



**Stübbe®**  
Partner for Solutions

## ELECTRONIC INSTRUMENTATION

FILLING LEVEL | PRESSURE / TEMPERATURE | POINT LEVEL



# THE MODULAR SYSTEM FOR A FLEXIBLE PROCESS MONITORING

## Sensor modules for aggressive medias

Chemical applications are multifaceted and need a reliable material combination to bear up with corrosion and chemical attacks. UNI Display with its different sensor series has especially been developed for a difficult chemical use.

The combination of modern sensor principles with reliable materials offers you a variety of solutions all around the protection against dry running of the pump and the filling level in tanks and containers. Due to the practical connections all sensors can easily be fitted into various system concepts.

## Many tasks – one solution

The **UNI Display** is a uniform control interface and display for different pressure, temperature and filling level sensors. The module simplifies the handling and integration of the sensor, because every user of the UNI Display device is able to use all other devices off this platform very easily.

In addition to the standard handling of different sensors the plug-in unit is able to operate several machines in parallel. By removing the UNI Display, the machine is protected from an unauthorized access.

## Signal output – modules for big and small applications

The modular system of the UNI Display combines two approaches to enable the user a maximum of flexibility. In order to get the devices easily and comfortably integrated in a superior control system, the user can choose between a 0/4....20mA version and an optional Modbus module.

There is a further signal output module with freely programmable relays available, that enables the user to intervene in the machine without using another expensive hardware. Pumps and valves can be operated directly from the sensor via the relays.

## UNI Display: The benefits at a glance

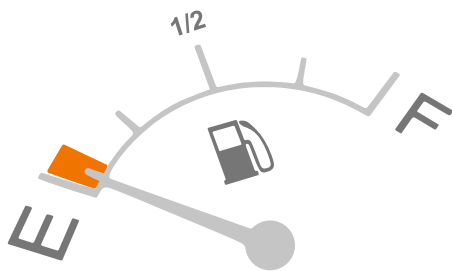
- Easy handling due to automatic sensor recognition
- Well structured and plain menu navigation
- Flexible data access via integrated SD-Card
- Well-lit and readable display
- Integrated data logger with battery buffered real-time clock
- Service friendly due to consequent multilingualism and practical copy functions for parameter and software
- One module for all sensor types



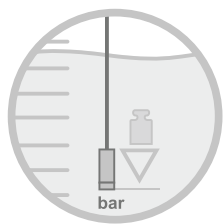
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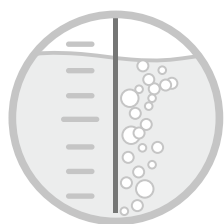
# FILLING LEVEL



Ultrasonic



Hydrostatic



Hydrostatic  
bubble method

## Measuring principles

### Ultrasonic sensor UFM

The measurement with ultrasonic is based on a runtime measurement. The sensor sends out impulses which are reflected by the surface of the medium and are registered again from the sensor. The runtime of the signal is a measurement for the distance in the empty part of the tank. This measurement is subtracted from the tank height and the result is the filling level.

