

August 30, 2019

ARKEMA

Subject: August week 5 vibration service report

# Weekly Equipment

# Agitator, Hydrogenator C 7001-01

No legitimate vibrations were found to be above 0.185"/sec velocity peak. Spectrum appears normal for unit. No action required.

# A/B Concentrator Vacuum Pump 57

Vibrations increased again for the outboard pump bearing at what looks to be vane pass. Vibration is just above 0.3"/sec velocity peak. No immediate action is required at this time. **Rated a Class I Defect.** 

## Flash Vacuum Pump 2130-1

Vibrations in this unit appear normal. No actions required.

## Air Compressor C-201

Rotor bar vibrations have come up again to over 5 g's peak, though not as high as before. 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

Vibrations in this unit appear normal. No actions required.

## Air Compressor C-203

Vibrations appear normal this week. 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 NASH 201-08

Vibrations in this unit appear normal. No actions required.

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

## D Hydrogenator Agitator 9002-10

Data sets for the gearbox bearings show overall vibrations are still near 0.35"/sec velocity peak. Shaft speed fundamental is below the accelerometer high pass filter. Vibrations of interest are around 11 and 278 HZ. Modulation around the 11 HZ peak is causing a beat vibration. Gearbox and structure could be resonant. An internal inspection and oil analysis should be considered. Also, check the unit fasteners for tightness. **Rated a Class II Defect.** Please provide detailed information on the gearbox for further analysis.

#### Instrument Air Compressor new

Vibrations have dropped in this unit. We will watch the unit closely for changes that might affect the unit reliability. No actions required.

## C Concentrator Vacuum Pump 2130-1 old

Vibrations in this unit appear normal. No actions required.

#### Monthly Equipment this Survey on report

None.

An Abbreviated Last Measurement Summary follows below:

*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

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Database: Arkema.rbm Station: PEROXIDE Route No. 1: H202 WEEKLY Report Date: 30-Aug-19 10:06

MEASUREMENT POINT	OVERALL LEVEL	HFD / VHFD
	<b>_</b> _	
7000-01 - AGITATOR, HYDROGEN	NATOR C (30-A	ug-19)
	OVERAL	LL LEVEL
01 - DRIVESHAFT BRG-NORTH-SOUT	TH .041	In/Sec
02 - DRIVESHAFT BRG-EAST-WEST	.045	In/Sec
03 - DRIVESHAFT BRG-VERTICAL	.044	In/Sec
11 - C Hydro Agitator MOTOR OF	B HORIZ .040	In/Sec
11H - MOTOR OB HORIZ - HI FREQ	.041	In/Sec
12 - C Hydro Agitator MOTOR OF	3 VERT .051	In/Sec
12H - MOTOR OB VERT - HI FREQ	.049	In/Sec
13 - C Hydro Agitator Motor OE	Axial .049	In/Sec
13H - MOTOR OB AXIAL - HI FREQ	.044	In/Sec
21 - C Hydro Agitator MOTOR IE	3 HORIZ .054	In/Sec
21H - MOTOR IB HORIZ - HI FREQ	.062	In/Sec
22 - C Hydro Agitator MOTOR IE	SVERT .U61	In/Sec
22H - MOTOR IB VERT - HI FREQ	.059	In/Sec
23 - C Hydro Agitator Motor IE	AXIAL .060	In/Sec
23H - MOTOR IB AXIAL - HI FREQ	.060	In/Sec
31 - C Hydro Agitator GrBx In	Horizon .075	In/Sec
32 - C Hydro Agitator GrBx In	VERT .078	In/Sec
33 - C Hydro Agitator GrBx In	Axial .054	In/Sec
41 - C Hydro Agitator GrBx Top	HOTIZO .U53	In/Sec
42 - C Hydro Agitator GrBx Top		In/Sec
53 - C Hydro Agitator GrBx Top 521 C Hydro Agitator CrBy Mor		In/Sec
SSL - C Hydro Agitator Grbx Top	AXIAI .144	III/Sec
57 - A/B Concentr Vac	Pmp-var RPM (30-A	ug-19)
	OVERA	LL LEVEL
11 - Motor OB HOR	. 050	In/Sec
	OVERALL LEVE	L 1-20 KHz
H - Motor OB HOR	.057 In/Sec	.233 G-s
12 - Motor OB VERT	. 056	In/Sec
H - Motor OB VERT	.056 In/Sec	.226 G-s
13 - Motor OB AXIAL	. 062	In/Sec
21 - Motor IB HOR	. 056	In/Sec
23 - Motor IB AXIAL	.060	In/Sec
71 - Compressor IB HOR	.109	In/Sec
81 - Compressor OB Horiz	. 312	In/Sec
83 - Compressor OB Axial	.057	In/Sec
2130-1 - FLASH VAP VAC PUM	1P-var speed (30-A	ug-19)
	OVERAL	LL LEVEL
11 - Motor OB HOR	. 039	In/Sec
12 - Motor OB VERT	. 032	In/Sec
21 - Motor IB HOR	.041	In/Sec
22 - Motor IB VERT	.040	In/Sec
23 - Motor IB AXIAL	.062	In/Sec

