

July 24, 2020

SONOCO

# Subject: July 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.

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

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

**<u>Class III</u>**: 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.

<u>Class IV</u>; 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,

Jess White Reliability Specialist *Hi-Speed* Industrial Service jwhite@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

1x vibration has increased since last survey. We recommend checking all fasteners are torqued and ensuring that proper belt tension is applied. **Rated as a Class I Defect.** 

### Coater Zone 2 Fan Unit

No issues.

# Coater Zone 3 Fan Unit

Vibrations at 27 HZ in the motor axial have continued to decrease since the last survey. Rated a Class I Defect.

### Coater Zone 4 Fan Unit

Fan speed dominates the vibration data for the unit. The unit could have worn belts and sheaves, a flimsy structure or possibly, imbalance or loose or missing fasteners. Inspect the unit at the next downtime. **Rated a Class II Defect.** 

# Coater Zone 5 Fan Unit

No issues.

# Coater Zone 6 Fan Unit

Fan speed dominates the vibration data for the unit. The unit could have worn belts and sheaves, a flimsy structure or possibly, imbalance or loose or missing fasteners. Inspect the unit at the next downtime. **Rated a Class II Defect.** 

# Coater Exhaust Fan Unit

No issues.

**Coater Cooling Zone A Fan Unit** No issues.

# Coater Cooling Zone B Fan Unit

Unit was not running.

### Vacuum pumps 1 & 2

The 1x vibrations for both of these units have remained high for quite some time. **Rated as a Class II Defect.** I discussed with Josh the option of replacing the belts, sheaves, and motor bases and he informed me that might be something that you all would want to do hand in hand with Hi-Speed to give your maintenance crew the opportunity to learn how to do all these steps properly. If this is the case please reach out to me or Andrew Skala and we can get these units taken care of.

# Cooling tower pump 1

No issues.

# Cooling tower pump 2

No issues.

**A Blower** Not running this survey.

# **B** Blower

Not running for survey.

# C Blower

No issues.

# D Blower

High 1x vibration this month. Ensure that motor is bolted down properly and that blower shroud is secured properly as well. **Rated as a Class I Defect.** 

# 502 Spencer Blower

Not running this survey.

#### 

Database: sonoco.rbm Station: COATER Report Date: 28-Jul-20 17:44

MEASUREMENT POIN		HFD / VHFD
MAINXHAUST - MAII		23-Jul-20)
	OVERALL LEVEL	
MOH	.119 In/Sec	.367 G-s
MIH	.108 In/Sec	.307 G-s
MIA	.118 In/Sec	.190 G-s
EIH	.093 In/Sec	.814 G-s
EOH	.108 In/Sec .118 In/Sec .093 In/Sec .096 In/Sec	1.094 G-s
ZONE1FAN - ZONI	E 1 SUPPLY FAN (2	
	OVERALL LEVEL	1 - 20 KHz
MOH	.415 In/Sec	.138 G-s
MIH	.486 In/Sec	.188 G-s
EIH	.112 In/Sec	.700 G-s
EOH	.112 In/Sec .083 In/Sec	.153 G-s
ZONE2FAN - ZONI	E 2 SUPPLY FAN (2	
	OVERALL LEVEL	1 - 20 KHz
MOH	166 In/Sec	369 6-5
MIH	.110 In/Sec	.200 G-s
MIA	.223 In/Sec	.242 G-s
EIH	.189 In/Sec	.719 G-s
EOH	.110 In/Sec .223 In/Sec .189 In/Sec .145 In/Sec	1.436 G-s
ZONE3FAN - ZONI	E 3 SUPPLY FAN (2	
	OVERALL LEVEL	1 - 20 KHz
MOH	.265 In/Sec	.208 G-s
MIH	.190 In/Sec	.229 G-s
MIA	.280 In/Sec	.104 G-s
EIH	.175 In/Sec	.553 G-s
EOH	.190 In/Sec .280 In/Sec .175 In/Sec .158 In/Sec	.256 G-s
ZONE4FAN - ZONI	E 4 SUPPLY FAN (2	23-Jul-20)
	OVERALL LEVEL	1 - 20 KHz
MOH	OVERALL LEVEL .244 In/Sec	.156 G-s
MIH	194 In/Sec	205 G-s
MIA	270 In/Sec	293 G-s
EIH	279 In/Sec	306 6-5
EOH	.194 In/Sec .270 In/Sec .279 In/Sec .141 In/Sec	.156 G-s
ZONE5FAN - ZONI	E 5 SUPPLY FAN (2	
	OVERALL LEVEL	1 - 20  KHz
MOH	OVERALL LEVEL .183 In/Sec	.151 G-s
MIH	109 Tn/Sec	.113 G-s
MIN	.109 In/Sec .177 In/Sec	.148 G-s
EIH	102  Tm/Sec	115 C-a
	.102 In/Sec .058 In/Sec	.413 GTS
EOH	.US8 IN/Sec	.151 G-S