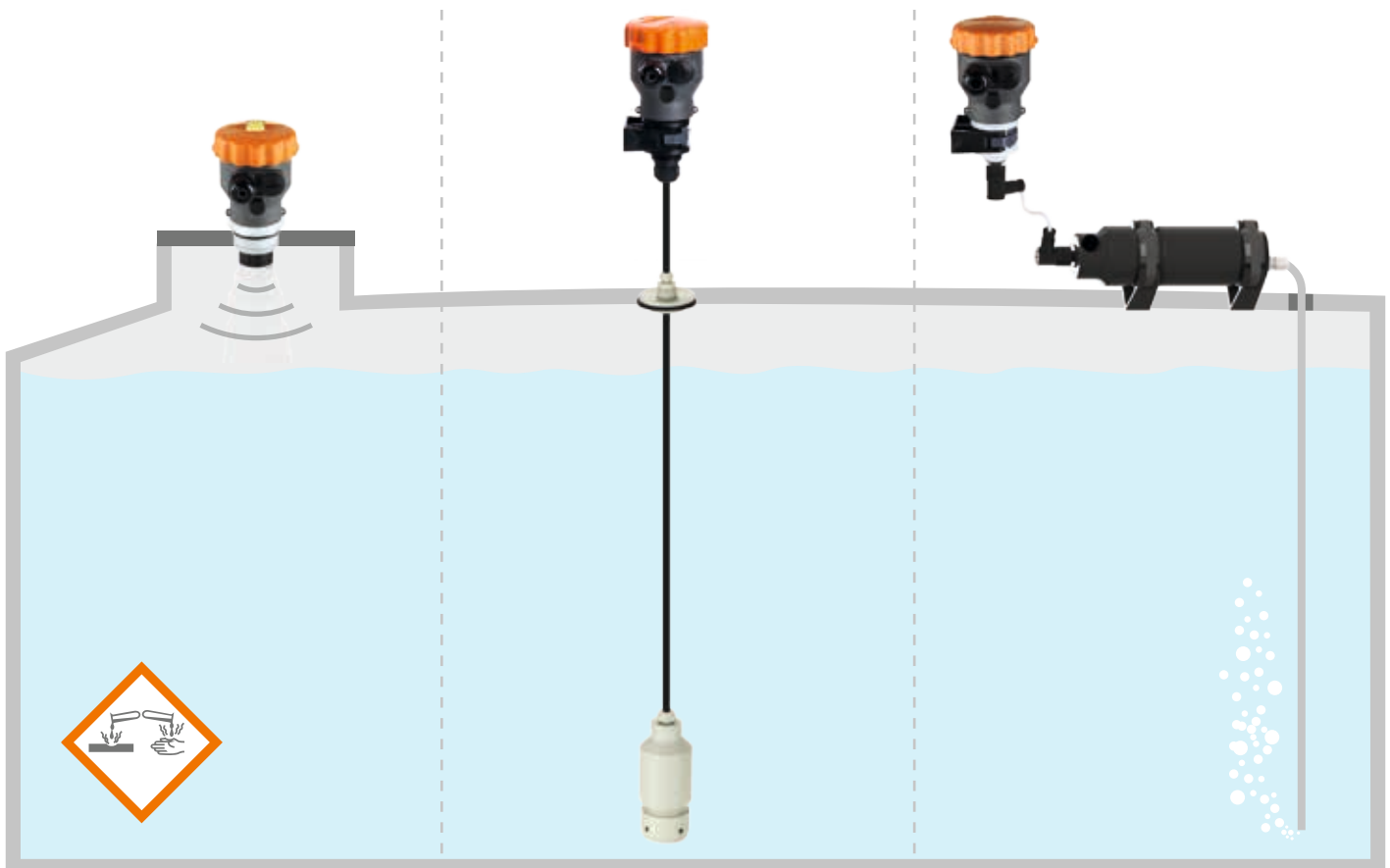
### Hydrostatic filling level sensor HFT

The hydrostatic filling level measurement is suitable for non-pressurized tanks. It is based on a pressure sensor in the medium, which measures the above pressure of the liquid column. The measured pressure is a direct dimension of the filling level and the height of the liquid above the sensor.

### Hydrostatic filling level sensor HFB – bubble method

In this method compressed air is bubbled into the liquid medium through a plastic hose. The bottom of the tube has a secured distance to the ground of the tank. As soon as the pressure of the air, which has been put in, is higher than the counter pressure of the liquid column in the tank, the compressed air bubbles out. The (bubble) pressure is measured and tells you the exact filling level and the height of the liquid above the bottom of the tube.





## UFM

Measuring range: 0,25 – 6 m

Resolution: 1 mm

Accuracy: 0,2 % FS



PVDF

No direct contact between media and sensor.

