HI-SPEED INDUSTRIAL SERVICE

MILLINGTON, TN

February 12, 2020

ARKEMA

Subject: February week 1 vibration service report

Weekly Equipment

C Concentrator Vacuum Pump 2130-1 old
The motor axial vibration is at 0.201"/sec velocity Peak. Check the coupling and shaft alignment as time allows. **Rated a Class I Defect.**

Agitator, Hydrogenator C 7001-01
No legitimate vibrations were found to be above 0.117"/sec velocity peak overall for the gearbox output axial. Spectrum appears normal for unit. No action required.

A/B Concentrator Vacuum Pump 57
Overall vibrations have jumped up for the outboard pump bearing and is at 0.287"/sec velocity peak, at what looks to be mostly vane pass. We must note; however, that the vibration changes constantly as the vacuum breaks, so the overall reading and the data could change significantly during a short period of time. No immediate action is required at this time. **Rated a Class I Defect**.

Flash Vacuum Pump 2130-1
Vibrations appear to be normal this survey. No actions required.

Air Compressor C-201
Rotor bar vibrations are at 4 g's RMS. The trend clearly shows that the vibrations vary considerably over time. We still believe these motors have possible weak rotor bar end connections that cause the vibrations to fluctuate higher due to loading. We will continue to monitor this unit for changes No actions required.

Air Compressor C-202
Rotor bar vibrations are above 2 g's RMS. The trend clearly shows that the vibrations vary considerably over time. No actions required.

Air Compressor C-203
Rotor bar vibrations are at 5 g's RMS. The trend clearly shows that the vibrations vary considerably over time. We still believe these motors have possible weak rotor bar end connections that cause the vibrations to fluctuate higher due to loading. We will continue to monitor this unit for changes. No actions required.

Instrument Air Compressor new

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

Vibrations at the female rotor outboard bearing vertical have dropped this survey. The vibration in question was at 28 orders of input shaft speed. This could possibly be a gear mesh or harmonic. This same vibration was low previously. The unit was probably cycling at the time of data collection. We will keep a close eye on this going forward. **Rated a Class I Defect.**

Air Compressor NASH A 201-08A
Vibrations are still down in the motor after the foot bolts were tightened. We recommend a complete cleaning and republication of all the foot bolts for the motor and vacuum pump. Pump vibrations are mixed. Check the pump bearing large flange bolts also. Check both shafts for excessive clearance with a lift check and finish with a shaft alignment. The pump is at 0.3"/sec velocity so the unit is still **rated a Class II Defect.**

D Hydrogenator Agitator 9002-10
Vibration data shows a slight change in vibrations this survey. Highest amplitude is still at 0.336"/sec velocity peak for the gearbox top E/W measurement. **Still rated a Class I Defect.**

Monthly Equipment

None this survey

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
dshook@gohispeed.com
Hi-Speed **Industrial Service**

Abbreviated Last Measurement Summary

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Database: Arkema.rbm
Station: PEROXIDE
Route No. 3: ARK WK 1
Report Date: 12-Feb-20 13:12

MEASUREMENT POINT	OVERALL LEVEL	HFD / VHFD
2130-1old - C Concentrator Vacuum Pump (11-Feb-20)		
	OVERALL LEVEL	
11	.059 In/Sec	
21	.063 In/Sec	
23	.183 In/Sec	
71	.119 In/Sec	
81	.201 In/Sec	
83	.111 In/Sec	
7000-01 - AGITATOR,HYDROGENATOR C (11-Feb-20)		
	OVERALL LEVEL	
01	.031 In/Sec	
02	.028 In/Sec	
03	.013 In/Sec	
11	.045 In/Sec	
12	.055 In/Sec	
13	.050 In/Sec	
21	.044 In/Sec	
22	.046 In/Sec	
23	.052 In/Sec	
31	.089 In/Sec	
32	.080 In/Sec	
33	.072 In/Sec	
41	.089 In/Sec	
42	.043 In/Sec	
53	.117 In/Sec	
53L	.113 In/Sec	
57 - A/B Concentr Vac Pmp-var RPM (11-Feb-20)		
	OVERALL LEVEL	
11	.068 In/Sec	
12	.054 In/Sec	
21	.088 In/Sec	
23	.072 In/Sec	
71	.287 In/Sec	
81	.092 In/Sec	
2130-1 - FLASH VAP VAC PUMP-var speed (11-Feb-20)		
	OVERALL LEVEL	
11	.049 In/Sec	
12	.032 In/Sec	
21	.042 In/Sec	
22	.048 In/Sec	