ZONE6FAN - ZONE 6 SUPPLY FAN (23-Jul-20) OVERALL LEVEL 1 - 20 KHz .262 In/Sec .091 G-s MOH MIH MIA EIH EOH (23-Jul-20) COOLFAN B - COOLING FAN B OVERALL LEVEL 1 - 20 KHz .138 In/Sec .152 In/Sec MOH .335 G-s .742 G-s MIH MIA .228 In/Sec .119 G-s .123 In/Sec .119 G-S .123 In/Sec .328 G-S .116 In/Sec 1.087 G-S EIH EOH (23-Jul-20) COOLFAN A - COOLING FAN A 
 OVERALL LEVEL
 1 - 20 KHz

 .130 In/Sec
 .098 G-s

 .255 In/Sec
 .321 G-s

 .130 In/Sec
 .098 G-s

 .255 In/Sec
 .321 G-s

 .206 In/Sec
 .074 G-s

 .245 In/Sec
 .166 G-s

 .174 In/Sec
 .216 G-s

MOH MIH MIA EIH EOH ------Clarification Of Vibration Units: Acc --> G-s RMS Vel --> In/Sec PK Abbreviated Last Measurement Summary \*\*\*\*\*\*\*\*\*\* Database: sonoco.rbm Station: PRESS Report Date: 28-Jul-20 17:44 OVERALL LEVEL HFD / VHFD MEASUREMENT POINT \_\_\_\_\_ \_\_\_\_\_ \_\_\_\_\_ \*\*\* NO DATA Was Found That Meets the Report Specification \*\*\* Abbreviated Last Measurement Summary Database: sonoco.rbm Station: ULTRASEAL Report Date: 28-Jul-20 17:44 MEASUREMENT POINT OVERALL LEVEL HFD / VHFD \_\_\_\_\_ \_\_\_\_\_ \_\_\_\_\_ CLNESNCBLW - C LINE SPENCER BLOWER (23-Jul-20) 
 OVERALL LEVEL
 1 - 20 KHz

 .106 In/Sec
 .132 G-s

 .046 In/Sec
 .080 G-s
 .132 G-s .080 G-s MOH MIV DLNESNCBLW - D LINE SPENCER BLOWER (23-Jul-20) OVERALL LEVEL1 - 20 KHz.296 In/Sec.039 G-s

MOH

MIH MIV	.187 In/Sec .231 In/Sec	
Clarification Of Vibration Uni Acc> G-s RMS	 ts:	
Vel> In/Sec PK		Abbreviated Last Measurement
Summary *********	*****	*****
Database: sonoco.		
Station: UTILITI Report Date: 28-J		
Report Date. 28-0	ui-20 17.44	
MEASUREMENT POINT	OVERALL LEVEL	HFD / VHFD 
	(0)	2 7-1 00
VACPUMP1 - VACUUM PUMP 1		3-Jul-20) 1 - 20 KHz
МОН	OVERALL LEVEL .162 In/Sec	233  G-s
MOV	.237 In/Sec	546 G-s
MIH	.104 In/Sec	.292 G-s
MIV	.187 In/Sec	.389 G-s
MIA	.427 In/Sec	.204 G-s
EIH	.073 In/Sec	.115 G-s
EIV	.061 In/Sec	.122 G-s
EIA	.036 In/Sec	
EOH	.049 In/Sec	
EOV	.039 In/Sec .037 In/Sec	.116 G-s .085 G-s
EOA	.03/ IN/Sec	.085 G-S
VACPUMP2 - VACUUM PUMP 2	(2	3-Jul-20)
	OVERALL LEVEL	
MOH	.492 In/Sec	.294 G-s
MOV	.835 In/Sec	.472 G-s
MIH	.332 In/Sec	.549 G-s
MIV	.470 In/Sec	.758 G-s
MIA	.666 In/Sec	
EIH	.125 In/Sec	.266 G-s .213 G-s
EIV EIA	.196 In/Sec .089 In/Sec	
EOH	.076 In/Sec	
EOV	.088 In/Sec	.202 G-s .241 G-s
EOA	.090 In/Sec	
CTPUMP1 - COOLING TOWER		
МОН	OVERALL LEVEL	
MON	.134 In/Sec .175 In/Sec	.534 G-s
MIH	.102 In/Sec	.377 G-s
MIV	.050 In/Sec	
MIA	.192 In/Sec	
		2 7-1 00
CTPUMP2 - COOLING TOWER		
MOU	OVERALL LEVEL	
MOH MOV	.111 In/Sec .107 In/Sec	.216 G-s 214 C-s
PIC V	.107 117 500	.417 G-3

