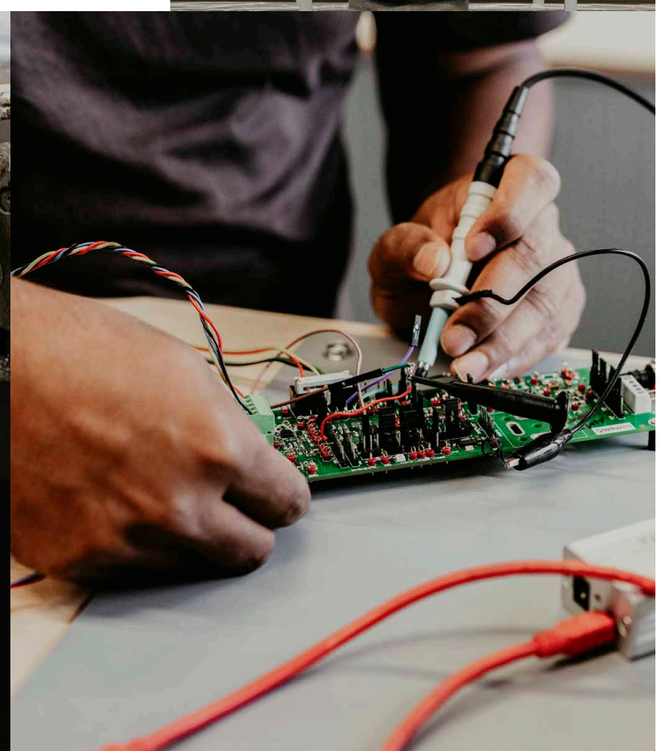
LEVEL. UP TO THE MAX.

SOLUTIONS FOR THE CHEMICAL INDUSTRY

SUCCESSFUL

TOGETHER



LEVEL. UP TO THE MAX.

As an owner-managed, medium-sized company, with an international sales network in over 90 countries and personal contacts available locally, UWT stands for a sustainable partnership at eye level - globally and regionally.

The core competence of UWT lies in level, point, and interface measurement. We measure bulk solids, from the finest powder to coarse, abrasive materials, as well as all types of liquids, including high-viscosity pastes and foams.

In the field of point level measurement for bulk materials, UWT has achieved a special position and set new standards with the rotary paddle switch.

INNOVATIVE SOLUTIONS AND DIGITALISATION

Modern, high-quality technologies ensure a continuous process flow. UWT sensors are designed with maximum process compatibility, allowing seamless integration into systems and providing optimal support. Additionally, comprehensive digitalisation is offered: cutting-edge eTools enable easy product selection, configuration, and commissioning. Intuitive operation and innovative device communication ensure smooth operation.

CUSTOM PRODUCT CONCEPTS AND MAINTENANCE-FREE SOLUTIONS

In line with the high standards of various industries, UWT's team provides extensive support for individual requirements. Customer-oriented planning enables the development of tailored solutions that are efficiently and successfully implemented.

Thanks to in-house production and a modern machine park, customised solutions and specific device adaptations can be realised.

UWT sensors are completely maintenance-free and operate on the "install and forget" principle. They are highly configurable and add value to applications.

TOP QUALITY MEANS LONG LIFESPAN

UWT offers guaranteed "Made in Germany" quality. The high reliability of the products ensures high system availability without downtime. Continuous improvement processes and extensive testing guarantee a high level of safety. Long-lasting, maintenance-free products with a 6-year guarantee also save time and resources.

QUALITY CERTIFICATES

GLOBAL APPROVALS

CHEMICAL INDUSTRY

In the chemical sector, reliability is essential at every stage of the process. Whether basic chemicals, solvents, additives or specialty products, materials are stored, mixed, heated or transformed throughout the entire value chain. Precise level control is key to ensuring safety, quality and efficiency. Every measurement helps maintain plant availability, conserve resources and keep processes stable.

CHALLENGES

Hardly any industry places higher demands on measurement technology than the chemical industry. Different aggregate states, varying densities and extreme temperatures and pressures require precise, adaptable sensor solutions. Many media are corrosive, aggressive, or highly flammable, ranging from acids and alkalis to solvents, abrasive materials, and sticky bulk solids.

Reliable instrumentation must be mechanically robust, chemically resistant and safety certified. UWT offers solutions with Ex approvals (ATEX, IECEx), SIL certification and material options that meet the requirements of WHG and FDA-compliant processes. Compliance with legal safety regulations is just as critical as the proper technical setup of the measuring point.

Special features, such as a metal-detectable shaft seal, enable detection of potential metal particles resulting from abrasion in the product flow, supporting product purity and quality assurance. Meanwhile, pressure is rising to cut energy use and make processes more sustainable. Plant operators are therefore increasingly relying on automated level monitoring to manage material flows efficiently, prevent losses, and reduce maintenance and operational costs.

For engineering partners and distributors, easy integration, low maintenance and global availability are essential. UWT offers a broad portfolio that adapts flexibly to individual process conditions, from liquids to solids and from small vessels to large tanks.

TYPICAL MEDIA

Typical applications involve organic solvents, oils, acids, alkalis and solids such as sulfur, lime, activated carbon or PVC. Water, condensate, hydrocarbons and other aggressive or toxic media also place high demands on durability, measurement stability and material selection.

LEVEL MEASUREMENT IN THE CHEMICAL INDUSTRY

Level measurement ensures stable operation in reactors, storage tanks, mixing vessels and silos. It enables precise process control, consistent product quality and prevents overfilling, bridging or material blockages, even when handling aggressive or flammable media.

Across all process stages, level measurement plays a key role in safety, efficiency, product quality and environmental responsibility. It is indispensable for reliable and economical plant operation.

CONTINUOUS AND POINT LEVEL MEASUREMENT OF RAW MATERIALS

Large outdoor tank farms store liquid chemicals, some of which pose environmental risks. Reliable measurement systems protect inventory and prevent overfilling or shortages. They must withstand temperature fluctuations, weather conditions and changing media. Safety functions intervene automatically at critical process values to ensure environmental and water protection.

OUR PRODUCT RECOMMENDATION:

NR

NivoRadar®

CN

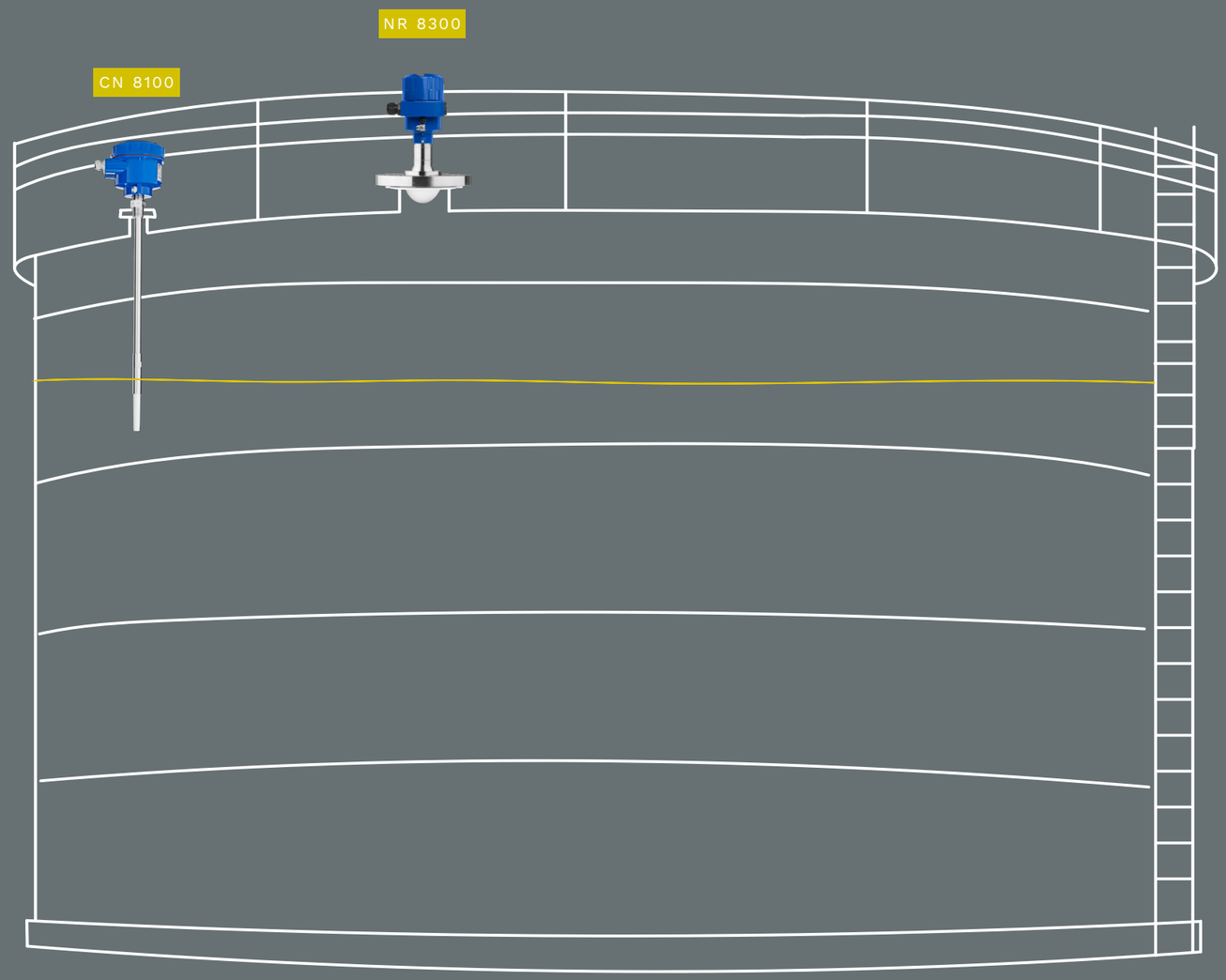
Capanivo®

CHALLENGE:

