



Report

Line 1 inspection report 13/05/2013

Line 63,000 bph

Bottle transport on stainless steel chain with water/soap lubrication

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Date: 30/05/2013
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Number of pages: 9

Overall objective of the inspection report:

Preparation for the switch from water/soap lubrication to hybrid track lubrication with the company's lubrication products via:

- I. Measurements of current state of the conveyor component chain and comparison with status in 2011, allowing the wear pattern to be monitored.
- II. Providing information concerning the mechanical defects on the current conveyor with bottles falling over as possible consequence.

Bottles falling over means losses in production and/or yield for the customer.

I. LB1 Inspection report

Zones with stainless steel hinged chains:

- Filler-Pasteuriser
- Pasteuriser - Etima A and Etima B
- Etima to Riverwood

Measurement of

2,557-metre stainless steel chain

199 drive wheels and 199 idlers

67 drive axles and idler axles.

Overall state of the chain is good.





Wear on chains:

Our recommendation is to replace the chain on motor M54.

This together with the drive wheels and idlers and possibly the lower and return guides (see also PDF in annex: LB1 - chain condition per motor)

| Motor | Analyse conveyor per spoor - 31 mei 2013 | | | | | | | | Analyse conveyor per spoor - 18 augustus 2011 | | | | | | | |
|-------------------------------------|--|------|------|------|------|------|------|------|---|------|------|------|------|------|------|------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| I One way glas van uit | | | | | | | | | | | | | | | | |
| M121 1 x 90° | | | | | | | | | | | | | | | | |
| M122 | | | | | | | | | | | | | | | | |
| M123 1 x 90° | | | | | | | | | | | | | | | | |
| M124 | | | | | | | | | | | | | | | | |
| M125 | | | | | | | | | | | | | | | | |
| M126 | | | | | | | | | | | | | | | | |
| M127 | | | | | | | | | | | | | | | | |
| M128 | | | | | | | | | | | | | | | | |
| M129 1 x 90° | | | | | | | | | | | | | | | | |
| M130 | | | | | | | | | | | | | | | | |
| M131 | | | | | | | | | | | | | | | | |
| M201 1x 45° | | | | | | | | | | | | | | | | |
| M202 | | | | | | | | | | | | | | | | |
| M203 1 x 45° | | | | | | | | | | | | | | | | |
| M204 | | | | | | | | | | | | | | | | |
| M205 - 1 links OUTLINER | | | | | | | | | | | | | | | | |
| M206 | | | | | | | | | | | | | | | | |
| M207 | | | | | | | | | | | | | | | | |
| M208 2 x 90° | | | | | | | | | | | | | | | | |
| INSPECTOR | | | | | | | | | | | | | | | | |
| M209 | | | | | | | | | | | | | | | | |
| M210 | | | | | | | | | | | | | | | | |
| M211 2 x 90° | | | | | | | | | | | | | | | | |
| RINCER | | | | | | | | | | | | | | | | |
| M44 1 x 90° | | | | | | | | | | | | | | | | |
| M45 | | | | | | | | | | | | | | | | |
| M46 | | | | | | | | | | | | | | | | |
| M vulter A 1 x 90° | | | | | | | | | | | | | | | | |
| II Vuller - Pasteur | | | | | | | | | | | | | | | | |
| GM51A-1 Links | | | | | | | | | | | | | | | | |
| GM51A-2 | 1,6% | 3,1% | 3,1% | | | | | | 0,5% | | | | | | | |
| GM51A-3 | 0,3% | | | | | | | | 1,6% | 1,6% | 2,1% | | | | | |
| GM51A-4 | 0,3% | | | | | | | | 2,6% | | | | | | | |
| GM51A-5 | 0,3% | | | | | | | | 1,4% | | | | | | | |
| GM51A-6 | 0,3% | | | | | | | | 1,0% | | | | | | | |
| GM51B | 0,3% | 0,3% | 0,3% | 0,3% | 0,3% | 0,3% | 0,3% | 0,3% | 0,8% | 0,8% | 1,4% | 1,0% | 0,0% | | | |
| GM52 (links naar past) | 1,7% | 1,9% | 1,6% | 1,5% | | | | | 0,6% | 0,6% | 0,7% | 0,5% | | | | |
| GM53 1 x 90° | 2,5% | 0,3% | 0,3% | 0,3% | 0,3% | 0,3% | 0,3% | | 2,0% | 2,0% | 2,4% | 2,6% | 2,0% | 2,6% | | |
| GM54 1 x 90° | 2,4% | 2,5% | 2,1% | 2,1% | 2,1% | 2,1% | 2,1% | | 2,1% | 2,6% | 2,9% | | | | | |
| GM55 | 0,1% | 0,1% | 0,1% | 0,1% | 0,1% | 0,1% | 0,1% | 0,1% | 2,5% | 2,5% | 2,5% | 2,5% | 2,5% | 2,5% | 2,5% | 2,5% |
| Spilring naar pasteur onder (links) | | | | | | | | | | | | | | | | |
| GM56 onder links | 0,3% | 0,3% | 0,3% | 0,3% | 0,3% | 0,3% | 0,3% | 0,3% | 0,3% | 0,3% | 0,3% | 0,3% | 0,3% | 0,3% | 0,3% | 0,3% |
| GM58 | 1,3% | 1,3% | 1,3% | 1,3% | 1,6% | | | | 1,6% | 2,0% | 1,6% | 1,3% | | | | |
| GM59 | 0,3% | 1,0% | 2,2% | 2,2% | | | | | 2,2% | 2,6% | 1,1% | 1,3% | | | | |
| GM7 ingang pasteur onder | 0,0% | 0,0% | 0,1% | 0,1% | | | | | 1,2% | 2,4% | 1,1% | 1,3% | | | | |
| GM57 boven Rechts - 1 | 0,3% | 0,3% | 0,3% | 0,3% | | | | | 1,1% | 2,0% | 1,6% | 2,4% | | | | |
| GM57 boven Rechts - 2 | 0,3% | 0,3% | | | | | | | 0,3% | 0,3% | | | | | | |
| GM59 | 1,0% | 2,4% | 1,3% | 2,5% | | | | | 1,7% | 1,8% | 2,6% | 2,7% | | | | |
| GM61 | 2,4% | 2,0% | 1,3% | 2,8% | | | | | 2,2% | 2,2% | 1,2% | 1,4% | | | | |
| GM 03 ingang pasteur boven | 1,7% | 0,0% | 2,8% | 0,3% | | | | | 2,4% | 2,0% | 1,1% | 1,3% | | | | |
| IV Pasteur - Inpakker | | | | | | | | | | | | | | | | |