.108 In/Sec .246 G-s .106 In/Sec .311 G-s MIH MIV .129 In/Sec .091 G-s MIA EXTRA1 - EXTRA 1 (23-Jul-20) OVERALL LEVEL 1 - 20 KHz .289 In/Sec .049 G-s .041 G-s MOH MIH .301 In/Sec .029 G-s MIA .535 In/Sec .274 In/Sec EIH .259 G-s EOH .390 In/Sec .428 G-s EOA .235 In/Sec .258 G-s \_\_\_\_\_ Clarification Of Vibration Units: Acc --> G-s RMS --> In/Sec PK Vel Abbreviated Last Measurement Summary \*\*\*\*\*\*\*\*\*\*\* Database: sonoco.rbm Station: COATER Report Date: 28-Jul-20 17:44 MEASUREMENT POINT OVERALL LEVEL HFD / VHFD \_\_\_\_\_ \_\_\_\_\_ \_\_\_\_\_ MAINXHAUST - MAIN EXHAUST FAN (23-Jul-20) OVERALL LEVEL 1 - 20 KHz .119 In/Sec .367 G-s MOH .112 .108 In/Sec .118 In/Sec .093 In/Sec 'Sec .307 G-s MIH .190 G-s MIA .814 G-s EIH 1.094 G-s EOH ZONE1FAN - ZONE 1 SUPPLY FAN (23-Jul-20) OVERALL LEVEL 1 - 20 KHz .138 G-s .188 G-s .415 In/Sec .486 In/Sec MOH MIH .700 G-s EIH .112 In/Sec .083 In/Sec EOH .153 G-s ZONE2FAN - ZONE 2 SUPPLY FAN (23-Jul-20) OVERALL LEVEL 1 - 20 KHz .166 In/Sec .369 G-s MOH .110 In/Sec 
 .110 In/Sec
 .200 G-s

 .223 In/Sec
 .242 G-s

 .189 In/Sec
 .719 G-s

 .145 In/Sec
 1.436 G-s
 MIH MIA EIH EOH ZONE3FAN - ZONE 3 SUPPLY FAN (23-Jul-20) OVERALL LEVEL 1 - 20 KHz мон .265 In/Sec .190 In/Sec .208 G-s .229 G-s MIH .280 In/Sec .104 G-s .175 In/Sec .553 G-s .158 In/Sec .256 G-s MIA EIH EOH

ZONE4FAN -	ZONE 4	CIIDDI V	FAN		(23-111-20)	
ZONE4FAN -	ZONE 4	SOFFLI		LL LEVEL		
MOH				In/Sec		
MIH				In/Sec		
MIA				In/Sec		
EIH				In/Sec		
EOH				In/Sec		
					(00 7-1 00)	
ZONE5FAN -	ZONE 5	SOPPLY		LL LEVEL		
MOH				In/Sec		
MIH				In/Sec		
MIA			.177	In/Sec	.148 G-s	
EIH			.102	In/Sec	.415 G-s	
EOH			.058	In/Sec	.151 G-s	
ZONE6FAN -	ZONE 6	CUDDT V	FAN		(23-Jul-20)	
ZONEDFAN	ZONE U	SOFFEI			(23-601-20) 1 - 20 KHz	
MOH				In/Sec		
MIH					.139 G-s	
MIA			.275	In/Sec In/Sec	.039 G-s	
EIH					.208 G-s	
EOH					.206 G-s	
COOLFAN B -	COOLIN	G FAN B			(23-Jul-20)	
					1 - 20 KHz	
MOH			.138	In/Sec In/Sec	.335 G-s	
MIH MIA			. 152	In/Sec	.742 G-s .119 G-s	
EIH				In/Sec	.328 G-s	
EOH			.125	In/Sec	.328 G-s 1.087 G-s	
COOLFAN A -	COOLIN	G FAN A			(23-Jul-20)	
					1 - 20 KHz	
MOH				In/Sec		
MIH				In/Sec In/Sec		
MIA EIH			.206	In/Sec In/Sec	.074 G-s .166 G-s	
EOH			.245	In/Sec In/Sec	.216 G-s	
				,		
Clarification 0		tion II-				
	G-s	RMS				
		c PK			Abbreviated Last	Measurement
Summary	,					
-	***	******	******	******	*****	
Date	abaso	sonoco	rbm			
	tion:					
			Jul-20	17:44		
MEASUREMENT	DO T NIT		OVEDAT		HFD / VHFD	
MEASUREMENT					-	
				Meets th	e Report Specificati	on ***
Abbrowisted Iset M		<b>C</b>				

