A sulphuric acid manufacturer in India with a capacity of over 100 MTPD sought Honeywell’s help to improve reliability and uptime.

**PROBLEM**
The main equipment consisted of a high-speed turbine, five blowers, two circulation pumps and feed pumps (Figure 1), and posed significant challenges:

- No vibration monitoring was in place, with the plan relying on an annual preventive shutdown and emergency shutdown to address issues
- Despite this, it saw around ten failures a year occur related to bearing, coupling and misalignment.

The plant approached Honeywell to help it reduce the production loss from unscheduled shutdowns.

**SOLUTION**
Specifically, the customer wanted to improve uptime by using wireless sensors for daily vibration monitoring and putting in place a remote monitoring solution on critical plant assets.

Honeywell proposed Versatilis Transmitter, its compact, low powered, multi-variant sensing platform capable of 3 axis vibration, surface temperature, audio acoustics and other ambient parameters. In addition to the latest long range LoRaWAN® protocol, it offers shortage BLE option for the purpose of sensor configuration and local trouble shooting through intuitive Honeywell Versatilis Connect mobile application. It was installed on the 160 KW, 2900 rpm blower (Figure 2). The blower circulates the natural air needed for the process and runs continuously, with any faults halting production.
OBSERVATION AND ANALYSIS

With the Honeywell Versatilis transmitter in place, customer was able to rapidly identify issues that needed to be addressed:

- Operation engineer was immediately notified about high vibration levels as seen in the Bluetooth Low Energy (BLE) Mobile Configuration application (Figure 3)

- A clear impulse in the vibration signal was identified in the raw waveform (Figure 4)

- As observed in Figures 5, 6 and 7, multiple harmonics related to rotating speed (46-47 Hz) were observed in the motor and blower drive end (DE) and non-drive end (NDE). These were related to looseness in the foundation/coupling.
**RECOMMENDATIONS**

With these insights, Honeywell was able to put forward the following recommendations:

- Check the mountings and bearings in the bearing pedestal.
- Verify for internal clearance in the bearings.
- Examine for Loose bearing bushes in the bearing seat and Loose rotor

**BENEFITS / CUSTOMER FEEDBACK**

Honeywell Versatilis Equipment health monitoring solution offers a rapid, easy to deploy, user friendly and cost-effective solution to reduce unplanned downtime:

- Easy equipment monitoring using a wireless sensor to improve the operation
- Intuitive Honeywell Versatilis Connect Mobile application along with Experion on-premise visualization platform helps detect faults in a machine
- Valuable Data that can be acted up for improved reliability and minimizing unscheduled downtime

Learn more about sensor and equipment health monitoring by visiting the Honeywell Versatilis Transmitter page.