

HYDROCARBONS IN COOLING TOWER WATER

Early detection of hydrocarbon leaks in cooling tower water from heat exchangers

Leaks of hydrocarbons from heat exchangers can emit large quantities of volatile organic compounds (VOCs). This can be a hazard from a flammability and financial standpoint as well as cause emissions to the atmosphere. 99.0 to 100% of VOCs are stripped to the atmosphere in cooling towers and have been found to be up to 12,576 pounds per day from a single exchanger.

On-line continuous monitoring can pay for hydrocarbon in water analyzer in a short time by immediate warning of leaks caused by corrosion and the resulting corrective action to eliminate possible compliance fines and loss of product. Savings in lost product and laboratory time can pay for the analyzer after the first leak is detected.

Airflow through a cooling tower dilutes the hydrocarbons in the air allowing higher concentrations than known. This results in the cooling tower reaching hazardous levels without warning. This can be prevented by measuring for hydrocarbon leaks directly in the water, allowing early detection of any leak before danger arises. Unfortunately, air quality sensors have not been effective for this purpose.

A typical cooling tower with 10 ppm by weight hydrocarbon content will emit 15,000 lbs/day lost product at a 1,500 million lbs/day flow rate.

Formula:

**Gallons per day cooling tower flow x PPMw x 0.000,001 x 8.337 lbs/gal
= lbs/day product lost.**

Advantages of Measuring VOCs Directly in Water:

1. Cost effective payout at first detection of heat exchanger leak
2. Protect the environment and minimize possible fines
3. Personnel safety: Eliminating possibility of cooling tower explosion by early detection of heat exchanger leaks



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