HI-SPEED INDUSTRIAL SERVICE

MILLINGTON, TN

December 28, 2021

Plaskolite

Subject: December vibration report

Most of the machines surveyed were found to be in good condition, with 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,

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Reportable Equipment

Blower Slow Cooling (Lower)
The overall acceleration is over 7g's peak for the motor drive end bearing. Speed affects vibrations. It appears fluting is still the issue. We believe the bearing damage needs to be addressed in the future. Replace the bearings or complete motor as time allows. Take steps to reduce bearing fluting going forward. **Rated a Class II Defect.**

Blower Rapid Cooling (Upper)
The overall acceleration is over 20g's peak for the motor drive end bearing. Non-synchronous harmonics are evident in the spectrum. We believe the bearing damage needs to be addressed in the future. Replace the bearings or complete motor as time allows. The motor also shows what looks to be a large jump in vibration at shaft speed. Inspect unit fasteners and drive train components for wear. **Rated a Class II Defect.**

Blower Slow Cooling (Upper), and Rapid Cooling (Lower)
The motor bearings show slight acceleration. Speed affects vibrations. Fluting is suspected. No Immediate action required. **Rated a Class I Defect.**

Hot Water Pump 4
Overall vibration is above 0.4"/second velocity peak. The vibration is dominated by a shaft speed. Check all fasteners. The pumps could also be slightly worn. Water levels can also affect the vibrations. Trim balancing might help. **Rated a Class I Defect.**

Hot Water Pump 5
Overall vibration is 0.4"/second velocity peak. The vibration is dominated by a shaft speed. Check all fasteners. The pumps could also be slightly worn. Water levels can also affect the vibrations. Trim balancing might help. **Rated a Class I Defect.**

Abbreviated Last Measurement Summary

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Database: mmaold.rbm
Station: PLASKOLITE MEMPHIS
Route No. 3: PLASKOLITE NEW
Report Date: 28-Dec-21 10:55

MEASUREMENT POINT	OVERALL LEVEL	HFD / VHFD	MACHINE SPEED
5285-09 - FAN,COOLING TWR WEST		(27-Aug-21)	
	OVERALL LEVEL	1-20 KHz	
W1	.084 In/Sec	.042 G-s	430.0 RPM
W2	.027 In/Sec	.044 G-s	
5285-11 - FAN,COOLING TWR MIDDLE		(23-Sep-21)	
	OVERALL LEVEL	1-20 KHz	
M1	.0076 In/Sec	.018 G-s	430.0 RPM
M2	.011 In/Sec	.013 G-s	
5285-12 - FAN,COOLING TWR EAST		(28-Dec-21)	
	OVERALL LEVEL	1-20 KHz	
E1	.012 In/Sec	.0033 G-s	430.0 RPM
	OVERALL LEVEL	HFD (>5 kHz)	
E2	.0044 In/Sec	.0008 G-s	
5285-21 - RETURN AIR FAN 100 AREA		(28-Dec-21)	
	OVERALL LEVEL	1-20 KHz	
11	.073 In/Sec	.058 G-s	1745.0 FPM
21	.085 In/Sec	.022 G-s	
23	.054 In/Sec	.022 G-s	
71	.075 In/Sec	.027 G-s	
81	.084 In/Sec	.021 G-s	
S1100 - FLARE BLOWER		(28-Dec-21)	
	OVERALL LEVEL	1-20 KHz	
11	.012 In/Sec	.011 G-s	3450.0 FPM
12	.013 In/Sec	.0098 G-s	
* 13	.021 In/Sec	.017 G-s	
* 21	.014 In/Sec	.016 G-s	
* 22	.016 In/Sec	.017 G-s	
* 23	.015 In/Sec	.017 G-s	
5214-04 - EAST SYRUP COOL PUMP		(28-Dec-21)	
	OVERALL LEVEL	1-20 KHz	
11	.053 In/Sec	.083 G-s	1180.0 RPM
21	.028 In/Sec	.123 G-s	
23	.026 In/Sec	.112 G-s	
31	.060 In/Sec		
61	.071 In/Sec		
71	.063 In/Sec	.033 G-s	
81	.044 In/Sec	.044 G-s	
5214-03 - MIDDLE SYRUP COOL PUMP		(28-Dec-21)	
	OVERALL LEVEL	1-20 KHz	

11	.085 In/Sec	.108 G-s	1180.0 RPM
21	.075 In/Sec	.081 G-s	
23	.121 In/Sec	.048 G-s	
31	.147 In/Sec		
61	.077 In/Sec		
71	.073 In/Sec	.030 G-s	
81	.079 In/Sec	.072 G-s	