	23	.076 In/Sec	
	71	.070 In/Sec	
	72	.085 In/Sec	
	81	.081 In/Sec	
	82	.101 In/Sec	
	83	.044 In/Sec	

236-06 - HYDRO FD PUMP N 236-06 -2FLR (11-Feb-20)

	OVERALL LEVEL	
11	.109 In/Sec	
21	.077 In/Sec	

C-203 - C-203 Comp (11-Feb-20)

	OVERALL LEVEL	1-20 KHz
11	.052 In/Sec	1.239 G-s
12	.124 In/Sec	5.050 G-s
21	.035 In/Sec	1.106 G-s
22	.053 In/Sec	.024 G-s
23	.029 In/Sec	.989 G-s
71M	.035 In/Sec	
72M	.040 In/Sec	
73M	.069 In/Sec	
81M	.050 In/Sec	
82M	.056 In/Sec	
71F	.028 In/Sec	
72F	.050 In/Sec	
73F	.082 In/Sec	
81F	.031 In/Sec	
82F	.039 In/Sec	

C-202 - C-202 Comp (11-Feb-20)

	OVERALL LEVEL	1-20 KHz
11	.074 In/Sec	2.234 G-s
12	.132 In/Sec	.541 G-s
21	.063 In/Sec	.097 G-s
22	.047 In/Sec	.857 G-s
23	.053 In/Sec	.352 G-s
71M	.043 In/Sec	
72M	.045 In/Sec	
73M	.075 In/Sec	
81M	.054 In/Sec	
82M	.063 In/Sec	
71F	.041 In/Sec	
72F	.051 In/Sec	
73F	.061 In/Sec	
81F	.047 In/Sec	
82F	.045 In/Sec	

C-201 - C-201 Comp (11-Feb-20)

	OVERALL LEVEL	1-20 KHz
11	.136 In/Sec	3.956 G-s
12	.078 In/Sec	.723 G-s
21	.092 In/Sec	.333 G-s
22	.061 In/Sec	.699 G-s
23	.080 In/Sec	1.433 G-s
71M	.038 In/Sec	
72M	.045 In/Sec	

73M	.073 In/Sec	
81M	.042 In/Sec	
82M	.042 In/Sec	
71F	.043 In/Sec	
72F	.043 In/Sec	
73F	.053 In/Sec	
81F	.055 In/Sec	
82F	.046 In/Sec	

new AC - INSTRUMENT AIR COMPRESSOR (11-Feb-20)

	OVERALL LEVEL	1-20 KHz
11	.154 In/Sec	1.377 G-s
12	.114 In/Sec	.587 G-s
13	.076 In/Sec	.105 G-s
21	.267 In/Sec	1.709 G-s
22	.091 In/Sec	1.185 G-s
23	.107 In/Sec	.203 G-s
71F	.293 In/Sec	
72F	.186 In/Sec	
73F	.168 In/Sec	
81F	.140 In/Sec	
82F	.273 In/Sec	
83F	.147 In/Sec	
71M	.198 In/Sec	
72M	.196 In/Sec	
73M	.161 In/Sec	
81M	.388 In/Sec	
82M	.322 In/Sec	
83M	.281 In/Sec	

201-08A - COMPRESSOR,NASH A 201-08A (11-Feb-20)

	OVERALL LEVEL
11	.079 In/Sec
12	.087 In/Sec
13	.178 In/Sec
21	.103 In/Sec
22	.150 In/Sec
23	.179 In/Sec
71	.186 In/Sec
72	.289 In/Sec
73	.178 In/Sec
81	.169 In/Sec
82	.300 In/Sec
83	.187 In/Sec

9002-10 - D-HYDROGENATOR AGITATOR (11-Feb-20)

	OVERALL LEVEL
11	.085 In/Sec
21	.079 In/Sec
23	.042 In/Sec
31	.192 In/Sec
31L	.174 In/Sec
51	.192 In/Sec
51L	.172 In/Sec
52	.336 In/Sec
52L	.258 In/Sec
53	.140 In/Sec

61	.142	In/Sec
61L	.141	In/Sec
81	.048	In/Sec
82	.040	In/Sec
83	.037	In/Sec

Clarification Of Vibration Units:

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