Inliner Vuller

Outliner Vuller

www.bogaert-transmission.com

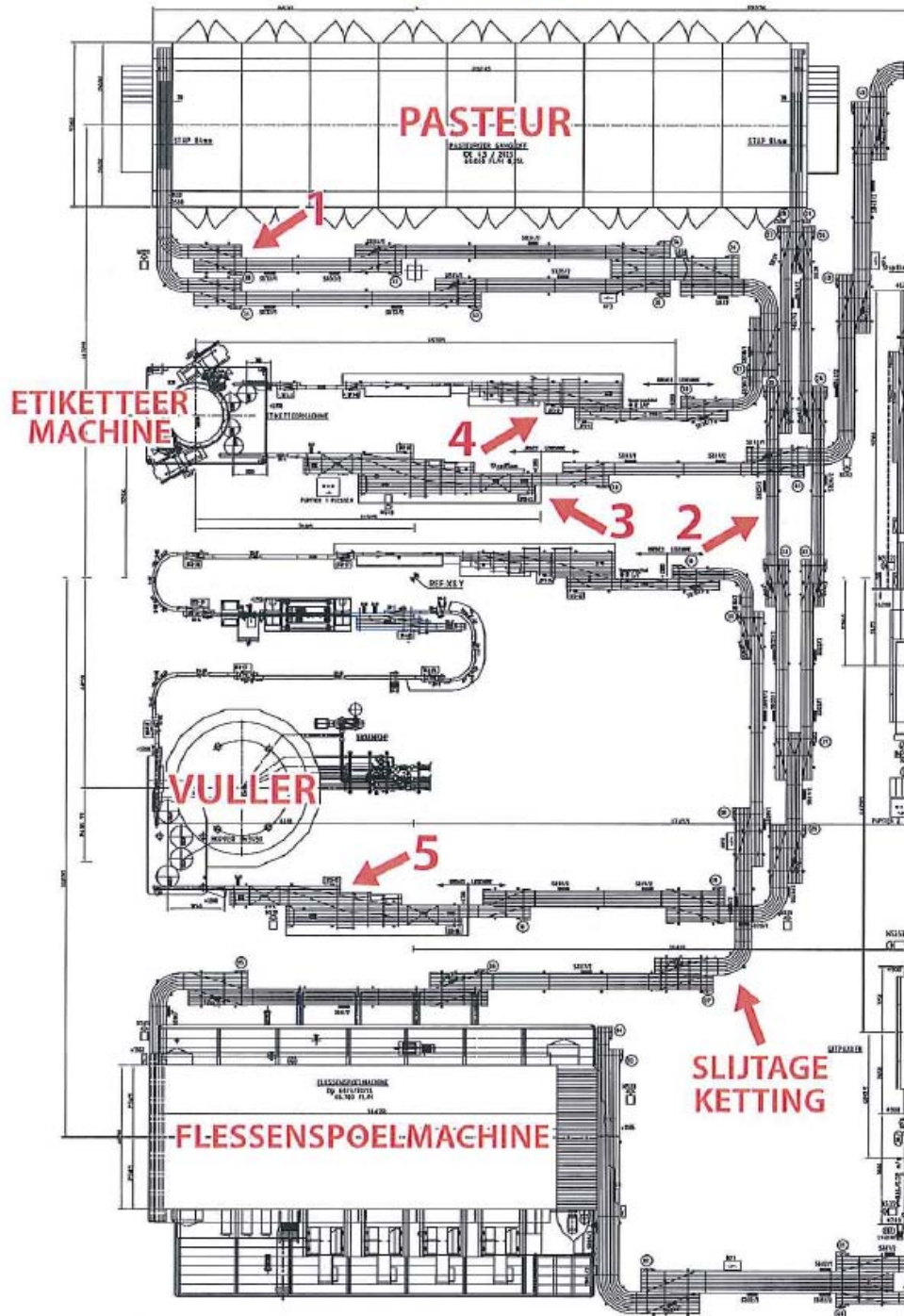




II. Comments / info on mechanical defects:

Point 1 through 5 on layout

Punt 1 tem 5 op lay-out





1. Slipping chains observed on the drive wheel: Causes the chain to jerk

Cause: catenary sag too small.

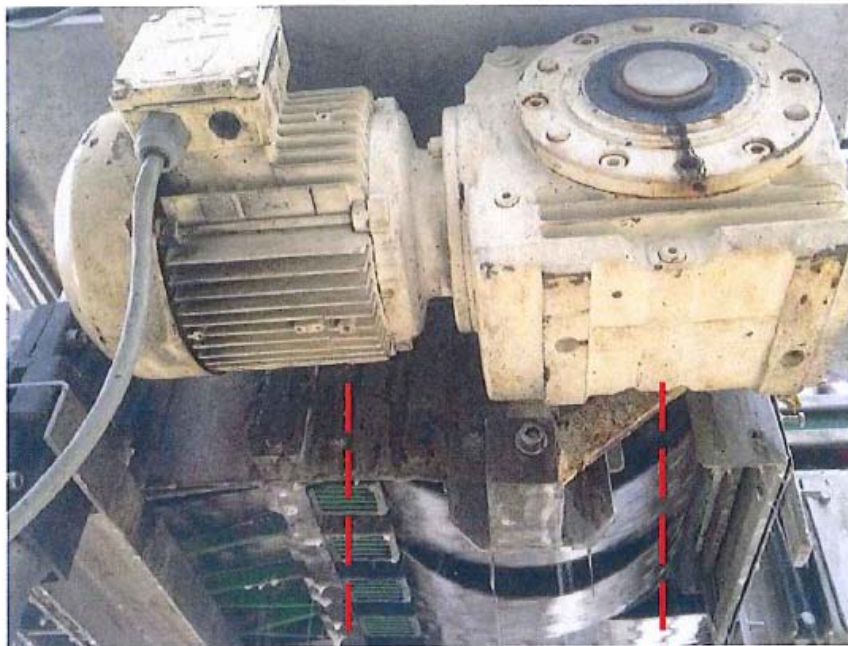
This is 200 mm on the pasteuriser drive outlet, i.e. M70 (below) and M71 (above).

Our recommendation is 450 mm. See below.

Catenary sag

It is recommended to create a catenary sag just behind the sprocket which provides a complete discharge of the chainload.

| Chains | Chain/ belt type | A (mm) | B (mm) | C (mm) | Vertical sag Y(mm) |
|--------|------------------|--------|-------------------|-----------------------|--------------------|
| | Chains | N/A | 450 | 500-600 | 50-125 |
| | Crate chains | N/A | N/A ¹⁾ | N/A ¹⁾ | 100-300 |
| | LBP-chains | N/A | 400 ²⁾ | 400-500 ²⁾ | 50-100 |
| | 500-series | 250 | 600 | 500-600 | 50-125 |
| | 505-series | 250 | 600 | 500-600 | 50-125 |



200 mm = NOT OK





2. Side guides of the bottles

- The holder has broken off and the side guides are bent at some places.