Abbreviated Last Measurement Summary

\* Database: sonoco.rbm Station: ULTRASEAL Report Date: 28-Jul-20 17:44 OVERALL LEVEL MEASUREMENT POINT HFD / VHFD -----\_\_\_\_\_ \_\_\_\_\_ CLNESNCBLW - C LINE SPENCER BLOWER (23-Jul-20) OVERALL LEVEL 1 - 20 KHz .106 In/Sec .132 G-s MOH MIV .046 In/Sec .080 G-s DLNESNCBLW - D LINE SPENCER BLOWER (23-Jul-20) OVERALL LEVEL 1 - 20 KHz .296 In/Sec .296 In/Sec .039 G-s .187 In/Sec .035 G-s .231 In/Sec .025 G-s MOH MIH MIV -----Clarification Of Vibration Units: Acc --> G-s RMS --> In/Sec PK Vel Abbreviated Last Measurement Summary \*\*\*\*\* Database: sonoco.rbm Station: UTILITIES Report Date: 28-Jul-20 17:44 HFD / VHFD MEASUREMENT POINT OVERALL LEVEL \_\_\_\_\_ \_\_\_\_\_ \_\_\_\_\_ VACPUMP1 - VACUUM PUMP 1 (23-Jul-20) OVERALL LEVEL 1 - 20 KHz .233 G-s .546 G-s .292 G-s .162 In/Sec .237 In/Sec MOH MOV MIH .104 In/Sec .187 In/Sec .389 G-s MIV MIA .427 In/Sec .204 G-s .115 G-s .073 In/Sec EIH .122 G-s .061 In/Sec EIV .090 G-s .036 In/Sec EIA .049 In/Sec .097 G-s .039 In/Sec .116 G-s .037 In/Sec .085 G-s .097 G-s EOH EOV EOA VACPUMP2 - VACUUM PUMP 2 (23-Jul-20) OVERALL LEVEL 1 - 20 KHz .492 In/Sec .835 In/Sec .294 G-s .472 G-s .549 G-s .758 G-s мон MOV .332 In/Sec MIH MIV .470 In/Sec MIA .666 In/Sec .195 G-s .266 G-s .213 G-s EIH .125 In/Sec .196 In/Sec EIV

EIA			.089	In/Sec	.246 G-s
EOH			.076	In/Sec	.202 G-s
EOV			.088	In/Sec	.241 G-s
EOA			.090	In/Sec	.474 G-s
CTPUMP1	- COOLING	TOWER	PUMP 1		(23-Jul-20)
			OVERAI	LL LEVEL	1 - 20 KHz
MOH			.134	In/Sec	.491 G-s
MOV			.175	In/Sec	.534 G-s
MIH			.102	In/Sec	.377 G-s
MIV			.050	In/Sec	.659 G-s
MIA			.192	In/Sec	.098 G-s
CTPUMP2	- COOLING	TOWER	PUMP 2		(23-Jul-20)
			OVERAI	LL LEVEL	1 - 20 KHz
MOH			.111	In/Sec	.216 G-s
MOV			.107	In/Sec	.214 G-s
MIH			.108	In/Sec	.246 G-s
MIV			.106	In/Sec	.311 G-s
MIA			.129	In/Sec	.091 G-s
EXTRA1	- EXTRA 1				(23-Jul-20)
			OVERAI	LL LEVEL	1 - 20 KHz
MOH			.289	In/Sec	.049 G-s
MIH			.301	In/Sec	.041 G-s
MIA			. 535	In/Sec	.029 G-s
EIH			.274	In/Sec	.259 G-s
EOH			. 390	In/Sec	.428 G-s
EOA			.235	In/Sec	.258 G-s

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Clarification Of Vibration Units:

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