

January 20, 2020

ARKEMA

Subject: January week 3 vibration service report

Weekly Equipment

Agitator, Hydrogenator C 7001-01

No legitimate vibrations were found to be above 0.121"/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 are about the same for the outboard pump bearing and is at 0.269"/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

Ice covered steps prevented data collection this survey. No actions required.

Air Compressor C-201

Rotor bar vibrations rose to 4.67 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 at 2 g's RMS or under. The trend clearly shows that the vibrations vary considerably over time. No actions required.

Air Compressor C-203

Rotor bar vibrations are at 2 g's RMS or under. 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.

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

Air Compressor NASH A 201-08A

Vibration data showed little change, but a visual check revealed a loose motor foot bolt. Vibration at motor shaft speed dropped from 0.195"/sec velocity to 0.110"/sec velocity during a suggested adjustment. We recommend a complete cleaning and republication of all the foot bolts. Check both shafts for excessive clearance with a lift check and finish with a shaft alignment. Fresh data next week will confirm vibration decrease. 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 0.234"/sec velocity peak for the gearbox top E/W measurement. Process variables are suspected for the change. **Still rated a Class I Defect Though.**

C Concentrator Vacuum Pump 2130-1 old

The motor axial vibration is at 0.176"/sec velocity Peak. Check the coupling and shaft alignment as time allows. **Rated a Class I Defect.**

Monthly equipment for week 3 will be on the week 4 report due to low temperatures during the 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

Database: Arkema.rbm Station: PEROXIDE Route No. 5: ARK WK 3

Report Date: 20-Jan-20 15:06

MEASUREMENT POINT

81F - COMP FEMALE SHAFT OB HOR

7000-01 - AGITATOR, HYDROGENATOR C	(20-Jan-20)	
,	OVERALL LEVEL	
01 - DRIVESHAFT BRG-NORTH-SOUTH	.040 In/Sec	
02 - DRIVESHAFT BRG-EAST-WEST	.042 In/Sec	
03 - DRIVESHAFT BRG-VERTICAL	.042 In/Sec	
11 - C Hydro Agitator MOTOR OB HORIZ	.036 In/Sec	
12 - C Hydro Agitator MOTOR OB VERT	.042 In/Sec	
13 - C Hydro Agitator Motor OB Axial	.040 In/Sec	
21 - C Hydro Agitator MOTOR IB HORIZ	.045 In/Sec	
22 - C Hydro Agitator MOTOR IB VERT	.040 In/Sec	
23 - C Hydro Agitator Motor IB Axial	.055 In/Sec	
31 - C Hydro Agitator GrBx In Horizon	.072 In/Sec	
32 - C Hydro Agitator GrBx In VERT	.080 In/Sec	
33 - C Hydro Agitator GrBx In Axial	.045 In/Sec	
41 - C Hydro Agitator GrBx Top Horizo	.049 In/Sec	
42 - C Hydro Agitator GrBx Top VERT	.048 In/Sec	
53 - C Hydro Agitator GrBx Top Axial	.121 In/Sec	
53L - C Hydro Agitator GrBx Top Axial	.121 In/Sec	
57 - A/B Concentr Vac Pmp-var RPM	(20-Jan-20)	
	OVERALL LEVEL	
11 - Motor OB HOR	.061 In/Sec	
12 - Motor OB VERT	.052 In/Sec	
21 - Motor IB HOR	.085 In/Sec	
23 - Motor IB AXIAL	.046 In/Sec	
71 - Compressor IB HOR	.108 In/Sec	
81 - Compressor OB Horiz	.269 In/Sec	
83 - Compressor OB Axial	.078 In/Sec	
C-203 - C-203 Comp	(20-Jan-20)	
	OVERALL LEVEL	1-20 KHz
11 - MOTOR OB HOR	.031 In/Sec	.869 G-s
12 - MOTOR OB VERT	.039 In/Sec	1.226 G-s
21 - MOTOR IB HOR	.025 In/Sec	.711 G-s
22 - MOTOR IB VERT	.041 In/Sec	1.480 G-s
23 - MOTOR IB AXIAL	.047 In/Sec	1.719 G-s
71M - COMP MALE SHAFT IB HOR	.050 In/Sec	
72M - COMP MALE SHAFT IB VERT	.038 In/Sec	
73M - COMP MALE SHAFT IB AXIAL	.058 In/Sec	
81M - COMP MALE SHAFT OB HOR	.102 In/Sec	
82M - COMP MALE SHAFT OB VERT	.062 In/Sec	
/IF - COMP FEMALE SHAFT IB HOR	.041 In/Sec	
72F - COMP FEMALE SHAFT IB VERT	.046 In/Sec	
13F - COMP FEMALE SHAFT IB AXIAL	.U/D_IN/SeC	