- Side guides must be parallel to the sides of the bottle.
Observed: the side guides are crooked at some places; due to this, pressure could cause the bottle to topple and possibly fall.





- Internal width of pasteuriser entrance above and below:

The side guides widen and narrow at some places, which could result in enormous pressure on the guide.

For a bottle with a diameter of $58.5 + 1.2$ mm and a 6-track chain conveyor, we calculate the ideal width for 6 tracks of bottles to be 323 mm.

This is an actual average of 335 mm.



Bottles not lined up -> side guides too wide





3. Corrosion:

At exit to the Etima we observed corrosion on the chain.

Reason: unknown - exposed to a chemical product??



4. Chain and running direction

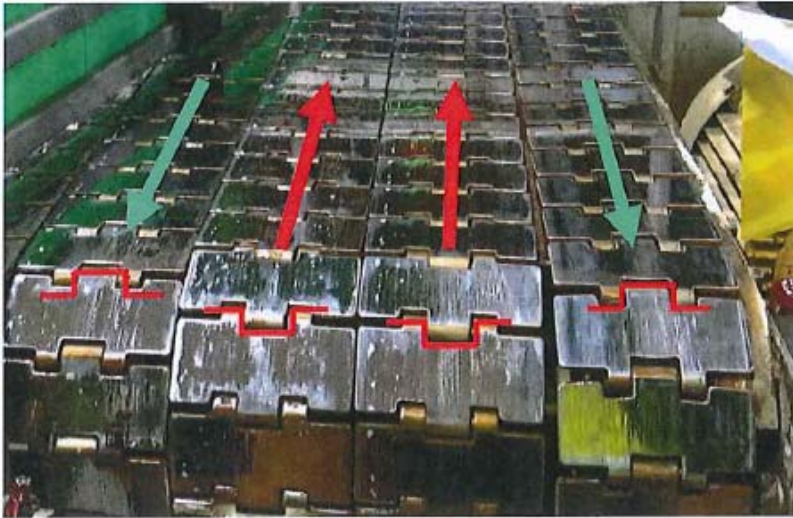
Chains have a preferred running direction that is indicated with an arrow on the underside of the chain.

Chain is incorrect on 5 places;

Running direction is especially important at inliner and outliner zones -> greater likelihood of bottles falling over when they are in the wrong direction

- M 71 track 2
- M 79B - 1 1° for inliner chain Etima A
- M 79B - 4 4° for inliner chain Etima A
- M 81 2 middle tracks





Chains not all running in the same direction on M 81



Chain running direction

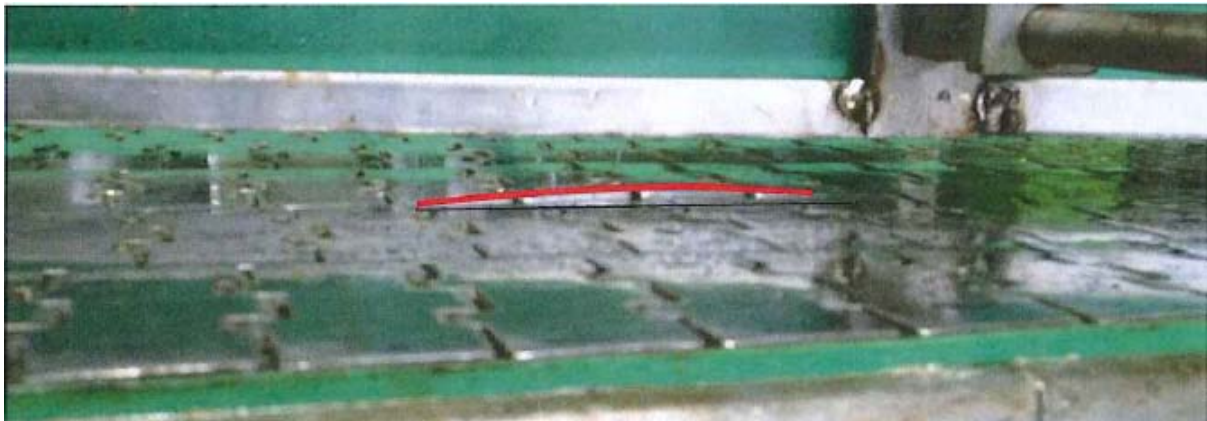




5. Contamination under chain:

Contamination was observed at outliner Filler motor M83-3 3° between the chain and lower guides. This causes the chain to raise at these places.

This is a cause of bottles falling over, certainly in this zone.



Yours sincerely,

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