- Temperature fluctuations and environmental influences
- Environmentally hazardous substances
- Increased explosion risk
- Changing media

SOLUTION:

- Measurement principle unaffected by temperature fluctuations up to 100 °C (212 °F)
- WHG / VLAREM certified
- Ex-certified devices
- Unaffected by changing media



Measurement Task
CONTINUOUS & POINT LEVEL MEASUREMENT

Medium
SOLVENTS, WATER, ACIDS, ALKALIS, BASIC CHEMICALS

Measuring Range
< 20 M | 66 FT

Process Temperature
< 50 °C | 122 °F

Process Pressure
< 0.8 BAR | 11.6 PSI

LARGE TANK STORAGE

CONTINUOUS AND POINT LEVEL MEASUREMENT OF RAW MATERIALS

The liquids required for chemical processes are stored in double-walled tanks under the strictest safety regulations. The measuring technology must meet the highest demands in terms of tightness, chemical resistance and operational reliability. In addition, the tanks require a leakage detection system to provide early and reliable protection against environmental damage.

OUR PRODUCT RECOMMENDATION:

NR
NivoRadar®

RF
RFnivo®

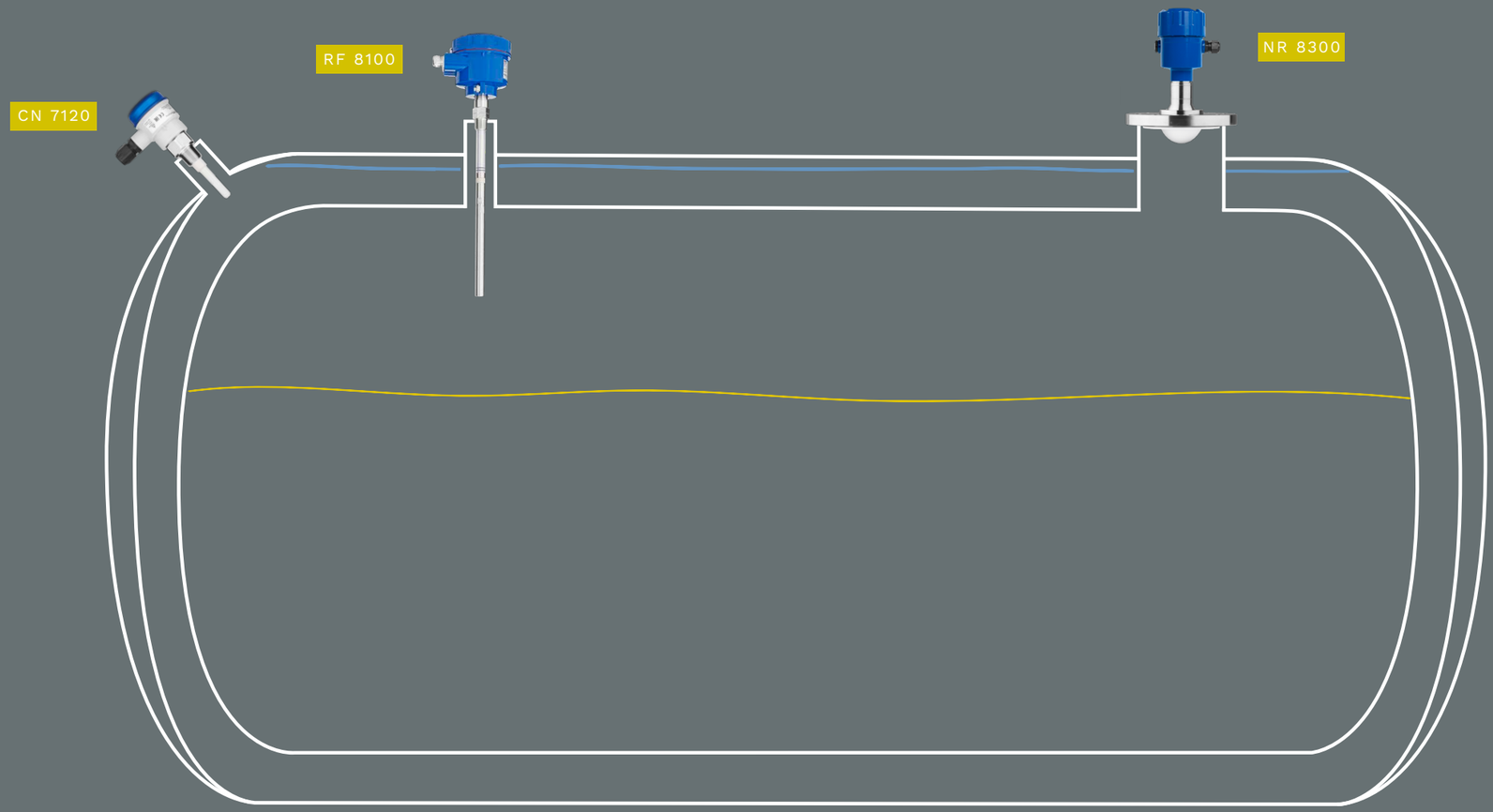
CN
Capanivo®

CHALLENGE:

- Highly toxic media
- Chemical exposure
- Volatile substances

SOLUTION:

- Leakage monitoring in double-walled tanks
- Additional internal sealing in the sensor (second line of defense)
- Chemically resistant materials
- WHG / VLAREM certified
- Safety functions (continuous self-diagnosis, Fail Safe High – Fail Safe Low)



Measurement Task
CONTINUOUS & POINT LEVEL MEASUREMENT

Medium
TOXIC LIQUIDS, LIQUID FUELS

Measuring Range
< 2 M | 7 FT

Process Temperature
< 100 °C | 212 °F

Process Pressure
< 10 BAR | 145 PSI

TANK STORAGE

CONTINUOUS AND POINT LEVEL MEASUREMENT OF RAW MATERIALS

In chemical processes, bulk solids are also used for absorption, reduction or as fillers and stored in tall silos. To ensure a reliable supply of material, both continuous level and point level are monitored with high accuracy.

