



## Non-contact level sensors ensure greater safety in environments endangered by hazardous substances

Disposal of chemicals requires specialized, well thought-out disposal solutions that are in accordance with current standards and ecological responsibility.

If the degree of pollution allows it, incineration of the materials can be the most sustainable option. In the EU Waste Directive, this disposal method ranks below recovery and has two main objectives: Reducing the volume of waste and destroying potentially dangerous substances. This poses considerable challenges for waste disposal companies: from the bulk handling of incoming waste to the careful monitoring and control of substances entering the environment. Special chemicals are used to purify, optimize and neutralize the process streams and residual materials. They are stored in large storage tanks at strategic points in the respective waste incineration plants.

The British town of Belvedere, near London, is the site of such a waste incineration plant. Four polypropylene tanks filled with sodium hydroxide are located on site. Every process medium is stored in large containers for long-term supply and in small day tanks for process-critical dosing and neutralization. All tanks were originally supplied with a low-cost bubbler level measuring system, which eventually failed due to corrosion and buildup. Vapours and gases escaped through the housing. Moreover, the systems were unreliable, inaccurate and very unsafe.



With its large selection of process fittings, VEGAPULS 64 is suitable for a wide variety of applications in the chemical industry.



Chemical tanks for storing acids and alkalis.

To ensure a lasting function, the sensor must be made of the right materials, usually expensive alloys, and equipped with special elastomer seals. When installing or de-installing a sensor, the workforce has to wear extensive protective equipment. In addition, the surrounding area must be closed off during such a procedure. These measures are necessary and involve high costs. They also pose a security risk.

The stored chemicals, especially those that are highly acidic or alkaline, are usually highly toxic, corrosive substances that can leave residues and easily outgas. Any contact with or release of such substances into the atmosphere can quickly become dangerous for personnel. At the Belvedere plant, these chemical substances are carefully monitored. Accurate level measurement helps avoid overfilling and ensures that there are enough raw materials for the process.



A VEGAPULS 64 radar sensor, mounted above a storage tank on a boom, measures the level of hydrochloric acid right through the top of the tank.

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"The previous level measuring system caused a lot of problems. These have been completely eliminated by the new sensors," explains the responsible engineer.

VEGA suggested using non-contact radar technology, i.e. externally mounted sensors that "look" right through the top of the tank, to measure the level inside. A radar sensor can transmit signals through plastic and other non-conductive materials such as glass and ceramic. The signals are only reflected when they strike the liquid surface. And thanks to the good dynamic range of the sensor, even liquid condensate or deposits on the ceiling inside the vessel do not interfere with the measurement.

The radar sensors at the waste incineration plant in Belvedere are now measuring successfully through the tops of chemical tanks. They are mounted on simple frames with holders supplied by VEGA. The instruments required only basic settings for the minimum and maximum levels. Using radar technology to measure **through plastic tanks and even glass windows** in reactors offers great advantages: increased safety and reliability, chemical compatibility and time-saving installation. Not to mention savings in sensor data.



Radar sensors are mounted above all small day tanks containing acids and alkalis. They measure the liquid level from the outside

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The operators of the Belvedere plant summed it up this way: "VEGAPULS 64 radar level measuring instruments give us real flexibility and security in operating our chemical storage tanks and controlling the processes."



The excellent signal focusing of VEGAPULS 64 makes reliable measurement possible even through small windows.

VEGAPULS 64

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