	<ul> <li>71 - Compressor IB HOR</li> <li>72 - Compressor IB VERT</li> <li>81 - Compressor OB Horiz</li> <li>82 - Compressor OB VERT</li> <li>83 - Compressor OB Axial</li> </ul>	.050 .066 .068 .077 .062	In/Sec In/Sec In/Sec In/Sec In/Sec
	C 202 C 202 Comp (01d Tour)	(20 7	
	$C = 203 = C = 203 \operatorname{Comp}(Old Boy)$	OVEDALL LEVE	ug-19) T. 1_20 Kuz
11	- MOTOR OB HOR	040 Tn/Sec	1 - 20  KHZ
12	- MOTOR OB VERT	063 In/Sec	2 165 G-s
13	- MOTOR OB AXIAL	.037 In/Sec	1.436 G-s
21	- MOTOR IB HOR	.036 In/Sec	.740 G-s
22	- MOTOR IB VERT	.053 In/Sec	1.944 G-s
23	- MOTOR IB AXIAL	.015 In/Sec	.229 G-s
	71M - COMP MALE SHAFT IB HOR	. 029	In/Sec
	72M - COMP MALE SHAFT IB VERT	.056	In/Sec
	73M - COMP MALE SHAFT IB AXIAL	.057	In/Sec
	81M - COMP MALE SHAFT OB HOR	.074	In/Sec
	82M - COMP MALE SHAFT OB VERT	. 052	In/Sec
	83M - COMP MALE SHAFT OB AXIAL	. 022	In/Sec
	71F - COMP FEMALE SHAFT IB HOR	.039	In/Sec
	72F - COMP FEMALE SHAFT IB VERT	.037	In/Sec
	73F - COMP FEMALE SHAFT IB AXIAL	.064	In/Sec
	81F - COMP FEMALE SHAFT OB HOR 82F - COMP FEMALE SHAFT OB VEDT	.035	In/Sec
	83F - COMP FEMALE SHAFT OB VERI 83F - COMP FEMALE SHAFT OB AVIAL	.031	In/Sec
11 12 13 21 22 23	<ul> <li>C-202 - C-202 Comp (New Location</li> <li>MOTOR OB HOR</li> <li>MOTOR OB VERT</li> <li>MOTOR OB AXIAL</li> <li>MOTOR IB HOR</li> <li>MOTOR IB VERT</li> <li>MOTOR IB VERT</li> <li>MOTOR IB AXIAL</li> <li>71M - COMP MALE SHAFT IB HOR</li> <li>72M - COMP MALE SHAFT IB VERT</li> <li>73M - COMP MALE SHAFT IB AXIAL</li> </ul>	on) (30-A OVERALL LEVE .047 In/Sec .047 In/Sec .069 In/Sec .063 In/Sec .042 In/Sec .042 In/Sec .031 .043 .071	ug-19) L 1-20 KHz .370 G-s .459 G-s 1.816 G-s .130 G-s .468 G-s .101 G-s In/Sec In/Sec In/Sec
	81M - COMP MALE SHAFT OB HOR	.051	In/Sec
	82M - COMP MALE SHAFT OB VERT 82M - COMP MALE SHAFT OP AVIAL	. 053	In/Sec
	71F - COMP MALE SHAFT OF ANIAL	.075	In/Sec
	71F - COMP FEMALE SHAFT IB NOR 72F - COMP FEMALE SHAFT IB VERT	.055	In/Sec
	73F - COMP FEMALE SHAFT IB AXIAL	070	In/Sec
	81F - COMP FEMALE SHAFT OB HOR	036	In/Sec
	82F - COMP FEMALE SHAFT OB VERT	.054	In/Sec
	83F - COMP FEMALE SHAFT OB AXIAL	.055	In/Sec
	C-201 - C-201 Comp (Old Centac	) (30-A	ug-19)
		OVERALL LEVE	L 1-20 KHz
11	- MOTOR OB HOR	.082 In/Sec	1.235 G-s
12	- MOTOR OB VERT	.137 In/Sec	3.878 G-s
13	- MOTOR OB AXIAL	.128 In/Sec	5.481 G-s
21	- MOTOR IB HOR	.09/ In/Sec	1.305 G-s
22 22	- MOTOR IB VERT	.032 IN/Sec	.646 G-S
23	- MOTOR ID AATAL 71m - Comp Mair Shart ir Hod	.054 IN/SEC 052	I.039 G-S In/Sec
	, IN COM MIND OTHER TO NOW		

