



INDUSTRY
Chemicals



PROCESS TYPE
Continuous Process in
Batch production



ANALYTICS TYPE
Process
Analytics

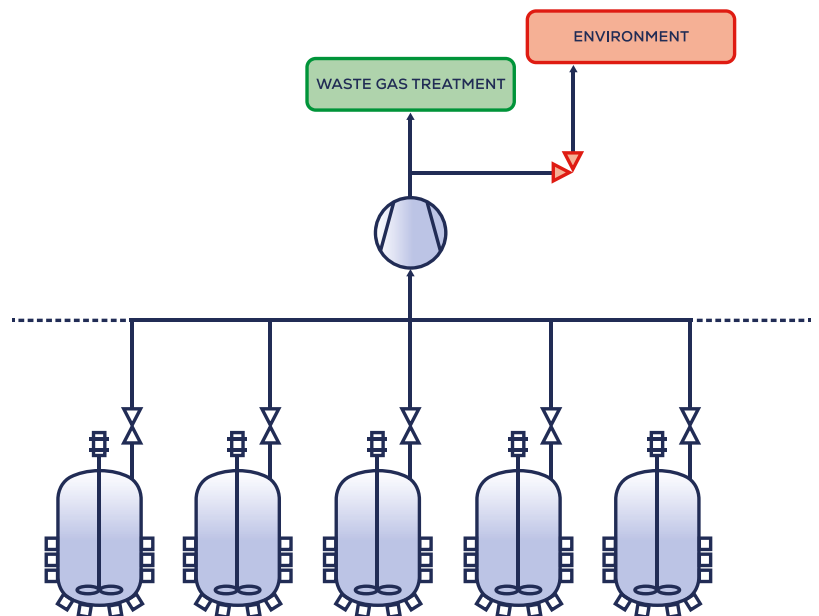


KEY OBJECTIVE
Optimize Energy
Efficiency for Net-Zero
Operations

Root Cause Analysis To Avoid Waste Gas Emission

BACKGROUND

At this plant, the waste gas treatment cleans incoming waste gas from a variety of different production processes. If the amount of waste gas is too high for the capacity of the plant (e.g. a spike of waste gas), it could lead to the emission of waste gas to the environment.



CHALLENGE

If a waste gas spike occurs, the shift personnel needs to find the origin of the waste gas quickly and initiate countermeasures to avoid emission of waste gas. The shift usually goes through the known candidates one-by-one to check, which is time consuming and often unsuccessful.

SOLUTION

The engineers wanted to establish an efficient and effective workflow to quickly find the origin of the emission of waste gas through use of the time-series data.

Challenges

There are dozens of possible candidates in one production facility alone, making it extremely difficult to identify the right one. If the origin is not a "usual" candidate, it will most likely be missed.

Approach

- Used TrendMiner's Recommendation Engine to look through all waste gas valves of every production process.
- Visualized the spike of waste gas and ran the Recommendation Engine with a filter expression.
- Added the results to the view for analysis

RESULT

Through use of self-service analytics, the engineers established a very fast and easy way to get the right root-cause candidate for the emission of waste gas. This results in:

- Reduced environmental impact through emission of waste gas
- Safety improvements
- Contribution to net-zero operations targets

TRENDMINER FEATURES USED



GOOGLE LIKE SEARCH

TrendMiner allows for an easy click and search for tags, just like using Google. While typing, our software auto fills best matching terms to speed up the analysis search. In addition, the asset framework structure can be used to retrieve tags of interest hierarchically, and the time series data of the tag of interest is then displayed for visual inspection. Multiple tags can also be visualized at the same time to see graphical correlations.



DATA VISUALIZATION

TrendMiner offers various visualization modes for analyzing time series data. Besides the common time trend, time series data of multiple tags can be shown in a stacked mode for specific time sequences or can be grouped together in a "swim lane". For multivariate analysis, our software offers a multi scatter plot that shows tag histograms and multiple histograms of each pair of the selected tags.



INFLUENCE FACTORS & TIME-SHIFTS

TrendMiner's recommendation engine gives suggestions for correlations and fingerprint deviations based on selected time frames, tags and layers. Our software provides an almost instant analysis across all indexed tags by combining information from multiple similar situations thus avoiding false correlations. Using automatic time shifts, it helps detect early indicators of deviating behavior.



RECOMMENDATION ENGINE

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