OVERALL LEVEL HFD / VHFD _____

.059 In/Sec

82F	-	COMP FEMALE SHAFT OB VERT	.042 In/Sec	
C-20)2	- C-202 Comp	(20-Jan-20) OVERALL LEVEL	1-20 KH-
11	_	MOTOR OR HOR		2 072 C-s
12	_	MOTOR OB NERT	116 In/Sec	2.072 G S
21	_	MOTOR OF VERI	.110 IN/Sec	.801 G-S
21	_	MOTOR IB HOR	.008 IN/Sec	.709 G-S
22	-	MOTOR IB VERI	.048 IN/Sec	.300 G-S
23	-	MOTOR IB AXIAL	.044 IN/Sec	.444 G-S
/1M	-	COMP MALE SHAFT IB HOR	.044 IN/Sec	
/ZM	-	COMP MALE SHAFT IB VERT	.054 In/Sec	
/3M	-	COMP MALE SHAFT IB AXIAL	.0/5 In/Sec	
81M	-	COMP MALE SHAFT OB HOR	.063 In/Sec	
82M	-	COMP MALE SHAFT OB VERT	.06/ In/Sec	
71F	-	COMP FEMALE SHAFT IB HOR	.034 In/Sec	
72F	-	COMP FEMALE SHAFT IB VERT	.055 In/Sec	
73F	-	COMP FEMALE SHAFT IB AXIAL	.069 In/Sec	
81F	-	COMP FEMALE SHAFT OB HOR	.052 In/Sec	
82F	-	COMP FEMALE SHAFT OB VERT	.051 In/Sec	
c-20)1	- C-201 Comp	(20-Jan-20)	
			OVERALL LEVEL	1-20 KHz
11	_	MOTOR OB HOR	.084 In/Sec	2.299 G-s
12	_	MOTOR OB VERT	.108 In/Sec	4.669 G-s
21	_	MOTOR IB HOR	.072 In/Sec	1.160 G-s
22	_	MOTOR IB VERT	.039 In/Sec	.173 G-s
23	_	MOTOR IB AXIAL	.049 In/Sec	.742 G-s
71M	_	COMP MALE SHAFT IB HOR	.040 In/Sec	
72M	_	COMP MALE SHAFT IB VERT	043 In/Sec	
73M	_	COMP MALE SHAFT IB AXIAL	074 In/Sec	
81M	_	COMP MALE SHAFT OF HOR	071 In/Sec	
82M	_	COMP MALE SHAFT OF VERT	066 Tn/Sec	
71 5	_	COMD FEMALE SHAFT IS HOD	046 TR/Sec	
725	_	COMP FEMALE SHAFT ID HOK	050 In/Sec	
725	_	COMP FEMALE SHAFT IB VERI	.030 IN/Sec	
7.5E 01 문	_	COMP FEMALE SHAFT ID AATAL	.078 IN/Sec	
82F	_	COMP FEMALE SHAFT OB HOR COMP FEMALE SHAFT OB VERT	.058 In/Sec	
			(00 7 00)	
9002		10 - D-HIDROGENATOR AGITATOR	(20-Jan-20)	
			OVERALL LEVEL	
11	-	MOTOR OUTBOARD HORIZONTAL	.08/ In/Sec	
21	-	MOTOR INBOARD HORIZONTAL	.0/4 In/Sec	
23	-	motor inboard axial	.051 In/Sec	
31	-	GEARBOX INPUT SHAFT -HORIZONTAL	.196 In/Sec	
31L	-	GEARBOX INPUT SHAFT-N-S-LOW FRQ	.202 In/Sec	
51	-	GEARBOX TOP PLATE- E-W	.234 In/Sec	
51L	-	GEARBOX OUTPUT SHAFT-E-W-LOW FRQ	.219 In/Sec	
52	-	GEARBOX TOP PLATE- N-S	.179 In/Sec	
52L	-	GEARBOX OUTPUT SHAFT-E-W-LOW FRQ	.198 In/Sec	
53	-	GEARBOX OUTPUT SHAFT -VERTICAL	.105 In/Sec	
61	-	GEARBOX OUTPUT SHAFT-HORIZONTAL	.109 In/Sec	
61L	-	GEARBOX OUTPUT SHAFT-E-W-LOW FRQ	.157 In/Sec	
81	-	AGIT INTERMED BRG @ SEAL- N-S	.039 In/Sec	
82	-	AGIT INTERMED BRG @ SEAL- E-W	.035 In/Sec	
83	-	AGIT INTERMED BRG @ SEAL- VERT	.026 In/Sec	
201-	-08	BA - COMPRESSOR, NASH A 201-08A	(20-Jan-20)	

