HI-SPEED INDUSTRIAL SERVICE

MILLINGTON, TN

July 1, 2021

SONOCO

Subject: July(Q3) vibration report

Most of the machines surveyed were found to be in good condition with the exception of the following:

QualiTest® uses a four step rating system for defects.

Class I: Defect is present, but effect on reliability is not clear; no immediate action is required. Continue to normally monitor.

Class II: Defect (s) present that may cause problem in long term (2-6 months.). Repair during normal maintenance scheduling. Continue to monitor.

Class III; Defect (s) present that may cause failure in short term (less than 2 months.). This should be addressed as soon as practical, with a high maintenance priority. Increase monitoring frequency.

Class IV; Defect (s) present that makes continued reliability unpredictable, and possibility of secondary damage is high. Repairs should be made ASAP. An unscheduled shutdown should be considered for repairs

Hi-Speed **Industrial Service** tests and inspects industrial machinery and equipment and makes recommendations concerning maintenance and repairs based on its experience in the field of industrial repair and maintenance. The information contained herein is provided as an opinion only, not as a guaranty or warranty of the matters discussed herein.

This completes our assessment of your equipment for this survey. Thank you for your business and don't hesitate to call if you have any comments or questions.

Sincerely,

David W. Shook
Senior Reliability Specialist
Hi-Speed **Industrial Service**
dshook@gohispeed.com

7030 Ryburn Drive
Millington, TN 38053
P. 901-873-5300
F. 901-873-5301

Observations

Coater Main Exhaust Fan
No issues

Coater Zone 1 Fan Unit
Not running.

Coater Zone 2 Fan Unit
Fan shaft data still shows a non-synchronous peak at 3.3 orders of fan speed with multiple harmonics in both bearings. We believe this to be early bearing defects. The unit was also generating noise. The outboard bearing guard prevented quality data for that bearing. Inspect the bearing internals, if possible, otherwise expect to change out later this year. **Rated a Class II Defect.**

Coater Zone 3 Fan Unit
Vibrations at 27 HZ (fan Speed) in the motor axial have come up slightly to 0.67 in/sec peak. Ensure all foot bolts on the motor and fan bearing housings are torqued. Inspect sheaves for wear/loose hardware. Ensure belts are at appropriate tension. Check sheave alignment. The inboard bearing is showing defect frequencies. Ensure good lubrication. **Rated a Class II Defect.**

Coater Zone 4 Fan Unit
No issues.

Coater Zone 5 Fan Unit
No issues.

Coater Zone 6 Fan Unit
No issues.

Coater Cooling Zone A Fan Unit
Out of service.

Coater Cooling Zone B Fan Unit
No issues.

Vacuum pump 1
Motor has slight axial vibration. Inspect belts and sheaves for wear and alignment as time allows.
Rated a Class I Defect.

Vacuum Pump 2
Out of service.

Cooling tower pump 1
No issues.

Cooling tower pump 2
No issues.

P8 Oven Fan
Harmonics of fan speed still dominate the unit vibration data in the fan bearings. Overall vibrations are at 1"/second velocity peak in the axial. Ensure that sheaves are aligned, and all bearing housings are torqued. Inspect belts and sheaves for wear. Check the shaft runout to ensure the shaft is not bent. Clean fan of any buildup. Have fan balanced if necessary. **Rated a Class III Defect.**

P9 Oven Fan
Harmonics of fan speed still indicate looseness in the bearing or fits. Overall vibrations are at 1"/second velocity peak in the axial. The bearings will need to be lift checked with a dial indicator. Impacting is evident in the time waveform. They will probably need to be replaced soon. Ensure that sheaves are aligned, and all bearing housings are torqued. Inspect belts and sheaves for wear. Check the shaft runout to ensure the shaft is not bent. Clean fan of any buildup. Have fan balanced if necessary. **Rated a Class III Defect.**

P10 Oven Fan
The fan shaft bearings still have a high axial vibration at shaft speed. Inspect the fan sheave and shaft for run out both axially and radially and check the alignment with the motor sheave. Inspect for wear that would cause eccentricity in the belt surface. Perform a lift check on the shaft to determine if there is looseness in the bearings. **Rated a Class III Defect.**

P19 Oven Fan
Some motor overall vibrations have increased again to 1.2"/second velocity peak. Inspect the drivetrain for wear and alignment. Check that all motor and fan bearing fasteners are tight. Fan bearing data was limited. Modify the bearing guards for better access for vibration transducers. **Rated a Class III Defect.**

A Line Blower
No issues.

B Line Blower
Not running.

C Line Blower
Not running.

D Line Blower
Not running.