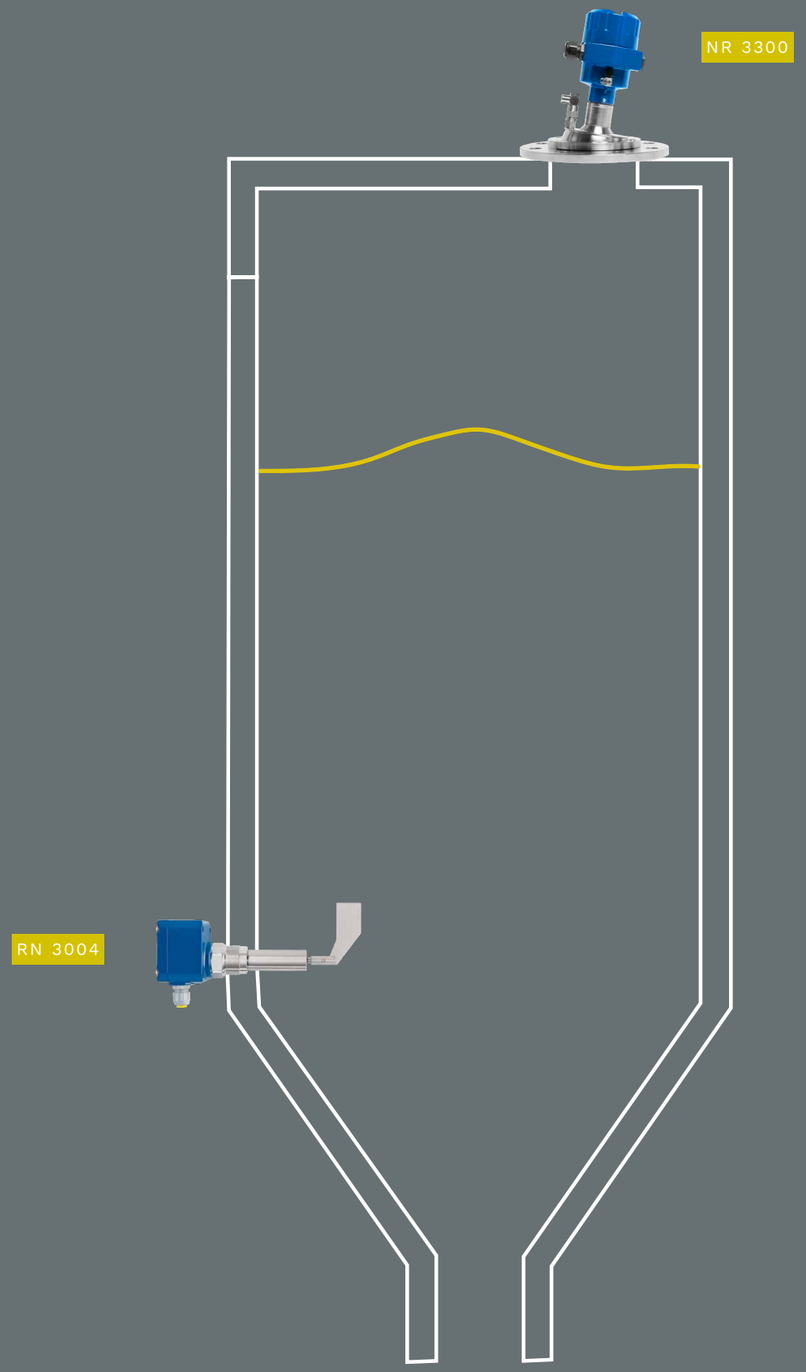
OUR PRODUCT RECOMMENDATION:

NR

NivoRadar®

RN

Rotonivo®



CHALLENGE:

- Dusty atmosphere, buildup
- Abrasive materials
- Angle of repose, material bridging
- Tall, narrow silos
- Explosion-hazardous atmosphere

SOLUTION:

- Robust sensors with dust-tight design
- Measurement performance unaffected by dust and buildup
- Very high sensitivity
- Ex-certified devices

Measurement Task
CONTINUOUS & POINT LEVEL MEASUREMENT

Medium
ACTIVATED CARBON, GRAPHITE, CARBON BLACK, PETROLEUM COKE

Measuring Range
< 30 M | 98 FT

Process Temperature
< 80 °C | 176 °F

Process Pressure
< 0.8 BAR | 11.6 PSI

SILO STORAGE

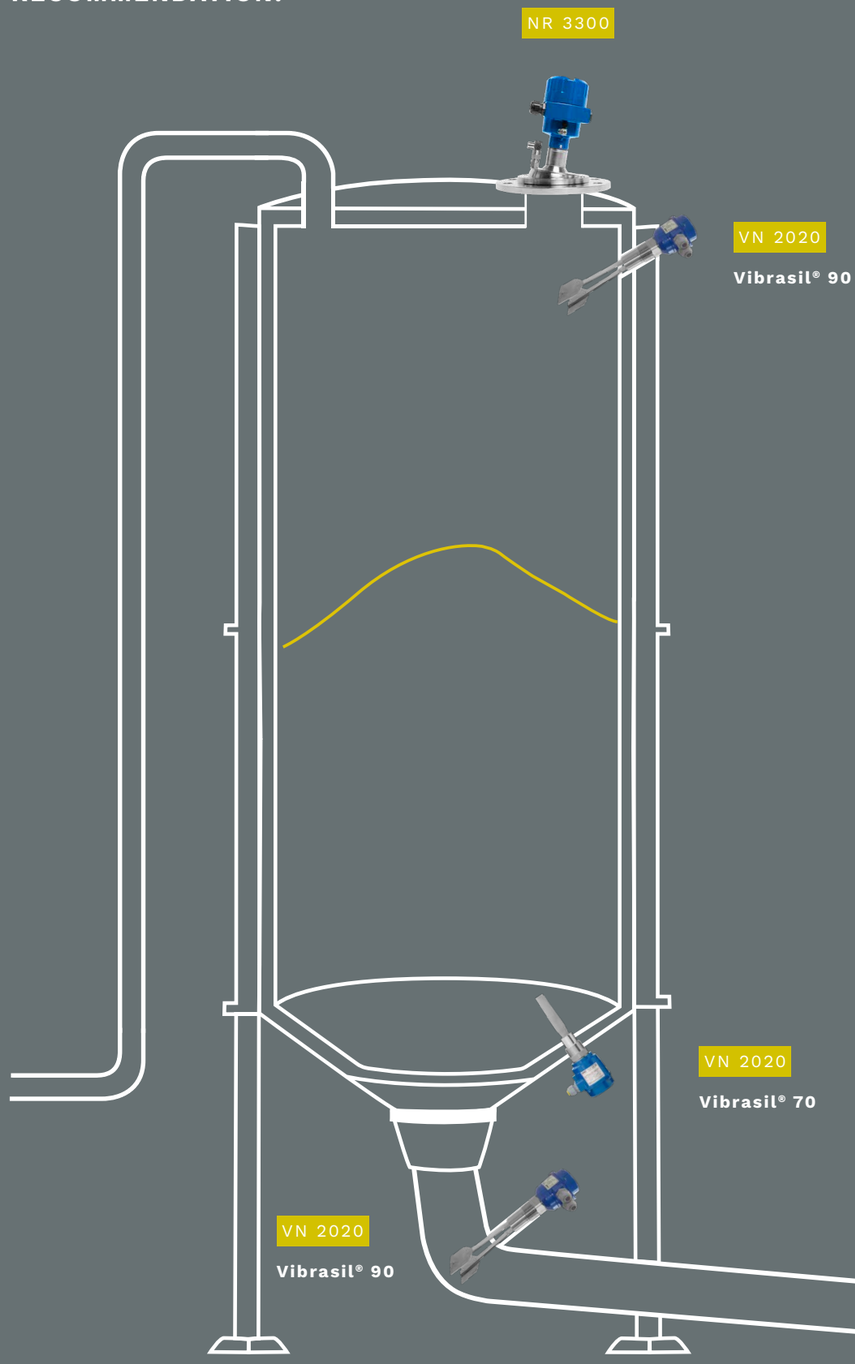
CONTINUOUS AND POINT LEVEL MEASUREMENT OF ADDITIVES

In the production of paints, coatings and modern insulation materials, silicon dioxide, better known as silica, is used as an additive. Highly dispersed silica is temporarily stored in silos up to 25 m (82 ft) in height. Continuous and point level sensors ensure a reliable and uninterrupted material supply.

OUR PRODUCT RECOMMENDATION:

NR
NivoRadar®

VN
Vibranivo®



CHALLENGE:

- Light material < 20 g/l (< 1.25 lb/ft³)
- Changing bulk densities inside the silo
- High dust load
- Tall, narrow silos

SOLUTION:

- Measurement principle unaffected by dust
- Robust design with a dust-tight construction
- High sensitivity < 5 g/l (< 0.31 lb/ft³)

Measurement Task
CONTINUOUS & POINT LEVEL MEASUREMENT

Medium
SILICA

Measuring Range
> 25 M | 82 FT

Process Temperature
< 80 °C | 176 °F

Process Pressure
< 0.8 BAR | 11.6 PSI

SILO STORAGE

CONTINUOUS LEVEL MEASUREMENT IN ENERGY AND PROCESS HEAT SYSTEMS

In the chemical industry, steam is used for reaction processes, sterilisation and drying. For example, in the production of plastic granulate from distilled petroleum components, steam is required. It is generated by heating water in a steam boiler using external heat sources. Level sensors ensure safe and reliable monitoring of the water level in this process.

