

Application

Permanent compressed air dew point monitoring in the production facility with alarm function

Goals

- Enhancing product quality
- Improving system reliability
- Reducing production downtime

Customer and Sector

- Leading producer of packaged and processed foods with a diverse product portfolio.
- State-of-the-art production facility with stringent quality control and adhere to international food safety standards.



Optimizing Food Production with Precision Dew Point Monitoring in Compressed Air

A Case Study in the Food Industry

Introduction

In the food industry, maintaining optimal environmental conditions is essential to ensure product quality, safety and shelf life.

One critical parameter that has a significant impact on food production and storage is dew point in the compressed air system (CAS). Dew point is the temperature at which air becomes saturated and condensation forms. Monitoring dew point helps food manufacturers and processors prevent moisture-related problems such as mold growth, spoilage, and equipment corrosion.

Challenges

In its manufacturing facility, the company faced several challenges related to humidity control of their compressed air system:

- 1. Product Quality:**
Fluctuating humidity levels impacted product quality, leading to issues such as clumping of powdered ingredients, changes in texture, and decreased shelf life.
- 2. Production Efficiency:**
Incorrect humidity levels in the production environment resulted in longer processing times and increased energy consumption.
- 3. Equipment Maintenance:**
High humidity caused corrosion of machinery and packaging equipment, leading to increased downtime and maintenance costs.

Solution

To address these challenges, the company invested in affordable dew point monitoring equipment:

S305 Stationary Dew Point Monitor

The S305 is installed in the production area and continuously measures and displays the dew point. The monitor provides real-time data on humidity levels, allowing operators to take immediate corrective action if deviations occur.



S520 Portable Dew Point Meter

The company also purchased the S520 for spot checks in various production areas. This portable unit allows them to verify the accuracy of the stationary monitor's readings and identify specific areas of humidity variation.



Implementation

The implementation of the dew point monitoring solution in the compressed air system involved the following steps:

1. Site Assessment:

The company's engineers conducted a comprehensive assessment of the production facility to identify critical areas of the compressed air system where dew point monitoring was essential.

2. Stationary Monitor Installation:

The S305 was strategically installed in the areas with the highest moisture impact on the production process. These locations included mixing rooms, cooling chambers, and packaging areas.

3. Calibration and Training:

Before putting the monitors into operation, the company ensured proper calibration and provided training to the production staff on interpreting the dew point data and responding to potential issues.

4. Spot Checking Strategy:

The S520 portable meter was used for spot checks in different zones of the compressed air system across the production area. These spot checks were performed regularly to validate the accuracy of the stationary monitor and detect any local deviations in humidity levels.

Results

The implementation of the dew point monitoring solution yielded significant benefits for the food company:

- **Enhanced Product Quality:** By maintaining optimal humidity levels, the company observed a notable improvement in the quality and consistency of their products.
- **Improved Production Efficiency:** Real-time monitoring allowed operators to make timely adjustments to the production environment, leading to reduced processing times and energy savings.
- **Reduced Equipment Downtime:** Controlling humidity levels reduced corrosion on machinery, resulting in decreased equipment downtime and maintenance costs.
- **Compliance and Documentation:** The company could now maintain detailed records of dew point data, demonstrating compliance with food safety regulations and internal quality control standards.

"Our plant operators can now have greater confidence in the quality of the products they produce."

Conclusion

Compressed air dew point monitoring played a crucial role in the food company's quest for excellence in product quality, production efficiency, and equipment maintenance.

By utilizing the S305 Stationary Dew Point Monitor for continuous monitoring and the S520 Portable Dew Point Meter for spot checking, they were able to optimize their production processes and ensure that the ideal humidity conditions in the CAS were consistently maintained.

The comparatively low investment in dew point monitoring equipment proved to be a wise decision, contributing to the company's reputation for delivering high-quality products to consumers while staying ahead of their competitors in the food industry.

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