



QualiTest® Diagnostics

7030 Ryburn Dr. Millington, TN

Phone: (901) 873-5300

Fax: (901) 873-5301

www.gohispeed.com

April 1, 2022

Tim Busby
Mark Busby
Atlantic Dry Ice
Brandon, MS

Tim/Mark,

The following is a summary of findings from the quarterly vibration survey on the Ammonia Compressors at the Brandon, MS plant. Please let us know if there are any questions or comments.

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.

C-1 Ammonia Compressor

Data indicates another increase in 1 and 2 x rpm vibrations in the motor. This indicates coupling and or alignment issues. It is highly recommended to inspect the couplings for wear and ensure alignment is within tolerances. Hi-Speed provides alignment services. We have many years in shaft alignment experience and would be glad to perform this work for you. Rated as a **CLASS II** defect.

C-2 Ammonia Compressor

Motor remains to have a 120 Hz (2 x line frequency) vibration which may indicate some slight electrical issues in the rotor and or stator. Motor may have soft foot and stator could be slightly distorted and could be causing air-gap variations between rotor and stator. Compressor data still shows some signs of internal wear of the compressor. We will continue to monitor this closely. Motor is rated as a **CLASS I** defect and compressor is rated as a **CLASS II** defect.

C-3 Ammonia Compressor

Vibration data showed no issues were present during this survey. No actions recommended at this time.

Database: Atlantic Dry Ice.rbm
Area: Brandon MS Plant

| MEASUREMENT POINT | OVERALL LEVEL | HFD / VHFD |
|-------------------|--------------------------|-------------|
| ----- | ----- | ----- |
| C-1 | - C-1 AMMONIA COMPRESSOR | (24-Mar-22) |
| | OVERALL LEVEL | 1K-20KHz |
| MOH | .375 In/Sec | .453 G-s |
| MOV | .242 In/Sec | .194 G-s |
| MIH | .198 In/Sec | .937 G-s |
| MIV | .290 In/Sec | .443 G-s |
| MIA | .275 In/Sec | .326 G-s |
| CIA | .146 In/Sec | .199 G-s |
| CIH | .167 In/Sec | .236 G-s |
| CIV | .131 In/Sec | .243 G-s |
| COH | .058 In/Sec | .344 G-s |
| COV | .160 In/Sec | .292 G-s |
| C-2 | - C-2 AMMONIA COMPRESSOR | (24-Mar-22) |
| | OVERALL LEVEL | 1K-20KHz |
| MOH | .149 In/Sec | .917 G-s |
| MOV | .160 In/Sec | .355 G-s |
| MIH | .119 In/Sec | .998 G-s |
| MIV | .107 In/Sec | .250 G-s |
| MIA | .101 In/Sec | .323 G-s |
| CIA | .217 In/Sec | .284 G-s |
| CIH | .127 In/Sec | .661 G-s |
| CIV | .579 In/Sec | .628 G-s |
| COH | .152 In/Sec | 1.117 G-s |
| COV | .131 In/Sec | .488 G-s |
| C-3 | - C-3 AMMONIA COMPRESSOR | (24-Mar-22) |
| | OVERALL LEVEL | 1K-20KHz |
| MOH | .053 In/Sec | .712 G-s |
| MOV | .070 In/Sec | .104 G-s |
| MIH | .063 In/Sec | .528 G-s |
| MIV | .080 In/Sec | .244 G-s |
| MIA | .043 In/Sec | .143 G-s |
| CIA | .106 In/Sec | .169 G-s |
| CIH | .064 In/Sec | .350 G-s |
| CIV | .089 In/Sec | .207 G-s |
| COH | .059 In/Sec | .441 G-s |
| COV | .134 In/Sec | .367 G-s |

Clarification Of Vibration Units:

| | | | |
|-----|-----|--------|-----|
| 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,



ISO Certified Vibration Analyst, Category III



QualiTest® Diagnostics

Cell: 901-486-4565

Email: kwilliam@gohispeed.com