5214-01 - WEST SYRUP COOL PUMP (28-Dec-21)

	OVERALL LEVEL	1-20 KHz	
11	.067 In/Sec	.148 G-s	1180.0 RPM
21	.074 In/Sec	.304 G-s	
23	.062 In/Sec	.083 G-s	
31	.098 In/Sec		
61	.111 In/Sec		
71	.176 In/Sec	.498 G-s	
81	.099 In/Sec	.026 G-s	

5282-02 - PUMP #1 HOT WATER 5282-02 (23-Sep-21)

	OVERALL LEVEL	1-20 KHz	
11	.052 In/Sec	1.098 G-s	1800.0 RPM
12	.116 In/Sec	.488 G-s	

5282-03 - PUMP #2 HOT WATER 5282-03 (28-Dec-21)

	OVERALL LEVEL	1-20 KHz	
11	.068 In/Sec	.307 G-s	1800.0 RPM
12	.068 In/Sec	.392 G-s	

5282-04 - PUMP #3 HOT WATER 5282-04 (22-Jul-21)

	OVERALL LEVEL	1-20 KHz	
11	.248 In/Sec	.369 G-s	1800.0 RPM
12	.330 In/Sec	.388 G-s	

5282-05 - PUMP #4 HOT WATER 5282-05 (28-Dec-21)

	OVERALL LEVEL	1-20 KHz	
11	.440 In/Sec	.591 G-s	1800.0 RPM
12	.124 In/Sec	.309 G-s	

5282-06 - PUMP #5 HOT WATER 5282-06 (28-Dec-21)

	OVERALL LEVEL	1-20 KHz	
11	.420 In/Sec	.747 G-s	1800.0 RPM
12	.199 In/Sec	.645 G-s	

5283-01 - BLOWER, EDGE WATER REMOVAL (28-Dec-21)

	OVERALL LEVEL	1-20 KHz	
11	.114 In/Sec	.101 G-s	3600.0 RPM
21	.114 In/Sec	.124 G-s	
23	.072 In/Sec	.143 G-s	
71	.048 In/Sec	.517 G-s	
81	.094 In/Sec	.285 G-s	

5281-12 - BLOWER,SLOW COOLING (UPPER) (28-Dec-21)

	OVERALL LEVEL	1-20 KHZ	
11	.096 In/Sec	1.648 G-s	1770.0 RPM
	OVERALL LEVEL	1-20 KHz	
21	.166 In/Sec	2.141 G-s	
23	.196 In/Sec	.833 G-s	

71	.150 In/Sec	.289 G-s	
81	.069 In/Sec	.204 G-s	

5281-13 - BLOWER,SLOW COOLING (LOWER) (28-Dec-21)

	OVERALL LEVEL	1-20 KHz	
11	.062 In/Sec	2.199 G-s	1770.0 RPM
21	.118 In/Sec	7.484 G-s	
	OVERALL LEVEL	1-20 KHZ	
21H	.331 In/Sec	7.416 G-s	
	OVERALL LEVEL	1-20 KHz	
23	.077 In/Sec	2.308 G-s	
71	.040 In/Sec	.233 G-s	
81	.041 In/Sec	.193 G-s	

5281-14 - BLOWER,RAPID COOLING (UPPER) (28-Dec-21)

	OVERALL LEVEL	1-20 KHz	
11	.167 In/Sec	2.912 G-s	1770.0 RPM
21	.304 In/Sec	20.67 G-s	
23	.268 In/Sec	1.692 G-s	
71	.254 In/Sec	.640 G-s	900.0 RPM
81	.127 In/Sec	.142 G-s	

5281-08 - BLOWER,RAPID COOLING (LOWER) (28-Dec-21)

	OVERALL LEVEL	1-20 KHz	
11	.120 In/Sec	2.803 G-s	1770.0 RPM
21	.180 In/Sec	3.828 G-s	
23	.057 In/Sec	1.990 G-s	
71	.170 In/Sec	.434 G-s	900.0 RPM
81	.188 In/Sec	.501 G-s	

5281-10 - 200 BELT DRIVE, POLYMERIZER (28-Dec-21)

	OVERALL LEVEL	1-20 KHz	
11	.025 In/Sec	.902 G-s	1800.0 FPM
21	.034 In/Sec	.630 G-s	
33	.0093 In/Sec	.042 G-s	
31	.019 In/Sec	.127 G-s	
61	.0042 In/Sec	.057 G-s	
71	.0030 In/Sec	.0016 G-s	
81	.0035 In/Sec	.0016 G-s	

Clarification Of Vibration Units:

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

* - Indicates Data Has Date/Time Different From Machine Date/Time