# MEDIA COMPATIBILITY OF PIEZORESISTIVE PRESSURE TRANSMITTERS

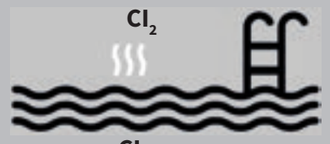
## THE PROBLEM

In selecting the right pressure transmitter for individual applications, there are numerous criteria that must be observed besides the pressure range to be measured and the existing thermal conditions. Among these is the topic of media compatibility. The housing and process connection need to withstand the environmental conditions, so that the sensor can perform its service over the longer term.

## CHEMICAL-PHYSICAL MEDIA COMPATIBILITY WITH SEALANT MATERIAL

The majority of pressure transmitters come with a sealant made of elastomer. When using an aggressive media such as biodiesel, however, an elastomer-free sensor welded front-flush should be employed to avoid dissolving the seal.

## CHEMICAL-PHYSICAL MEDIA COMPATIBILITY WITH CABLES




When submersible probes are used in chlorinated water, it is recommended to employ Teflon cable, instead of the standard PE or PUR cable, to protect the sensor from chlorine vapors.

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# CHEMICAL-PHYSICAL MEDIA COMPATIBILITY WITH HOUSING

## VISCOUS MEDIA

To prevent contamination, smooth membranes free of any dead space and devoid of an open pressure channel are needed for such applications, so that the sensor can be cleaned free from all residues.

## ABRASIVE MEDIA

When pressure transducers come into contact with abrasive media such as concrete, a simple membrane made of stainless steel provides insufficient protection. In this case, a membrane coated with Vulkollan foil will be required.

A ruined pressure transmitter due to incorrect material selection:

## GALVANIC & ACIDIC LIQUIDS

Plastic housings are used for galvanic and acidic liquids to eliminate any reaction of the liquid with metals (most common solution: PVDF).

## SEAWATER

Submersible and level sensors used in saltwater should only be employed in a titanium finish to avoid the long-term pitting of stainless steel housings.

## OPEN WATERS / LIGHTNING PROTECTION

When using submersible probes in open waters, an overvoltage protection is recommended to safeguard the measuring device from a lightning strike in the near vicinity.

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# PREVENTIVE MEDIA COMPATIBILITY

## TRANSFER FLUIDS

The silicon chip of a piezoresistive pressure transducer is surrounded by a transfer fluid, typically silicone oil. Although this fluid does not normally come into contact with the surrounding media, some points must nevertheless be observed here. Depending upon the application, a defect in the housing could lead to serious consequences.

Protect your pressure transmitters with preventive measures:

## PROPERTIES

**Heavily oxidizing gases & fluids**

With heavily oxidizing gases or fluids, all components exposed to the medium, as well as the transfer fluid in the sensor, must be free from oil and grease to eliminate the risk of explosion.

**Foodstuffs and pharma industries**

In this case, the silicone oil must be replaced with a food-safe oil to rule out any contaminations either harmful to health or that may act in other ways.

**Paints**

An alternative must also be found for paints, so that a whole batch is not rendered unusable by a single drop of oil.

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