OUR PRODUCT RECOMMENDATION:

NG

NivoGuide®

CHALLENGE:

- Steam, condensate
- High temperatures between 110 °C and 450 °C (230 °F to 842 °F)
- High pressures up to 160 bar (2,320 psi)
- Continuous monitoring

SOLUTION:

- Unaffected by steam and condensate
- Steam boiler approval
- Temperature resistant up to 450 °C (842 °F)
- Pressure resistant up to 400 bar (5,800 psi)

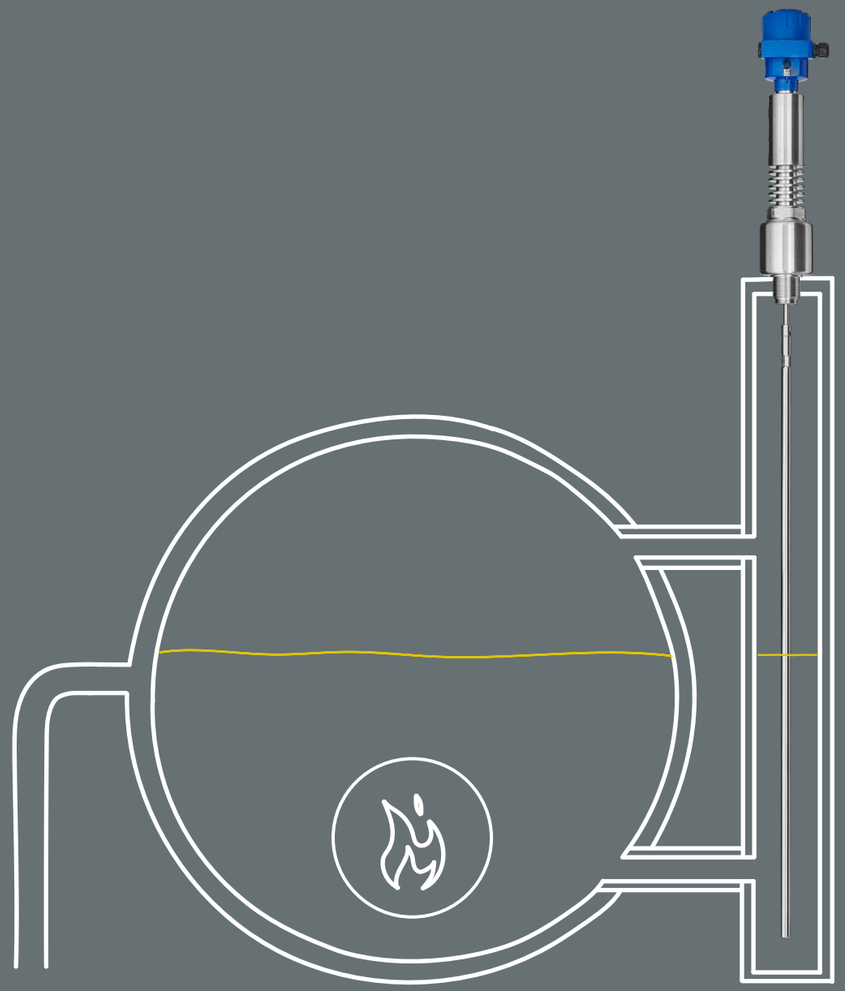
Measurement Task
CONTINUOUS LEVEL MEASUREMENT

Medium
HOT WATER

Measuring Range
< 2 M | 7 FT

Process Temperature
< 450 °C | 842 °F

Process Pressure
< 160 BAR | 2,321 PSI



STEAM BOILER

CONTINUOUS AND POINT LEVEL MEASUREMENT IN ENERGY AND PROCESS HEAT SYSTEMS

In an energy-efficient steam cycle, condensate from the pipelines is discharged in a controlled manner and directed into a collecting vessel. The continuous and point level of the hot condensate are monitored to ensure an optimal return flow and efficient energy use.

OUR PRODUCT RECOMMENDATION:

NC

NivoCapa®

VN

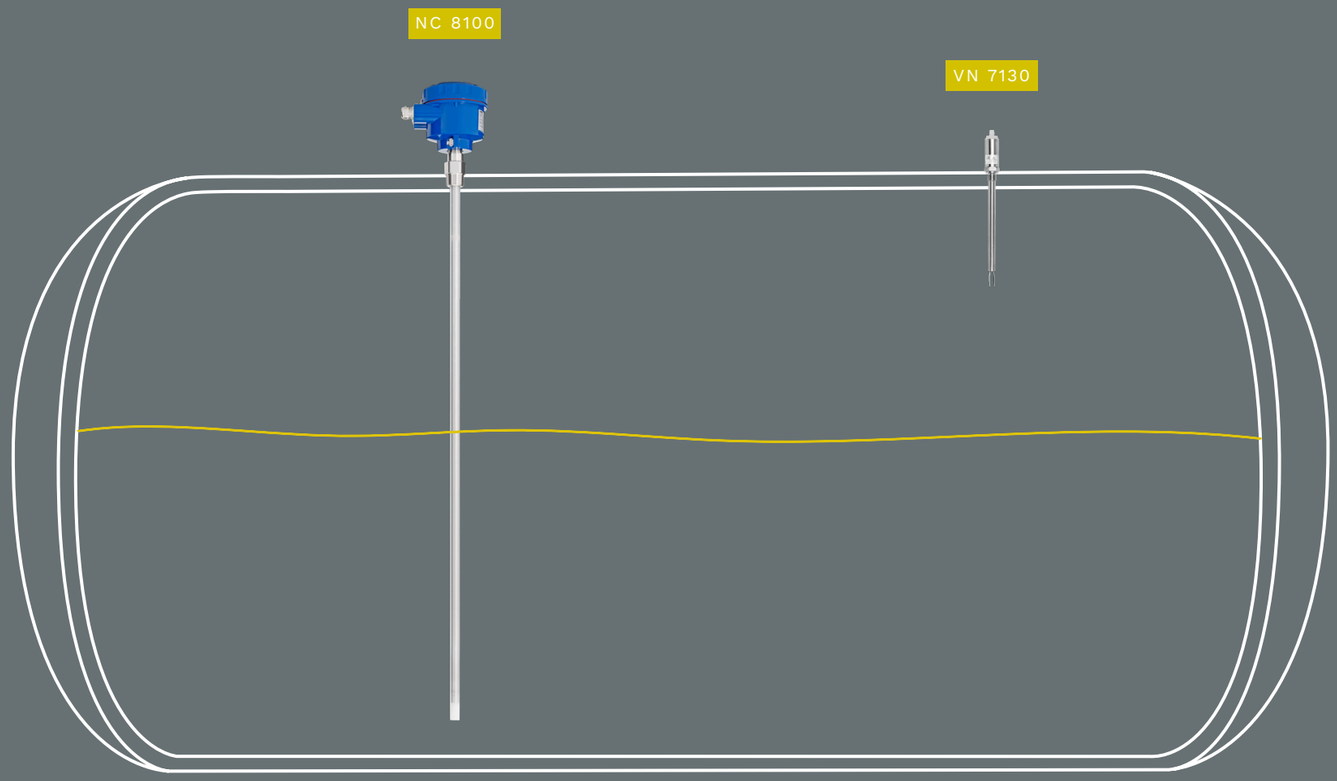
Vibranivo®

CHALLENGE:

- Steam, condensate
- Continuous monitoring
- High process temperature
- High process pressure

SOLUTION:

- Unaffected by steam and condensate
- Plug-on display and operating module
- Temperature resistant up to 150 °C (302 °F)
- Pressure resistant up to 35 bar (507 psi)