## HFT

Measuring range: 0 – 5 m, -10 – 100 °C

Resolution: 1 mm

Accuracy: 0,2 % FS



PVC-U PP PVDF

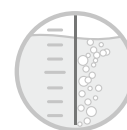
Sensor material AL<sub>2</sub>O<sub>3</sub> / diffusion stop optionally.

## HFB

Measuring range: 0 – 5 m

Resolution: 1 mm

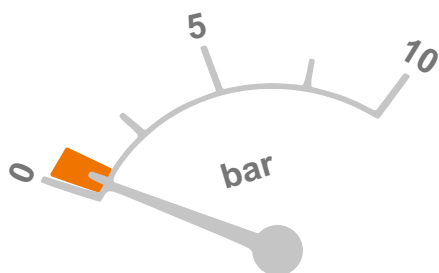
Accuracy: 0,2 % FS



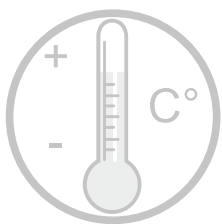
PTFE PE

No direct contact between media and sensor.

# PRESSURE / TEMPERATURE



Pressure



Temperature

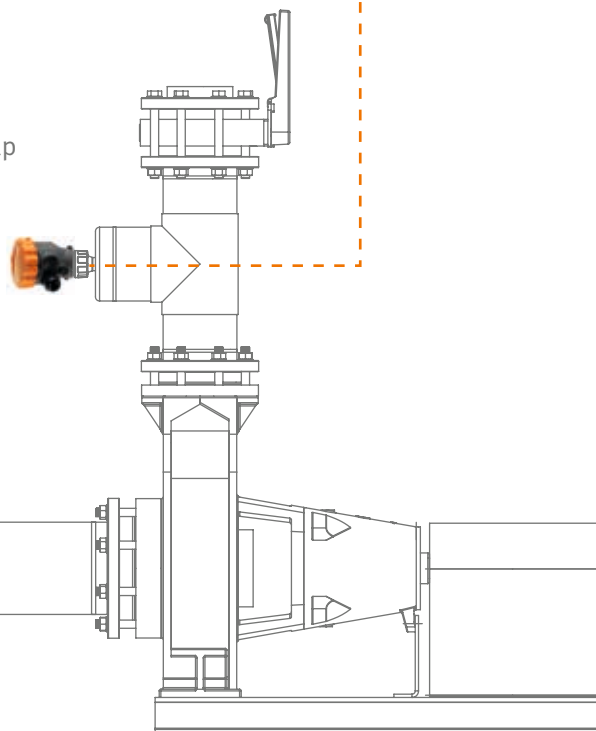
## Measuring principles

### Pressure and temperature sensor PTM

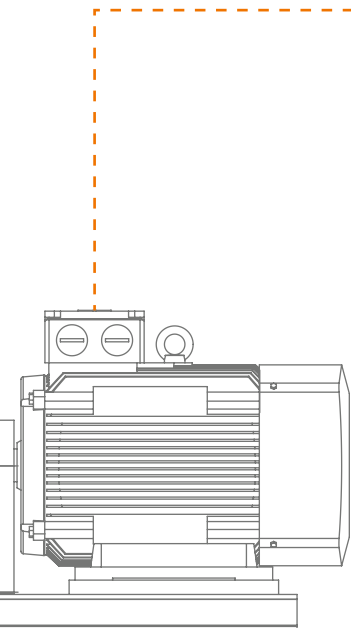
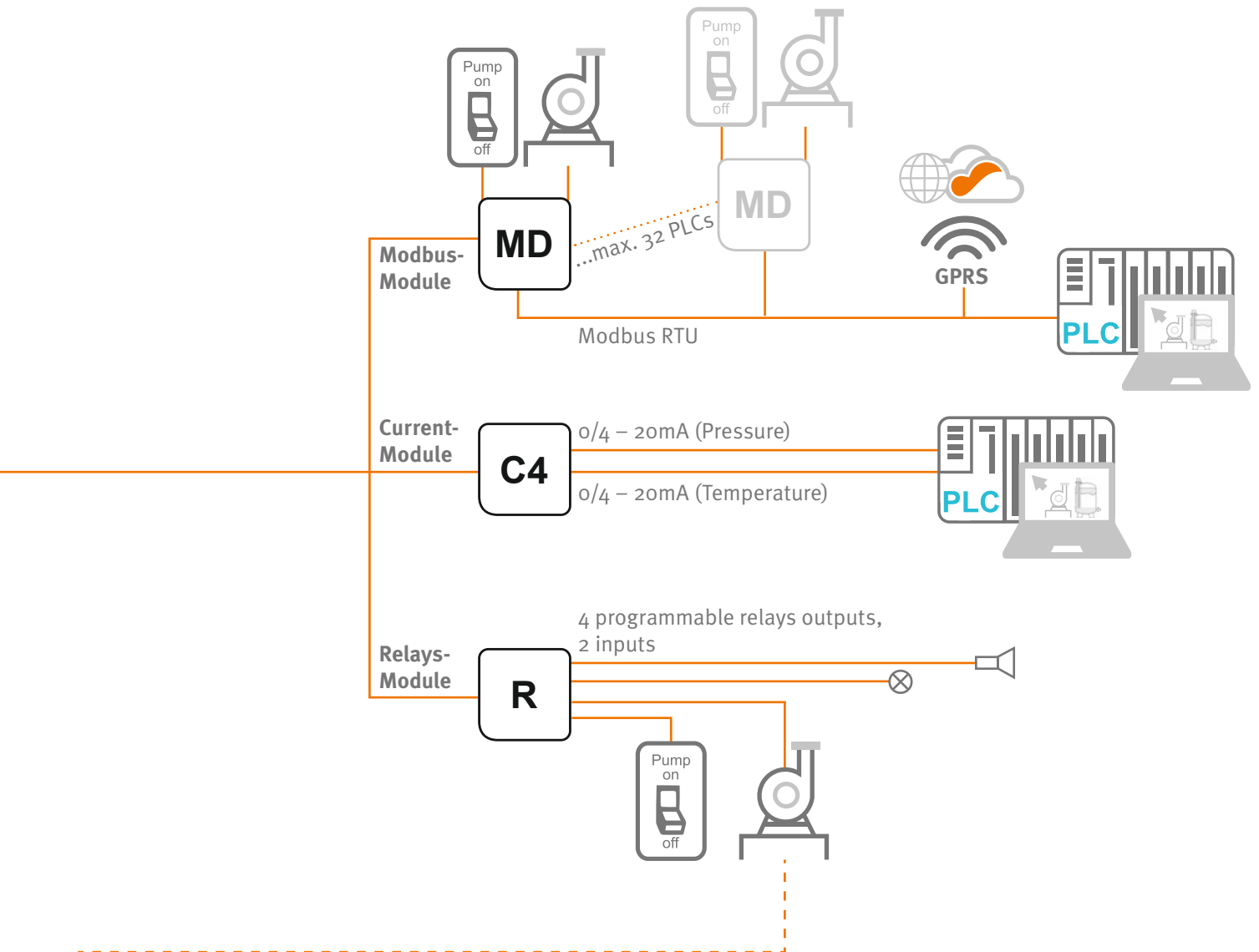
Due to the measure range from 0 to 10 bar and  $-10^{\circ}\text{C}$  up to  $100^{\circ}\text{C}$  the PTM is ideal for the observation of process chains. It can be used for a pump protection for running dry, for recognition of a dirty filter and for the observation of temperature limits in pumps and other elements in wet process machines.

The three connection variants: Modbus, current output or the direct connection with up to 4 relays, will meet all requirements no matter if the information is led in a PLC or if it should intervene directly into the system.

At the same time the whole unit is chemical resistant. The high quality sensor of  $\text{AL}_2\text{O}_3$  can be protected against diffusing medias with the help of an optional protection screen.