72M - COMP MALE SH	HAFT IB VERT		.041	In/Sec
73M - COMP MALE SP	HAFT IB AXIAL		.080	In/Sec
81M - COMP MALE SP	HAFT OB HOR		.036	In/Sec
82M - COMP MALE SP	HAFT OB VERT		.063	In/Sec
83M - COMP MALE SP	HAFT OB AXIAL		.061	In/Sec
71F - COMP FEMALE	SHAFT IB HOR		.048	In/Sec
72F - COMP FEMALE	SHAFT IB VERT		.053	In/Sec
73F - COMP FEMALE	SHAFT IB AXIAL		.044	In/Sec
81F - COMP FEMALE	SHAFT OB HOR		.058	In/Sec
82F - COMP FEMALE	SHAFT OB VERT		.055	In/Sec
83F - COMP FEMALE	SHAFT OB AXIAL		.061	In/Sec
201-08A - COM	PRESSOR, NASH A 201-0	08A	(30-Au OVERAL	1g-19) L LEVEL
11 - Nash Compr A	A Motor OB Horiz		.059	In/Sec
12 - Nash Compr A	A Motor OB Vertical		.067	In/Sec
12H - Nash Compr A	A Motor OB Vertical		.075	In/Sec
13 - Nash Compr A	A Motor OB Axial		.125	In/Sec
21 - Nash Compr A	A Motor IB Horiz		.066	In/Sec
22 - Nash Compr A	A Motor IB VERT		.095	In/Sec
23 - Nash Compr A	A Motor IB AXIAL		.131	In/Sec
71 - Nash Compr A	A COMP IB HORIZ		.149	In/Sec
72 - Nash Compr A	A Compressor IB Vert	ti	.213	In/Sec
72H - Nash Compr A	A COMP IB Vertical		.214	In/Sec
73 - Nash Compr A	A COMP IB AXIAL		.180	In/Sec
81 - Nash Compr A	A COMP OB HORIZ		.147	In/Sec
82 - Nash Compr A	A Compressor OB Vert	ti	.224	In/Sec
82H - Nash Compr A	A COMP OB Vertical		.245	In/Sec
83 - Nash Compr A	A Compressor OB Axia	al	.184	In/Sec
83H - Nash Compr A	A COMP OB AXIAL		.183	In/Sec
9002-10 - D-HY	YDROGENATOR AGITATOR	R	(30-Au	ıg-19)
			OVERAL	L LEVEL
11 - MOTOR OUTBOA	ARD HORIZONTAL		.091	In/Sec
21 - MOTOR INBOAR	RD HORIZONTAL		.076	In/Sec
23 - motor inboa	rd axial		.059	In/Sec
31 - GEARBOX INPU	JT SHAFT -HORIZONTAL	L	.215	In/Sec
31H - GEARBOX INPU	JT SHAFT -HORIZONTAL	L	. 223	In/Sec
31L - GEARBOX INPU	JT SHAFT-N-S-LOW FRO	Q	.204	In/Sec
51 - GEARBOX TOP	PLATE- E-W		.265	In/Sec
51L - GEARBOX OUT	PUT SHAFT-E-W-LOW FI	RQ	.314	In/Sec
52 – GEARBOX TOP	PLATE- N-S		.172	In/Sec
52L - GEARBOX OUT	PUT SHAFT-E-W-LOW FI	RQ	. 337	In/Sec
53 – GEARBOX OUTH	PUT SHAFT -VERTICAL		.152	In/Sec
61 – GEARBOX OUTH	PUT SHAFT-HORIZONTAL	L	.177	In/Sec
611 - GEARBOX OUT	PUT SHAFT-E-W-LOW FI	RQ	.251	In/Sec
81 - AGIT INTERM	ED BRG @ SEAL- N-S		.048	In/Sec
82 - AGIT INTERM	ED BRG @ SEAL- E-W		.042	In/Sec
83 - AGIT INTERM	ED BRG @ SEAL- VERT		.045	In/Sec
new AC - INS	TRUMENT AIR COMPRESS	SOR	(30-Au	ıg-19)
		OVERA	LL LEVEI	L 1-20 KHz
11 - MOTOR OB HOR		.157	In/Sec	.695 G-s
12 - MOTOR OB VERT		.094	In/Sec	.847 G-s
13 - MOTOR OB AXIAL		.078	In/Sec	.750 G-s
21 - MOTOR IB HOR		.186	In/Sec	.622 G-s
22 - MOTOR IB VERT		.082	In/Sec	.809 G-s