Measurement Task
CONTINUOUS & POINT LEVEL MEASUREMENT

Medium
CONDENSATE

Measuring Range
< 1.5 M | 5 FT

Process Temperature
< 150 °C | 302 °F

Process Pressure
< 10 BAR | 145 PSI

CONDENSATE TANK STEAM CYCLE

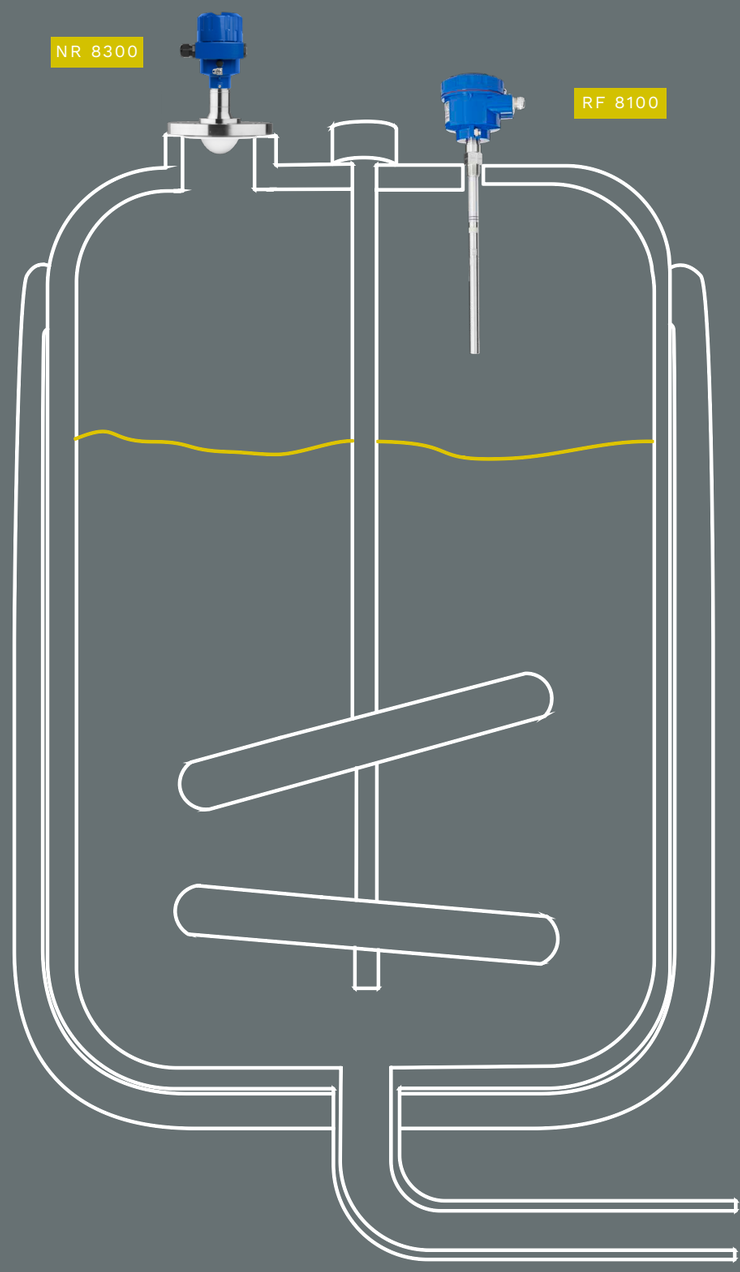
CONTINUOUS AND POINT LEVEL MEASUREMENT IN THE REACTOR TANK

Chemical reactors host a wide range of reaction processes in which several substances are combined under controlled conditions. Reliable continuous and point level monitoring is essential to safely control these reactions and ensure stable, efficient production.

OUR PRODUCT RECOMMENDATION:

NR
NivoRadar®

RF
RFnivo®



Measurement Task
CONTINUOUS & POINT LEVEL MEASUREMENT

Medium
ALL TYPES OF LIQUIDS

Measuring Range
< 15 M | 49 FT

Process Temperature
< 200 °C | 392 °F

Process Pressure
< 25 BAR | 363 PSI

CHALLENGE:

- Aggressive media
- Agitator inside the vessel
- Turbulent surface
- Changing media properties
- Elevated temperature and pressure

SOLUTION:

- Chemically resistant materials
- Consistent measurement performance even with turbulent surfaces
- Temperature resistant up to 200 °C (392 °F)
- Pressure resistant up to 25 bar (363 psi)

REACTOR TANK

CONTINUOUS AND POINT LEVEL MEASUREMENT IN THE REACTOR

In the production of cleaning agents, surfactants and solvents are combined with water or alcohol inside a reactor. Reliable continuous and point level monitoring is essential to control the reactions and ensure stable, efficient production safety.

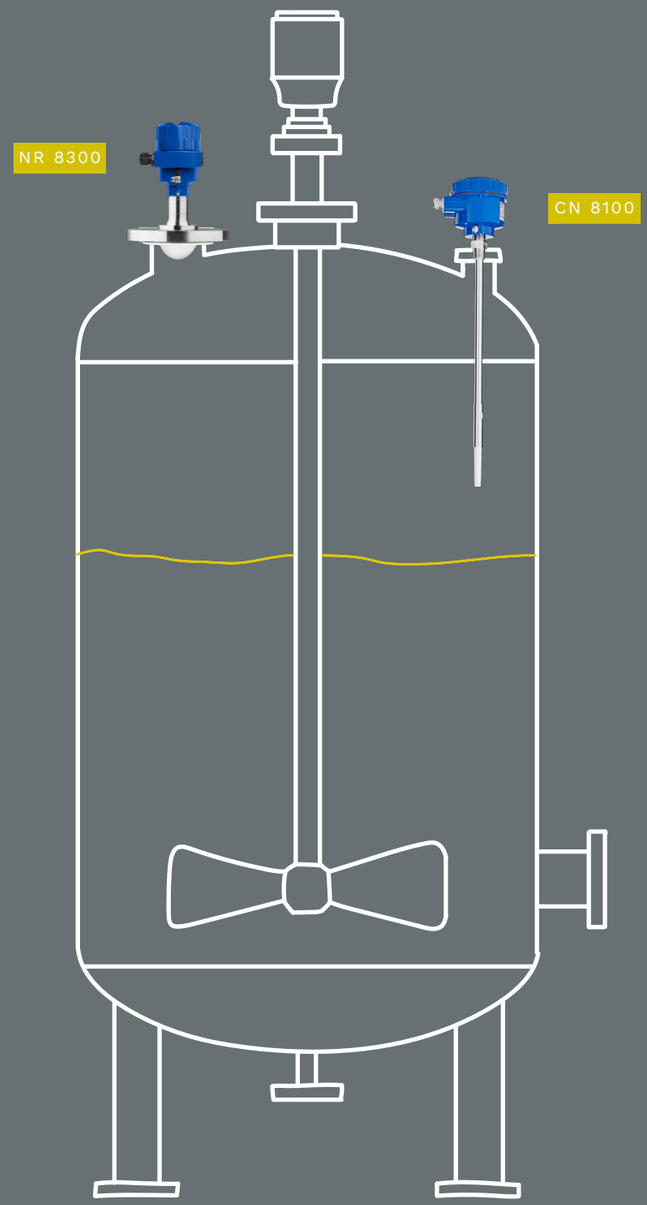
OUR PRODUCT RECOMMENDATION:

NR

NivoRadar®

CN

Capanivo®



CHALLENGE:

- Condensate and buildup
- Agitator inside the vessel
- Turbulent surface
- Light foam formation
- Changing media properties
- Elevated temperature

SOLUTION:

- Measurement principle unaffected by condensate and buildup
- Stable measurement performance even with turbulent surfaces and light foam formation
- Temperature resistant up to 200 °C (392 °F)

Measurement Task
CONTINUOUS & POINT LEVEL MEASUREMENT

Medium
SURFACTANTS & SOLVENTS

Measuring Range
< 8 M | 26 FT

Process Temperature
< 100 °C | 212 °F

Process Pressure
< 0.8 BAR | 11.6 PSI

REACTOR

CONTINUOUS LEVEL MEASUREMENT IN THE REACTOR

In the production of plant-based extracts, natural oils are mixed with organic solvents and processed in extraction tanks. Reliable level monitoring is essential for safely controlling the reaction process and for ensuring stable, efficient production.

OUR PRODUCT RECOMMENDATION:

NC

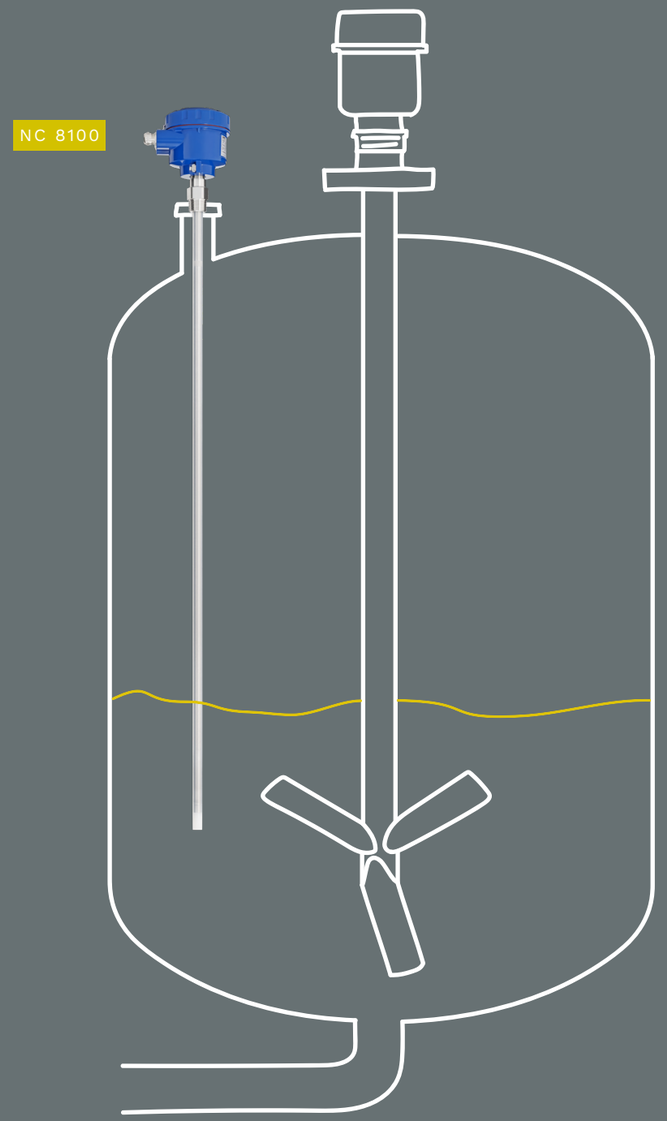
NivoCapa®

CHALLENGE:

