

ECLIPSE®

APPLICATION CASE STUDY



Magnetrol®
HYGIENIC MEASUREMENT
SOLUTIONS

ECLIPSE®
GUIDED WAVE RADAR



Eclipse® Guided Wave Radar for Caustic Soda Solution

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Application:

The customer needed an accurate and repeatable level measurement in a storage tank with a caustic soda solution, using the caustic soda solution to control a continuous biopharmaceutical fermentation.

The application had been fitted with a competitor's float that only had a measurable level of 5" (13 cm) above the bottom.

Because the storage tank was only 27.5" (70 cm) high and the remaining solution had to be discarded, that resulted in a loss of cost and yield during fermentation.

The product temperature was about +77° F (+25° C) with a pressure of 18.9 psi (1.3 bar).

The container was sterilized at +249.8° F (+ 121° C) for 60 min.

Problem:

Since the continuous fermentation was controlled by the addition of caustic soda solution, fermentation stopped when the storage tank was almost empty and the measurable level was near 5.1" (13 cm).

For technical reasons, the tank was not completely emptied; therefore, every additional liter could be seen as an increase in the yield.

The installation position of the level measurement was fixed; additionally, there was a special flange.

Recently, the customer had found no measurement that met their needs for a given installation position that could cause an increase in the yield or measurement range.

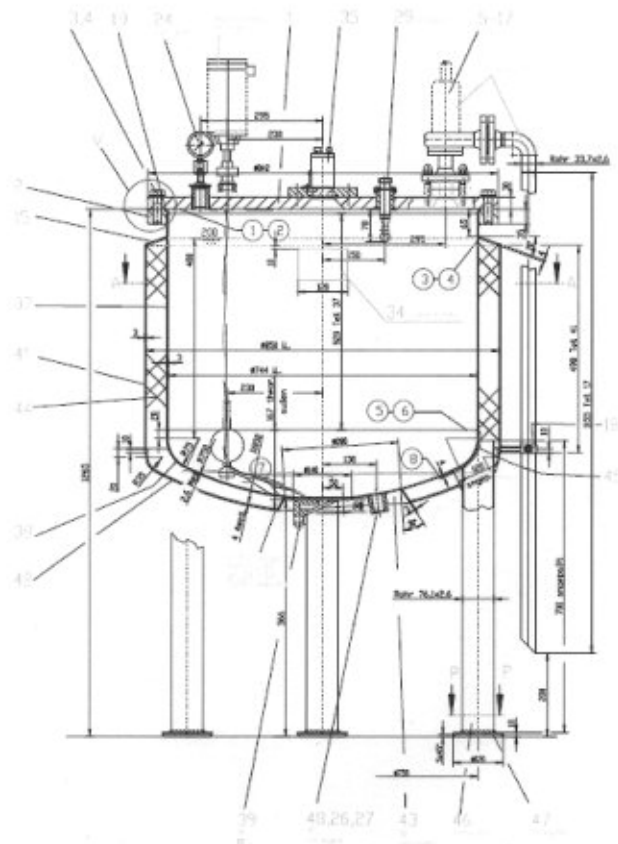
The float that was used for the level measurement had a high dead volume in the storage tank because the measurement was not mounted at the lowest point of the storage tank, about 5.1" (13 cm) from the bottom of the tank.

Solution:

By using Eclipse® Model 705 with a single rod Guided Wave Radar X7MF probe, the customer now has a solution to the problem.

Measurement was adapted by a special flange to the customer's requirements; thus, the existing measurement without modifications would be replaced on the container.

In order to ensure an increase in yield, the measurement was bent by the customer at approximately 50% of the rod length by 45°.



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GUIDED WAVE RADAR TRANSMITTER

This measured the lowest point of the tank which can lead to a significant increase in yield or removable amount of lye.

Furthermore, our measurement was accurately calibrated (up to 20 points) on the tank volume.

This brought the customer an additional advantage because they were able to operate more efficiently and plan their fermentation.

Result:

By using ECLIPSE, the customer now expects to increase their yield by about 20%.

Considering their cost of fermentation and their production of about one batch per week, the customer expects a payback period of one to two months.



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