502 Spencer Blower
No issues.

```
                    Abbreviated Last Measurement Summary
                    ************************************

                Database:  sonoco.rbm
                Station:   SONOCO
                Route No.  1:  SONOCO
                Report Date:  01-Jul-21   14:07

MEASUREMENT POINT     OVERALL LEVEL       HFD / VHFD      MACHINE SPEED
-----------------     -------------       ----------      -------------

VACPUMP1   - VACUUM PUMP 1                  (30-Jun-21)
                      OVERALL LEVEL     1 - 20 KHz
       MOH              .145 In/Sec       .130 G-s        1800.0 RPM
       MOV              .227 In/Sec       .323 G-s
       MIH              .107 In/Sec       .217 G-s
       MIV              .256 In/Sec       .150 G-s
       MIA              .322 In/Sec       .192 G-s
       EIH              .067 In/Sec       .230 G-s
       EIV              .075 In/Sec       .166 G-s
       EIA              .072 In/Sec       .151 G-s
       EOH              .062 In/Sec       .103 G-s
       EOV              .080 In/Sec       .132 G-s
       EOA              .034 In/Sec       .201 G-s

CTPUMP1    - COOLING TOWER PUMP 1           (30-Jun-21)
                      OVERALL LEVEL     1 - 20 KHz
       MOH              .114 In/Sec       .750 G-s        1800.0 RPM
       MOV              .143 In/Sec       .606 G-s
       MIH              .088 In/Sec       .893 G-s
       MIV              .089 In/Sec      1.174 G-s
       MIA              .254 In/Sec       .372 G-s

CTPUMP2    - COOLING TOWER PUMP 2           (30-Jun-21)
                      OVERALL LEVEL     1 - 20 KHz
       MOH              .095 In/Sec       .089 G-s        1800.0 RPM
       MOV              .079 In/Sec       .084 G-s
       MIH              .115 In/Sec       .023 G-s
       MIV              .076 In/Sec       .069 G-s
       MIA              .089 In/Sec       .032 G-s

P8OVENFAN  - P8 OVEN FAN                    (30-Jun-21)
                      OVERALL LEVEL     1 - 20 KHz
```

MOH	.218 In/Sec	.067 G-s	1800.0 RPM
MOV	.192 In/Sec	.041 G-s	
MIH	.220 In/Sec	.092 G-s	
MIV	.258 In/Sec	.080 G-s	
MIA	.171 In/Sec	.021 G-s	
EIH	.313 In/Sec	1.742 G-s	
EIV	.609 In/Sec	1.444 G-s	
EIA	.983 In/Sec	.440 G-s	
EOH	.224 In/Sec	1.321 G-s	
EOV	.240 In/Sec	1.420 G-s	
EOA	.563 In/Sec	.434 G-s	

P9OVENFAN - P 9 OVEN FAN (30-Jun-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.108 In/Sec	.129 G-s	1800.0 RPM
MOV	.195 In/Sec	.113 G-s	
MIH	.156 In/Sec	.153 G-s	
MIV	.235 In/Sec	.245 G-s	
MIA	.449 In/Sec	.068 G-s	
EIH	.325 In/Sec	1.258 G-s	
EIV	.567 In/Sec	1.203 G-s	
EIA	1.018 In/Sec	.390 G-s	
EOH	.161 In/Sec	1.127 G-s	
EOV	.246 In/Sec	1.363 G-s	
EOA	1.044 In/Sec	.423 G-s	

P10OVENFAN - P10 OVEN FAN (30-Jun-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.178 In/Sec	.049 G-s	1800.0 RPM
MOV	.292 In/Sec	.023 G-s	
MIH	.266 In/Sec	.060 G-s	
MIV	.409 In/Sec	.057 G-s	
MIA	.278 In/Sec	.014 G-s	
EIH	.289 In/Sec	.414 G-s	
EIV	.468 In/Sec	.374 G-s	
EIA	.845 In/Sec	.144 G-s	
EOH	.440 In/Sec	.451 G-s	
EOV	.349 In/Sec	.377 G-s	
EOA	.948 In/Sec	.187 G-s	

MAINXHAUST - MAIN EXHAUST FAN (30-Jun-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.186 In/Sec	.499 G-s	1800.0 RPM
MOV	.150 In/Sec	.404 G-s	
MIH	.165 In/Sec	.432 G-s	
MIV	.094 In/Sec	.325 G-s	
MIA	.115 In/Sec	.044 G-s	
EIH	.197 In/Sec	.946 G-s	
EIV	.083 In/Sec	1.879 G-s	
EOH	.136 In/Sec	1.054 G-s	
EOV	.106 In/Sec	1.659 G-s	

ZONE1FAN - ZONE 1 SUPPLY FAN (30-Jun-21)

	OVERALL LEVEL	1 - 20 KHz	
MIH	.077 In/Sec	.247 G-s	1800.0 RPM
EIH	.113 In/Sec	.393 G-s	
EIV	.068 In/Sec	.341 G-s	