23 - MOTOR IB AXIAL		.103	In/Sec	.193 G-s
71M - COMP MALE	SHAFT IB HOR		.114	In/Sec
72M - COMP MALE	SHAFT IB VERT		.169	In/Sec
73M - COMP MALE	SHAFT IB AXIAL		.137	In/Sec
81M - COMP MALE	SHAFT OB HOR		.153	In/Sec
82M - COMP MALE	SHAFT OB VERT		.233	In/Sec
83M - COMP MALE	SHAFT OB AXIAL		.188	In/Sec
71F - COMP FEMA	LE SHAFT IB HOR		.175	In/Sec
72F - COMP FEMA	LE SHAFT IB VERT		.146	In/Sec
73F - COMP FEMA	LE SHAFT IB AXIAL		.161	In/Sec
81F - COMP FEMA	LE SHAFT OB HOR		.129	In/Sec
82F - COMP FEMA	LE SHAFT OB VERT		.244	In/Sec
83F - COMP FEMA	LE SHAFT OB AXIAL		.137	In/Sec
2130-1old - C	Concentrator Vacuum	Pump	(30-Aı	1g-19)
		-	OVERAL	L LEVEL
11 - Motor OB	HOR		.057	In/Sec
21 - Motor IB	HOR		.058	In/Sec
23 - Motor IB	AXIAL		.098	In/Sec
71 - Compresso	r IB HOR		.127	In/Sec
81 - Compresso	r OB Horiz		.155	In/Sec
83 - Compresso	r OB Axial		.064	In/Sec

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

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