- Heavy buildup and condensate formation
- High explosion risk
- High requirements for material resistance
- Agitator inside the vessel

SOLUTION:

- Measurement principle unaffected by buildup and condensate (“Active Shield”)
- Ex-certified device
- High-quality, chemically resistant materials
- Measurement unaffected by the agitator



Measurement Task
CONTINUOUS LEVEL MEASUREMENT

Medium
ACETONE & ROSEMARY

Measuring Range
< 3 M | 10 FT

Process Temperature
< 100 °C | 212 °F

Process Pressure
< 0.8 BAR | 11.6 PSI

EXTRACTION TANK

CONTINUOUS, POINT LEVEL AND INTERFACE MEASUREMENT IN THE SEPARATION VESSEL

During the recovery of base materials, water-based media are separated from hydrocarbons inside separation vessels. Since the upper medium is typically non-conductive, a guided radar system enables reliable detection of the maximum level and the interface between the two phases.

OUR PRODUCT RECOMMENDATION:

NG

NivoGuide®

RF

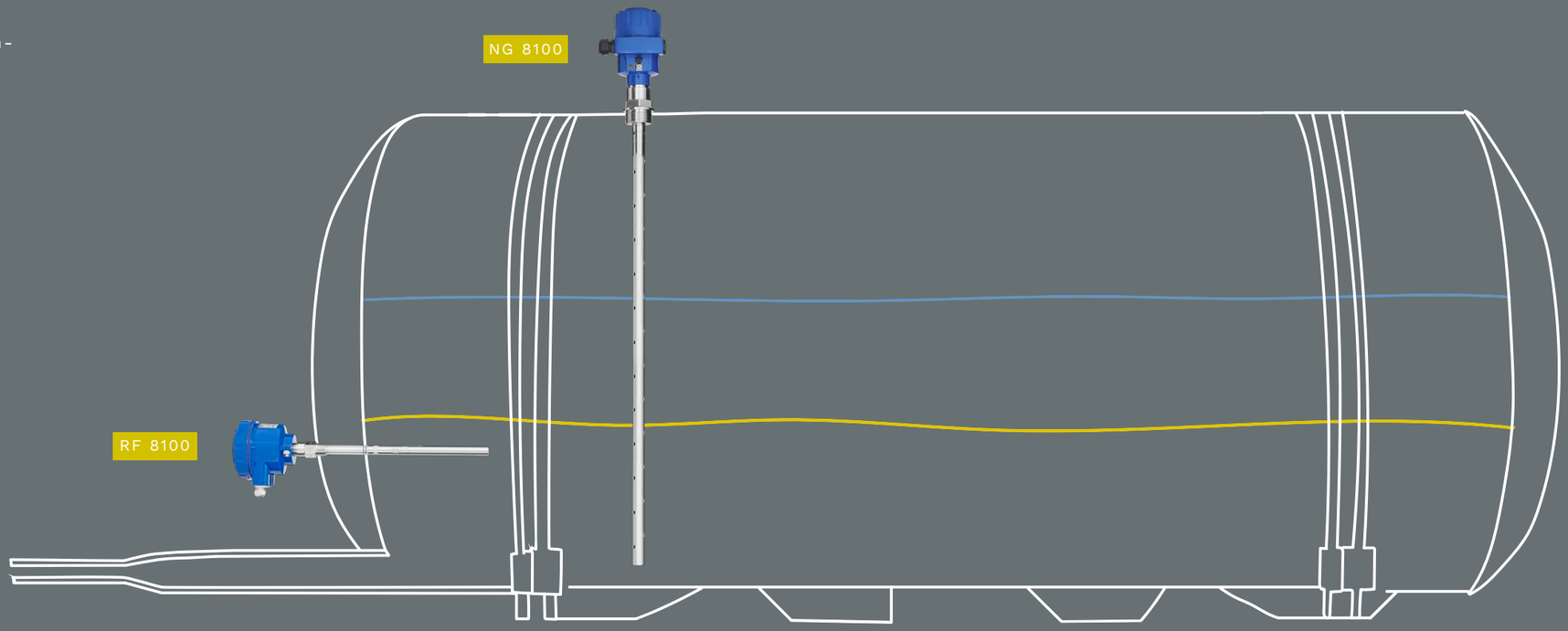
RFnivo®

CHALLENGE:

- Changing media properties and density differences
- Combination of conductive and non-conductive liquids
- Condensate formation

SOLUTION:

- Reliable interface measurement and level detection
- Measurement performance unaffected by condensate



Measurement Task
CONTINUOUS, POINT LEVEL & INTERFACE MEASUREMENT

Medium
WATER-BASED MEDIA & HYDROCARBONS

Measuring Range
< 5 M | 16 FT

Process Temperature
< 100 °C | 212 °F

Process Pressure
< 16 BAR | 232 PSI

SEPARATION VESSEL

CONTINUOUS AND POINT LEVEL MEASUREMENT OF FINAL SUBSTANCES

After chemical reactions are completed, the final substances are temporarily stored in storage tanks. These may include organic compounds such as the plasticiser dioctyl phthalate (DOP), which is widely used in the production of synthetic leather and plastic moulded parts. Continuous and point level sensors ensure safe volume monitoring.

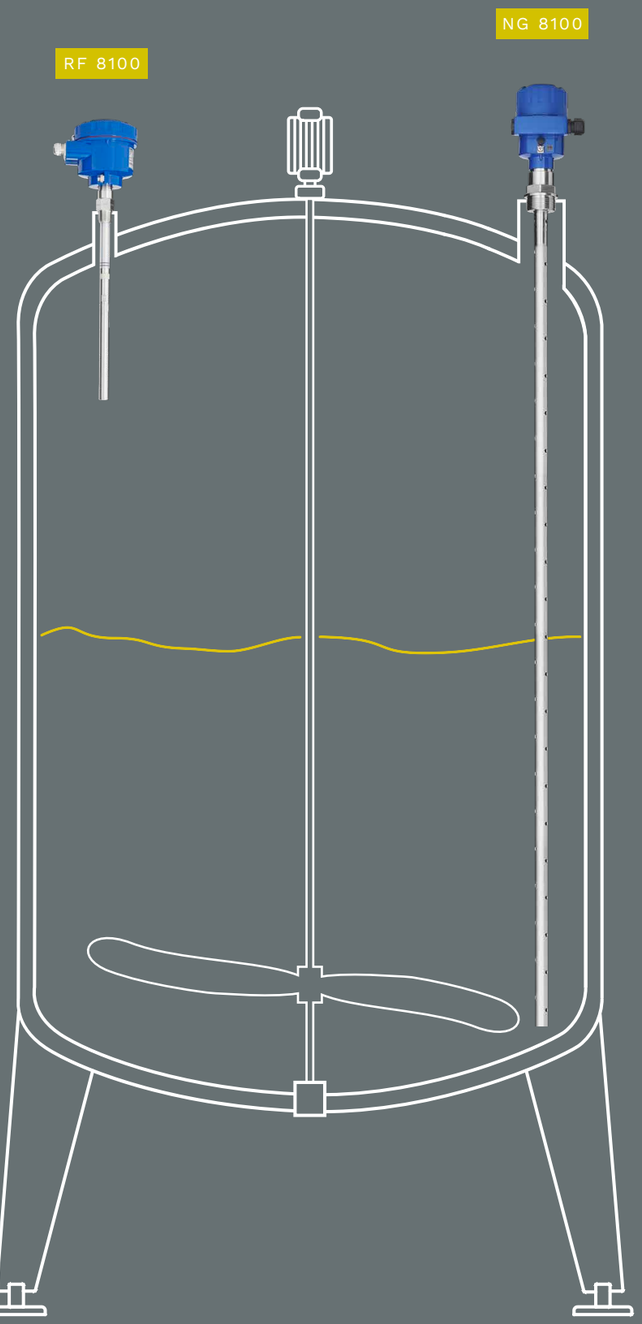
OUR PRODUCT RECOMMENDATION:

NG

NivoGuide®

RF

RFnivo®



CHALLENGE:

- Agitator inside the vessel
- Turbulent surface and moving medium
- High process temperature
- Chemical exposure
- Low dielectric constant
- Increased explosion risk

SOLUTION:

- Coaxial design
- Unaffected by moving surfaces and turbulence
- Temperature resistant up to 200 °C (392 °F)
- Chemically resistant materials
- Very high sensitivity
- Ex-certified devices

Measurement Task
CONTINUOUS & POINT LEVEL MEASUREMENT

Medium
DIOCTYL PHTHALATE (DOP PLASTICIZER)

Measuring Range
< 3 M | 10 FT

Process Temperature
< 180 °C | 356 °F

Process Pressure
< 0.8 BAR | 11.6 PSI

SUPPLY TANK

CONTINUOUS LEVEL MEASUREMENT OF FINAL SUBSTANCES

Ferric chloride and hydrochloric acid are produced by electrolysis in the chemical industry. The final products are stored in tanks, where continuous level monitoring ensures safe and automated inventory management.

