

# S.T.R. Cuneo: How Continuous Environmental Monitoring Improves Waste Management



For waste management companies, **environmental monitoring** is a **key** element in **ensuring safety, regulatory compliance** and **sustainability**. Indeed, in the era of digitalized industrial processes, accurate and reliable data is essential for preventing risks, optimizing operations, and complying with increasingly stringent regulations.

**Società Trattamento Rifiuti S.r.l. (S.T.R.)**, is a prime example in this field. With two operating plants in Sommariva Perno and Sommariva del Bosco in the province of Cuneo, S.T.R. manages both the **treatment of mixed waste** and **composting**, a delicate process that requires constant monitoring of the environmental parameters of materials and the environment. For this reason, the company has implemented a comprehensive system for monitoring environmental parameters throughout the various phases of the waste treatment cycle, using LSI LASTEM sensors and stations.

## The strategic importance of monitoring and the critical parameters controlled

### Regulatory compliance and control

Trattamento Rifiuti S.r.l. is subject to **rigorous monitoring plans** established by regulatory bodies such as the Province and ARPA. Various parameters must be measured and monitored to ensure compliance with

authorizations and the safety of the facilities. According to the company, however, monitoring should not be viewed merely as a regulatory requirement, but is seen as a genuine tool for controlling the quality and sustainability of processes, helping to improve plant efficiency on a daily basis.

## Process monitoring

In the **accelerated maturation composting** process, monitoring the material piles is vital. S.T.R. uses portable sensors to monitor the **material's temperature** and **oxygen**, ensuring proper maturation and producing compost suitable for use as an agricultural amendment.

The **biofilter**, the heart of the emissions and odor treatment system, requires monitoring with permanently installed, real-time probes to assess the **humidity and temperature of the filter bed**. Measuring these parameters is essential to ensuring the efficiency of the filtration process, regulating a sprinkler system for irrigation. Properly humidifying the bed material ensures a longer useful life.

Even during the **final maturation phase**, monitoring systems are used to measure **temperature, humidity and oxygen**.

## Weather monitoring

Within the Sommariva Perno site, which also includes a landfill, S.T.R. has installed a **weather station** that monitors **precipitation, wind direction and speed, temperature, humidity** and **atmospheric pressure**. This data, processed daily, is essential for planning operations and managing environmental risks.

First of all, the data collected by the weather station ensures environmental compliance and traceability, providing the values necessary to meet legal obligations and compile environmental reports. The anemometric parameters and thermo-hygrometric conditions are also important in determining how and where any odors, dust, and bioaerosols disperse.

## Uses and benefits of collected data

The collected data therefore allows to **optimize processes** and prevent potential problems during the waste treatment cycle. By monitoring the

physical and chemical parameters of compost piles and biofilters in real time, S.T.R. can verify maturation stages and maintain optimal operating conditions for the filtration process. The integration of meteorological data improves activity planning.

## Future Vision and Conclusion

S.T.R. continues to invest in predictive maintenance and the evolution of its systems, focusing on greater data integration, digitalization, and technologies capable of identifying potential process issues. This path reinforces the company's vision towards increasingly efficient, safe, and sustainable processes.

The **project** carried out with the support of LSI LASTEM confirms how advanced real-time environmental monitoring, supported by accurate instruments and a precise maintenance and calibration service, can become a **strategic asset for the entire plant**, improving both its performance and its impact on the surrounding area.