EIA	.184 In/Sec	.058 G-s	
EOH	.111 In/Sec	.081 G-s	
EOV	.127 In/Sec	.067 G-s	

ZONE2FAN - ZONE 2 SUPPLY FAN (30-Jun-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.154 In/Sec	.270 G-s	1800.0 RPM
MOV	.154 In/Sec	.358 G-s	
MIH	.093 In/Sec	.063 G-s	
MIV	.166 In/Sec	.168 G-s	
MIA	.181 In/Sec	.145 G-s	
EIH	.247 In/Sec	.604 G-s	
EIV	.124 In/Sec	.821 G-s	
EIA	.436 In/Sec	.600 G-s	
EOH	.155 In/Sec	.824 G-s	

ZONE3FAN - ZONE 3 SUPPLY FAN (30-Jun-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.474 In/Sec	.237 G-s	1800.0 RPM
MOV	.269 In/Sec	.129 G-s	
MIH	.308 In/Sec	.374 G-s	
MIV	.321 In/Sec	.591 G-s	
MIA	.673 In/Sec	.168 G-s	
EIH	.164 In/Sec	1.635 G-s	
EIV	.179 In/Sec	.650 G-s	
EIA	.259 In/Sec	.859 G-s	
EOH	.173 In/Sec	.172 G-s	
EOV	.093 In/Sec	.036 G-s	

ZONE4FAN - ZONE 4 SUPPLY FAN (30-Jun-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.257 In/Sec	.078 G-s	1800.0 RPM
MOV	.254 In/Sec	.112 G-s	
MIH	.166 In/Sec	.197 G-s	
MIV	.346 In/Sec	.148 G-s	
MIA	.317 In/Sec	.160 G-s	
EIH	.237 In/Sec	.406 G-s	
EIV	.107 In/Sec	.049 G-s	
EIA	.293 In/Sec	.350 G-s	
EOH	.209 In/Sec	.140 G-s	
EOV	.221 In/Sec	.189 G-s	

ZONE5FAN - ZONE 5 SUPPLY FAN (30-Jun-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.130 In/Sec	.040 G-s	1800.0 RPM
MOV	.083 In/Sec	.087 G-s	
MIH	.120 In/Sec	.051 G-s	
MIV	.116 In/Sec	.070 G-s	
MIA	.218 In/Sec	.072 G-s	
EIH	.136 In/Sec	.515 G-s	
EIV	.064 In/Sec	.503 G-s	
EIA	.187 In/Sec	.490 G-s	
EOH	.085 In/Sec	.069 G-s	

ZONE6FAN - ZONE 6 SUPPLY FAN (30-Jun-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.215 In/Sec	.054 G-s	1800.0 RPM

MOV	.377 In/Sec	.056 G-s	
MIH	.193 In/Sec	.072 G-s	
MIV	.298 In/Sec	.034 G-s	
MIA	.242 In/Sec	.019 G-s	
EIH	.217 In/Sec	.136 G-s	
EIV	.203 In/Sec	.371 G-s	
EIA	.202 In/Sec	.082 G-s	
EOH	.224 In/Sec	.139 G-s	
EOV	.209 In/Sec	.139 G-s	

COOLFAN B - COOLING FAN B (30-Jun-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.137 In/Sec	.337 G-s	1800.0 RPM
MOV	.204 In/Sec	.389 G-s	
MIH	.117 In/Sec	.355 G-s	
MIV	.177 In/Sec	.465 G-s	
MIA	.293 In/Sec	.243 G-s	
EIH	.147 In/Sec	.922 G-s	
EIV	.197 In/Sec	.895 G-s	
EIA	.335 In/Sec	.173 G-s	
EOH	.135 In/Sec	.519 G-s	
EOV	.215 In/Sec	.407 G-s	
EOA	.333 In/Sec	.219 G-s	

EXHAUSTFAN - EXHAUST FAN (30-Jun-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.218 In/Sec	.165 G-s	1800.0 RPM
MOV	.224 In/Sec	.106 G-s	
MIH	.139 In/Sec	.088 G-s	
MIV	.205 In/Sec	.063 G-s	
MIA	.385 In/Sec	.040 G-s	

P19OVENFAN - P 19 OVEN FAN (30-Jun-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.367 In/Sec	.324 G-s	1800.0 RPM
MOV	1.080 In/Sec	.143 G-s	
MIH	.866 In/Sec	.496 G-s	
MIV	1.269 In/Sec	.572 G-s	
MIA	.448 In/Sec	.071 G-s	
EOH	.141 In/Sec	.160 G-s	
EOV	.335 In/Sec	.180 G-s	
EOA	.243 In/Sec	.116 G-s	

502SPNBLWR - 502 SPENCER BLOWER (30-Jun-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.133 In/Sec	.180 G-s	1800.0 RPM
MOV	.132 In/Sec	.279 G-s	
MIH	.174 In/Sec	.210 G-s	
MIV	.176 In/Sec	.085 G-s	

Clarification Of Vibration Units:

Acc	-->	G-s	RMS
Vel	-->	In/Sec	PK