OUR PRODUCT RECOMMENDATION:

NG

NivoGuide®

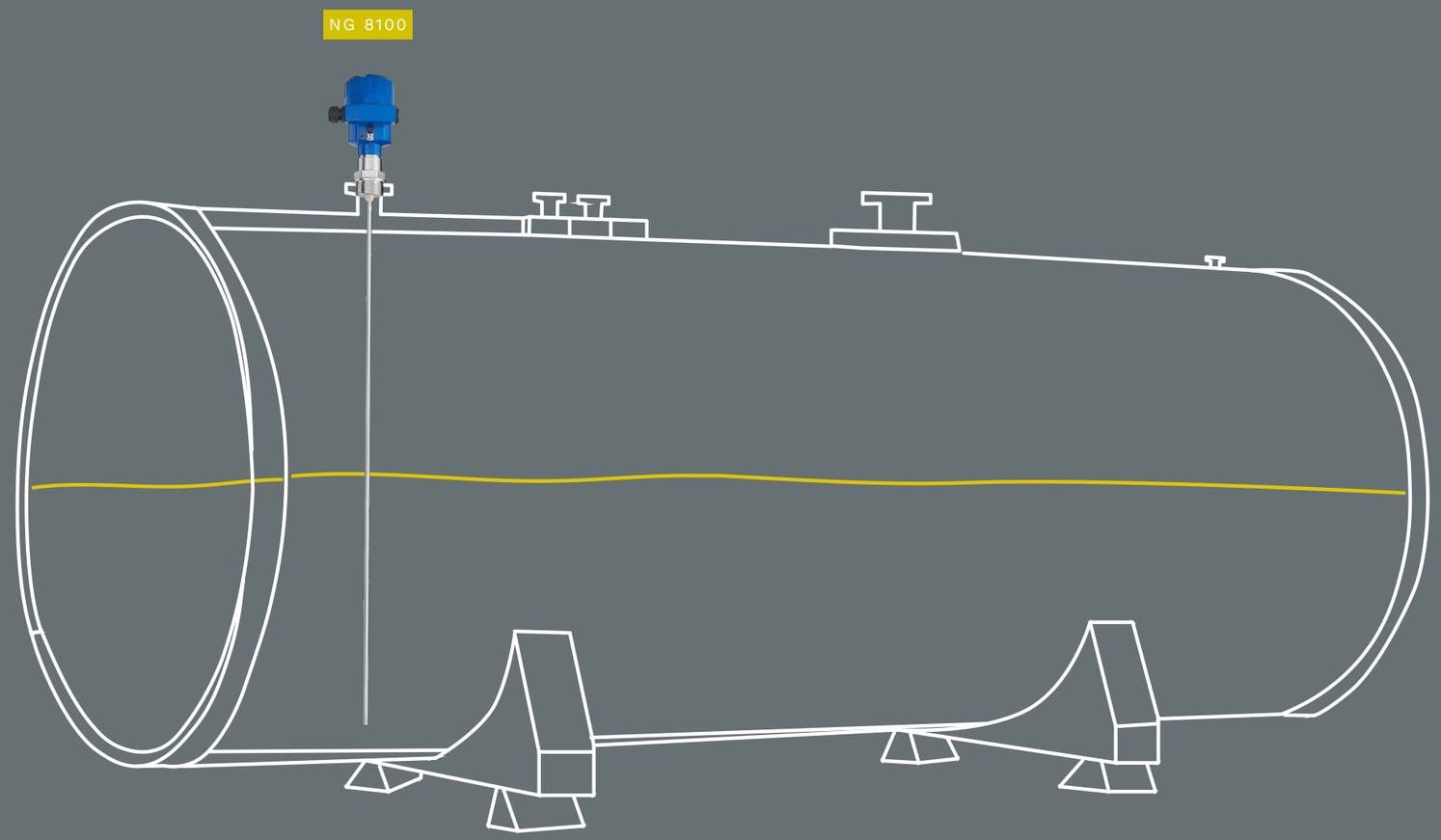
CHALLENGE:

- Highly corrosive liquids
- Changing, partly highly viscous media
- Environmentally hazardous substances

SOLUTION:

- Chemically resistant materials (Hastelloy C-22)
- SIL 2 / 3
- Additional internal sealing in the sensor (second line of defense)

NG 8100



Measurement Task
CONTINUOUS LEVEL MEASUREMENT

Medium
FERRIC CHLORIDE, HYDROCHLORIC ACID

Measuring Range
< 2 M | 7 FT

Process Temperature
< 60 °C | 140 °F

Process Pressure
< 0.8 BAR | 11.6 PSI

TANK STORAGE

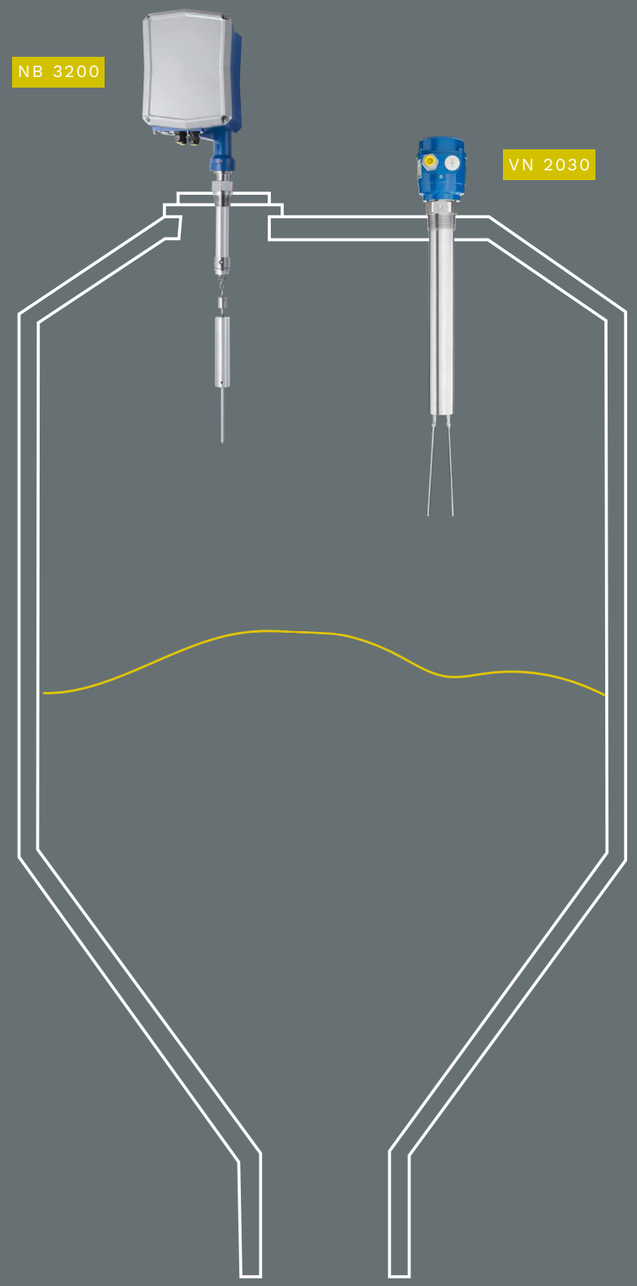
CONTINUOUS AND POINT LEVEL MEASUREMENT OF FINAL PRODUCTS

In the production of primary plastic forms such as PVC powder and granulate, silos up to 20 m (66 ft) tall are used. Continuous and point level sensors ensure reliable inventory control.