Intelligent pump guard



## PTM

Measuring range: 0–10 bar, -10 – 100 °C



# POINT LEVEL MEASUREMENT

## Conductive point level sensor CFP

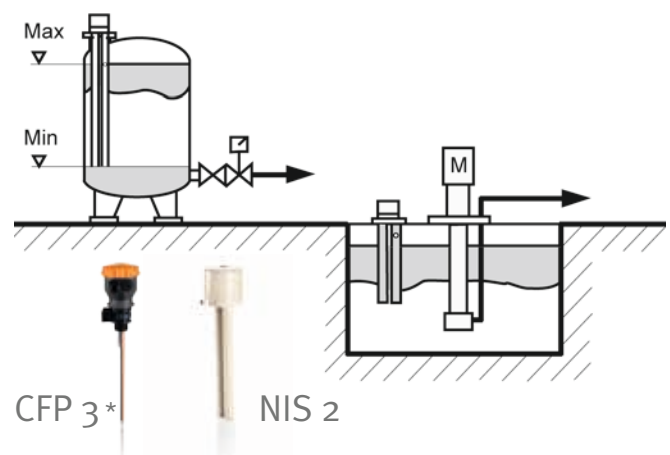
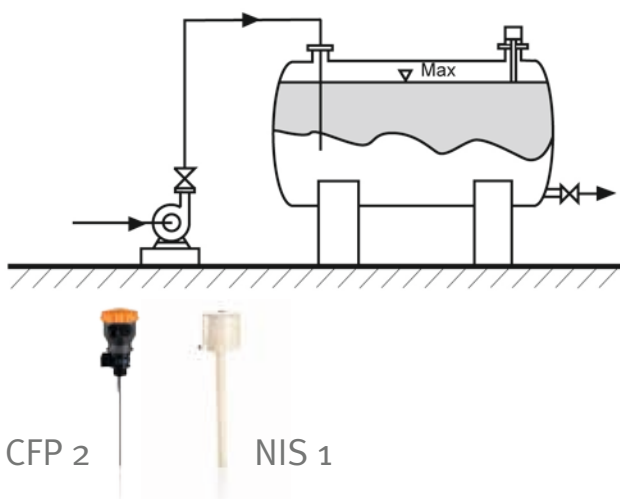
The CFP is available with 2 or 3 stainless steel rods. As soon as the medium closes the electric circuit between the rods, which are up to one meter long, the 24v relays of integrated electronic are getting closed.

The simple device has got room for up to two point levels. With the conductive measuring principle filling levels are detected in electric conductive liquids.

Due to the optional 2 point controller the filling process is easily done.



\* Option: integrated 2 point controller





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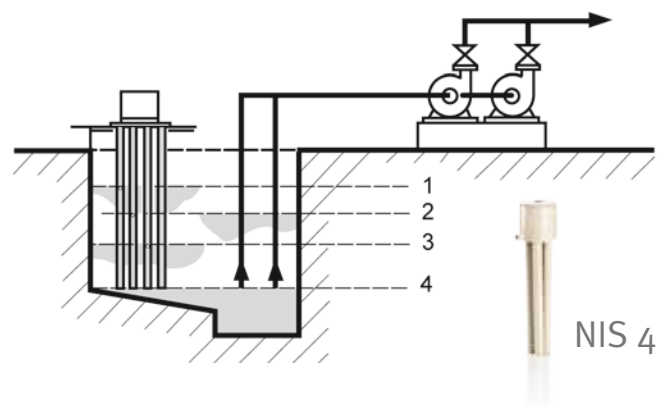
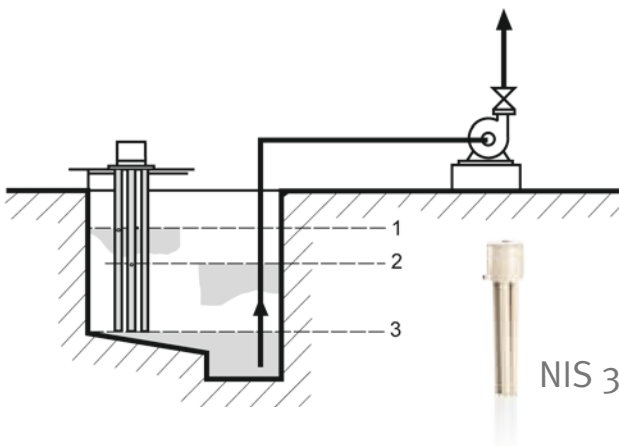


