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January 21, 2025

Tim Busby Atlantic Dry Ice Brandon, MS

Tim,

The following is a summary of findings from the quarterly vibration survey on the Ammonia Compressors that was performed on 1/20/25 at the Brandon, MS plant.

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.

Summary



Atlantic Dry Ice.rbm / ADI / C-1 AMMONIA COMPRESSOR / MOH - MOTOR OUTBOARD HORIZONTAL

C-1 Ammonia Compressor

Motor data shows non-synchronous peaks in motor spectra that indicate bearing defects are present in the motor bearings. Trend data shows another increase since last survey. Amplitudes are higher in the ODE motor bearing (Outboard) and many peaks in the spectra are associated with bearing cage frequency. Inspect motor bearings for defects/wear and proper lubrication soon. Rated as a **CLASS III** defect.



Atlantic Dry Ice.rbm / ADI / C-2 AMMONIA COMPRESSOR

C-2 Ammonia Compressor

Compressor data (CIA-COV) shows some possible signs of internal wear of the compressor. Heavy load on the compressor can also be a factor. The compressor verticals show a dominant vibration at lobe pass (4 x rpm) with harmonics. Compressor may need attention in the coming months. We will continue to monitor this closely. Rated as a **CLASS II** defect.



C-3 Ammonia Compressor

Motor data shows electrical vibration associated with possible rotor bar bass frequency and 2 x electrical line frequency. This may be due to soft foot of the motor causing an air gap issue in the motor. This is not a significant issue; however, it is still recommended to inspect motor for soft foot condition and realign motor if soft foot is found. We are monitoring this closely. Rated as a **CLASS I** defect.

Database: Atlantic Dry Ice.rbm Area: Brandon MS Plant Report Date: 21-Jan-25 09:43

c-1 -	C-1 AMMONIA	COMPRESSOR		(20-Jan-25))
		OVERAI	L LEVEL	1K-20F	(Hz
MOH		.177	In/Sec	3.413	G-s
MOV		.153	In/Sec	. 657	G-s
MIH		.107	In/Sec	1.280	G-s
MIV		.151	In/Sec	. 522	G-s
MIA		.107	In/Sec	.385	G-s
CIA		.086	In/Sec	.152	G-s
CIH		.073	In/Sec	.307	G-s
CIV		.129	In/Sec	.095	G-s
COH		.048	In/Sec	.388	G-s
COV		.108	In/Sec	.134	G-s
c-2 -	C-2 AMMONIA	COMPRESSOR		(20-Jan-25)	
		OVERAI	L LEVEL	1K-20H	(Hz
MOH		.118	In/Sec	.630	G-s
MOV		.118	In/Sec	.176	G-s
MIH		.118	In/Sec	.320	G-s
MIV		.093	In/Sec	.130	G-s
MIA		.105	In/Sec	.198	G-s
CIA		.171	In/Sec	. 332	G-s
CIH		.096	In/Sec	.785	G-s
CIV		.544	In/Sec	.209	G-s
COH		.120	In/Sec	.488	G-s
COV		.149	In/Sec	.461	G-s
с-з -	C-3 AMMONIA	COMPRESSOR		(20-Jan-25)	1
		OVERAI	L LEVEL	1K-20H	(Hz
MOH		.123	In/Sec	1.606	G-s
MOV		.066	In/Sec	.445	G-s
MIH		.065	In/Sec	.405	G-s
MIV		.106	In/Sec	.194	G-s
MIA		.133	In/Sec	.368	G-s
CIA		.100	In/Sec	.270	G-s
CIH		.057	In/Sec	. 687	G-s
CIV		.106	In/Sec	.091	G-s
COH		.074	In/Sec	.466	G-s
COV		.096	In/Sec	.221	G-s

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

As always, it has been a pleasure to serve Atlantic Dry Ice. If there are any comments or questions, do not hesitate to contact us.

Sincerely,

Kevin W. Maxuell

ISO Certified Vibration Analyst, Category III



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