OUR PRODUCT RECOMMENDATION:

NB
NivoBob®

VN
Vibranivo®



CHALLENGE:

- High dust load
- Tall, narrow silos
- Abrasive material

SOLUTION:

- Measurement principle unaffected by dust
- Robust design with a dust-tight construction
- High sensitivity

Measurement Task
CONTINUOUS & POINT LEVEL MEASUREMENT

Medium
PVC (POWDER, GRANULES)

Measuring Range
> 20 M | 66 FT

Process Temperature
< 80 °C | 176 °F

Process Pressure
< 0.8 BAR | 11.6 PSI

SILO STORAGE

RELIABLE AND FLEXIBLE: SAFE LEVEL MEASUREMENT THROUGH IBC TANKS

A company was looking for a safe and economical way to store highly alkaline liquids such as sodium hydroxide (NaOH) and to monitor both the level and the point level reliably. The solution uses plastic IBC tanks, which offer a flexible and space-saving alternative to stationary large tanks.

NR
NivoRadar®

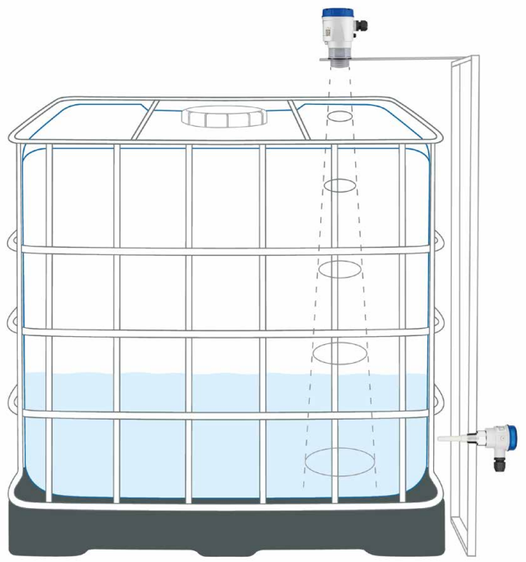
CN
Capanivo®

OUR SOLUTION

For this application, a fixed measuring point was installed to precisely detect both level and point level in IBCs from the outside.

A NivoRadar® NR 7100 provides continuous level measurement, while a Capanivo® CN 7120 monitors the minimum level.

Both sensors operate externally to the tank, ensuring clean, safe and maintenance-free handling of chemically aggressive media.



MEASUREMENT SOLUTION IN THIS APPLICATION

For chemical processes with frequently changing media, the combination of radar and capacitive measurement provides a precise, contactless solution that works reliably through the plastic tank wall:

Continuous measurement:

The NivoRadar® NR 7100 uses advanced 80 GHz FMCW technology and delivers accurate measurements through the IBC's plastic wall. Its compact and lightweight design allows easy installation at fixed measuring points above the IBCs, and the narrow 8° beam angle guarantees reliable measurement results.

Point level detection:

The Capanivo® CN 7120 is mounted externally on the side of the tank and serves as an empty detector. Its integrated potentiometer allows the sensitivity to be easily adjusted to different liquids, making it ideal for applications with regularly changing chemical media.

Application Database

Application Reports

BENEFITS AND RESULTS

The intelligent integration of radar and capacitive measurement provides notable benefits when dealing with aggressive liquids:

Precision and reliability:

Accurate and stable readings thanks to contactless measurement. The electronics and housing remain fully protected, ensuring long-term performance and consistent measurement stability.

Flexibility:

The system is designed for interchangeable IBCs. Empty tanks on standard pallets can be quickly swapped with filled containers containing other media, without the need to adjust the sensors.

Long service life:

Since there is no direct contact with the medium, the sensors operate without wear and require minimal maintenance ensuring stable and reliable process conditions.

Cost savings:

Standard IBCs reduce investment costs and optimize space. The maintenance-free sensor technology further lowers operational effort during daily plant operation.

Increased operational safety:

By simply swapping empty tanks for filled ones, personnel avoid direct contact with the highly alkaline liquid. This provides an important safety benefit in day-to-day operations.

ROBUST AND SAFE: POINT LEVEL MEASUREMENT IN ZINC PROCESSING

Zinc is one of the most important non-ferrous metals. In powder and granulate form, however, it is highly abrasive and produces significant dust – a real challenge for level sensors. A zinc processing plant experienced recurring wear and unplanned downtime as a result and sought a robust, low-maintenance solution.

OUR SOLUTION

After analysing the application, the UWT US team recommended two suitable point level sensors: Rotonivo® and Vibranivo®. Both were installed as full detectors at the top of the silo – protected from direct material load and easy to integrate into the existing setup.

RN

Rotonivo®

The Rotonivo® RN 6001 is a particularly robust rotary paddle level switch, resistant to dust, electrostatic charging and buildup, and suitable for Ex and SIL2 requirements.

VN

Vibranivo®

The compact Vibranivo® VN 4020 with its short vibrating fork reliably detects abrasive fine powders – even under high stress and heavy dust conditions.

PROCESS-RELEVANT CHARACTERISTICS

The combination of vibrating and rotary paddle technology guarantees consistent point level detection – reliable even under the most challenging conditions:

Resistance to abrasion:
Stainless steel components, robust mechanics and a wear-optimised design provide long-term protection for the sensing elements against abrasive zinc powder.

Reliable performance with dust and fine material:
Both technologies operate reliably even under heavy dust load – without false switching or blockages.

Safety in hazardous areas:
The devices are designed for use in explosion-hazardous zones and support safe 24/7 operation.

Easy integration:
The top-mounted, vertical installation saves space, simplifies maintenance and makes efficient use of existing process openings.

Application Database

Application Reports

BENEFITS AND RESULTS

The sensor solution demonstrates clear strengths in the abrasive zinc process and noticeably increases plant availability:

High operational safety:
Since installing the UWT devices, no sensor-related failures have occurred – the plant benefits from a stable and safe process flow.

Low maintenance and long service life:
Significantly fewer service interventions reduce the workload for maintenance teams. The robust sensor design guarantees long-term durability, even in highly abrasive applications.

Cost efficiency:
Fewer stoppages, less wear and fewer spare parts – the solution proved effective swiftly.

Enhanced safety:
Accurate point level signals prevent overfilling and support safe operation in hazardous areas.

Customer's verdict:
"Since installing the UWT sensors, the process has been running smoothly and without failures. The instruments require remarkably little maintenance and have substantially reduced costs."

LEVEL MONITORING AND VISUALISATION

NivoTec®

Various technologies are available for level display. Simple LED digital displays for evaluating a 4–20 mA signal can be integrated into control cabinets or wall-mounted, ranging up to touch panels and web server modules with visualization software. These can be configured on a per project basis and customised to meet customer requirements.

UWT offers standard products from the NivoTec® NT 4000 series, which meet many requirements for level display and monitoring at a competitive price. The NivoTec® NT 3000 series can be customized for individual, specific, customer projects, with web server solutions that meet modern level monitoring demands.

NivoTec®
Level monitoring and visualization

NivoTec® NT 4600
7 inch touch panel visualization

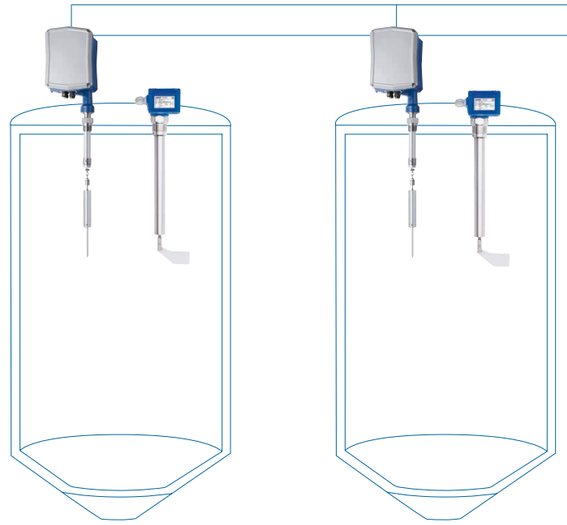
NivoTec® NT 4700
Digital display in terminal box for one measuring point

NivoTec® NT 3500
Custom project visualization

NivoTec® NT 4900
Digital display as built-in module

NivoTec® NT 4500
Standardised visualization

NivoTec® NT 9000
Local fill level display



Controller

NT 3500

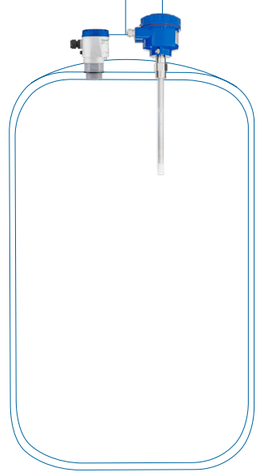
115/230 VAC

Level visualization

Ethernet

Internet Routed IP address
Worldwide access

Gateway
RTU/TCP



LEVEL. UP TO THE MAX.

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