### Level switch NIS










The level switch NIS enables point level measurements with up to 4 filling levels.

This device works with membrane switches, which reach into the non-pressurized tank via a tube. If the tube is filled up with medium, the hydrostatic pressure of compressed air in the tube releases the switch.

The NIS doesn't need auxiliary energy and is available with changeover contacts for main voltage and extra-low voltage.



# PROGRAM OVERVIEW

		UNI Display	Measured value			Material						Sealing element			Designs		Signal output			
			Filling level	Pressure	Temperature	PVC-U	PE	PP	PVDF	PTFE	1.4571	FPM	EPDM	PFA	Compact	Flex	MD	R	C4	C2
Filling level		UFM	●	●					●			●			●	●	● <sup>*1</sup>	●	●	
		UFM C2	●						●			●			●					●
		HFT	●	●	●	●		●	●			●	●		●	●	●	●	●	●
		HFB	●	●			●			●						●	●	●	●	●
Pressure / Temperature		PTM	●	●	●	●		●	●			●	●	●	●	●	●	●	●	●
		PTM C2		●		●		●	●			●	●	●	●					●
Point level		CFP*1	●								●		●				<div> <div>2 x Relays</div> <div>2 point controller</div> <div>1-4 changeover contacts</div> </div>			
		NIS	●			●		●				●	●							



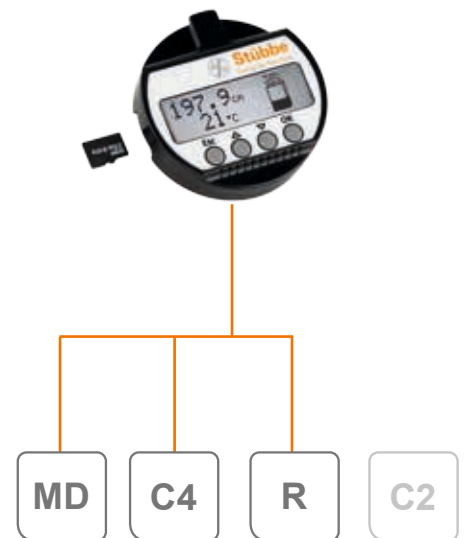
## UNI Display

One for all: The plug-in unit simplifies the handling of the different sensors for pressure, temperature and filling level measurement. In addition to the illuminated, good readable display the unit also has got an integrated SD card, which enables a maximum flexible access of settings and process data.

## Signal output

To be able to get a maximum flexibility the sensor can get combined with different signal output modules:

- MD:** The Modbus-Module undertakes the data bus communication. It contains two additional, freely programmable relays outputs, which give the opportunity to intervene directly into the process.
- C4:** The Current-Module transmits up to two measurements through standardized 0/4....20mA signals.
- R:** The Relays-Module has got 4 programmable relays outputs. It is especially suitable for the control of sensitive equipments such as the pump protection.
- C2:** The C2 version is available for selected sensor types. The price optimized unit does not include further processor intelligence in the signal processing. On the mechanical side nothing has been excluded. The unit consists of the same high class combination of materials and sensor quality's. The C2 version can't be used or upgraded with UNI Display.



## Designs

ASV sensors are available in two different designs: The compact version is built extreme shortly and can easily be fitted in any pipeline by a true union connection. In the Flex-design the sensor and the display are separated by a cable for applications with hard-to-reach locations or locations that are strongly contaminated by chemicals.





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