with the new design at all of spinning machines. This can make the air clean, and the ring spinning machine will produce the good yarns (align). Then, at the finishing work center there will be less number of cut and joint the yarn, so the production process will be faster, then finally the real production can reach the production target.
REFERENCES


Bridgman, H. A., Davies, T. D., Jickells, T., Hunova, J., Tovey, K., Bridges, K., et al., 2002, Air pollution in the Krusne Hory region, Czech Republic during the 1990s. Atmospheric Environment, 36, 3375–3389.


Suwanti, S., 2013, Quality Control Data of PT Kusumaputra Santosa. Karanganyar.


https://www.abprospecting.com/?q=node/262
# Appendix 1

**Result of Measurement of Dust level in the air with Old Machine**

<table>
<thead>
<tr>
<th>No</th>
<th>Lokasi</th>
<th>Parameter</th>
<th>Satuan</th>
<th>N A B</th>
<th>Hasil Analisa</th>
<th>Metode</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ring Spining Titik ke 1</td>
<td>Debu kapas atau katon</td>
<td>mg/m³</td>
<td>0,2</td>
<td>1,00</td>
<td>Gravimetri</td>
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<td></td>
<td>Tengah ujung barat</td>
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<td></td>
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<td>2</td>
<td>Ring Spining Titik ke 2</td>
<td>Debu kapas atau katon</td>
<td>mg/m³</td>
<td>0,2</td>
<td>1,33</td>
<td>Gravimetri</td>
</tr>
<tr>
<td></td>
<td>Tengah ujung timur</td>
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<td></td>
</tr>
<tr>
<td>3</td>
<td>Ring Spining Titik ke 3</td>
<td>Debu kapas atau katon</td>
<td>mg/m³</td>
<td>0,2</td>
<td>0,66</td>
<td>Gravimetri</td>
</tr>
<tr>
<td></td>
<td>Sebelah selatan</td>
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</tr>
<tr>
<td>4</td>
<td>Ring Spining Titik ke 4</td>
<td>Debu kapas atau katon</td>
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<td>0,66</td>
<td>Gravimetri</td>
</tr>
<tr>
<td></td>
<td>Sebelah utara</td>
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</tbody>
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**Keterangan:**

- Nilai Ambang Batas Faktor Kimia di Udara Lingkungan Kerja berdasarkan SNI 19-0232-2005

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Mengetahui

Yogyakarta, 3 Maret 2014
Kasi Keselamatan & Lingkungan Kerja

Ir. Prihatno, M Kes
NIP. 19630623 199503 1 002

Catatan:

1. Hasil pengujian hanya berlaku pada sampel yang diuji.
2. Laporan pengujian tidak boleh digandakan tanpa izin Manager Teknis.
Appendix 1

Result of Measurement of Dust level in the air with New Machine

<table>
<thead>
<tr>
<th>No</th>
<th>Lokasi</th>
<th>Jenis Debu</th>
<th>Satuan</th>
<th>Hasil Pengujian</th>
<th>NAB</th>
<th>Metode</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Pengukuran Titik Ke I</td>
<td>Kapas / Katun</td>
<td>mg/m³</td>
<td>0,7</td>
<td>0,2</td>
<td>Gravimetri</td>
</tr>
<tr>
<td>2.</td>
<td>Pengukuran Titik Ke II</td>
<td>Kapas / Katun</td>
<td>mg/m³</td>
<td>0,7</td>
<td>0,2</td>
<td>Gravimetri</td>
</tr>
<tr>
<td>3.</td>
<td>Pengukuran Titik Ke III</td>
<td>Kapas / Katun</td>
<td>mg/m³</td>
<td>0,33</td>
<td>0,2</td>
<td>Gravimetri</td>
</tr>
<tr>
<td>4.</td>
<td>Pengukuran Titik Ke IV</td>
<td>Kapas / Katun</td>
<td>mg/m³</td>
<td>0,33</td>
<td>0,2</td>
<td>Gravimetri</td>
</tr>
</tbody>
</table>

Keterangan :

Mengetahui: 
Kepala,

[Signature]

Petugas Laporan:

[Signature]

Catatan:
1. Hasil pengujian hanya berlaku pada sampel yang diuji.
2. Laporan pengujian tidak boleh digunakan tanpa izin Manajer Teknis.
Appendix 3
Picture of New Design of Exhaust Arm