OVERALL LEVEL .094 In/Sec 11 - Nash Compr A Motor OB Horiz 11- Nash Compr A Motor OB Horiz.094 In/Sec12- Nash Compr A Motor OB Vertical.093 In/Sec13- Nash Compr A Motor OB Axial.182 In/Sec21- Nash Compr A Motor IB Horiz.189 In/Sec22- Nash Compr A Motor IB VERT.234 In/Sec23- Nash Compr A Motor IB AXIAL.207 In/Sec71- Nash Compr A Compr B HORIZ.221 In/Sec72- Nash Compr A Compressor IB Verti.305 In/Sec73- Nash Compr A COMP IB AXIAL.222 In/Sec74- Nash Compr A COMP OB HORIZ.222 In/Sec 73 - Nash Compr A COMP IB AXIAL 81 - Nash Compr A COMP OB HORIZ.180 In/Sec82 - Nash Compr A Compressor OB Verti.306 In/Sec83 - Nash Compr A Compressor OB Axial.162 In/Sec - PUMP, N. COOLING TWR, NORTH 530-01 (20-Jan-20) OVERALL LEVEL 11 - MOT TOP N-S .155 In/Sec 12 - MOTOR TOP E-W .306 In/Sec - INSTRUMENT AIR COMPRESSOR new AC (20-Jan-20)
 OVERALL LEVEL
 1-20 KHz

 .153 In/Sec
 1.241 G-s

 .111 In/Sec
 1.151 G-s
OVERALL LEVEL 11 - MOTOR OB HOR 12 - MOTOR OB VERT .053 In/Sec .482 G-s 13 - MOTOR OB AXIAL .053 In/Sec .482 G-s .181 In/Sec 1.974 G-s .106 In/Sec 1.467 G-s 21 - MOTOR IB HOR 22 - MOTOR IB VERT .058 In/Sec 23 - MOTOR IB AXIAL .058 In/Sec .246 In/Sec .151 In/Sec .132 In/Sec .148 In/Sec .321 In/Sec .248 In/Sec .200 In/Sec .170 In/Sec .122 In/Sec .156 In/Sec .226 In/Sec .722 G-s 71F - COMP FEMALE SHAFT IB HOR 72F - COMP FEMALE SHAFT IB VERT 73F - COMP FEMALE SHAFT IB AXIAL 81F - COMP FEMALE SHAFT OB HOR 82F - COMP FEMALE SHAFT OB VERT 83F - COMP FEMALE SHAFT OB AXIAL 71M - COMP MALE SHAFT IB HOR 72M - COMP MALE SHAFT IB VERT 73M - COMP MALE SHAFT IB AXIAL 81M - COMP MALE SHAFT OB HOR 82M - COMP MALE SHAFT OB VERT .226 In/Sec 83M - COMP MALE SHAFT OB AXIAL .190 In/Sec 2130-1old - C Concentrator Vacuum Pump (20-Jan-20) OVERALL LEVEL 11 - Motor OB HOR .057 In/Sec .060 In/Sec 21 - Motor IB HOR 23 .176 In/Sec - Motor IB AXIAL .124 In/Sec 71 - Compressor IB HOR 81 - Compressor OB Horiz .138 In/Sec 83 - Compressor OB Axial .073 In/Sec

Clarification Of Vibration Units: Acc --> G-s PK Vel --> In/Sec PK