

## Interface Measurement

The chemical and petrochemical industries often require difficult interface level measurements.

The radiometric measurement principle can provide various solutions.

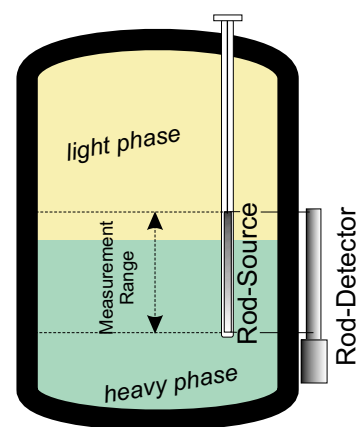
### 1) Absorption Measurement on a Vessel or Pipe

#### 1.1) Dip Tube with Insertion Source

A rod source is inserted into a dip tube.

The heavy phase absorbs more gamma radiation than the lighter phase.

Within a certain measurement range, the system can determine the interface level.



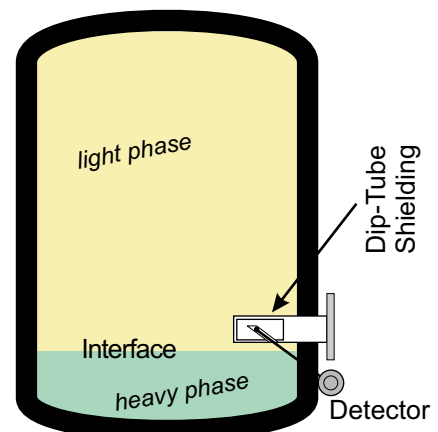
#### 1.2) Dip tube shielding

A special dip tube shielding with a point source is installed in the vessel wall.

Using the gamma ray absorption principle, the location of the interface can be determined.

*Application: Fatly-Acid-Separation Column*

...



## Interface Measurement

### 1.3) Density Profile Measurement

A source and a probe, located in separate dip tubes, move up or down, maintaining relative level position.

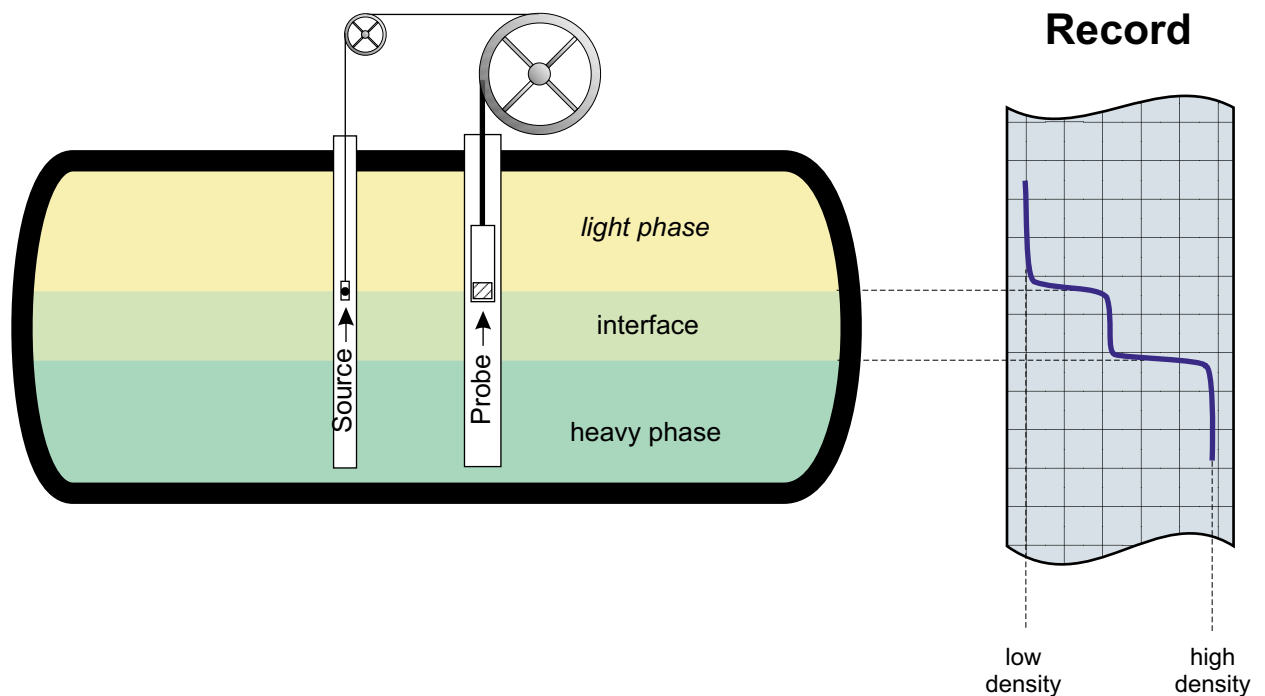
A shaft encoder measures the position of probe and source.

The amount of absorbed radiation depends on the product density between the source and detector.

As the source and detector travel up and down inside the dip tube, a density profile is recorded.

To avoid damages to the probe, the product temperature must not exceed 50° C.

*Application Density Profile Measurement on: - Hydrofluoric Acid*



## Interface Measurement

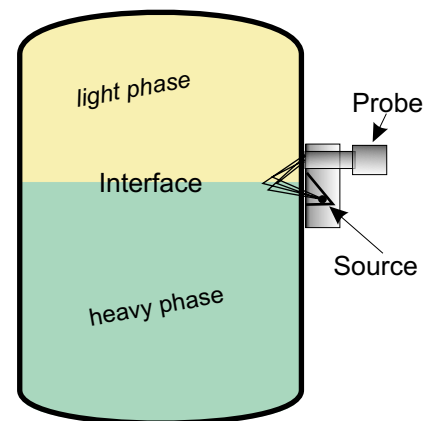
### 2) Back Scattering Measurement

#### 2.1) Back Scattering Measurement with Surface Probe

A surface probe is installed on the outer wall of a vessel. The amount of back-scattered radiation depends on the product density inside the vessel at the measurement point. The probe recognizes whether the separation layer lies above or below the measurement point.

For optimum results, the wall thickness should not exceed approx. 10 mm of steel.

This arrangement can also be used as a density measurement of a homogeneous product. The wall thickness for this type of measurement should be less than 6 mm of steel.



#### 2.2) Density Profile Measurement

A dip probe with a source can be moved up and down on a cable. A shaft encoder measures the position of the probe. The amount of back-scattered radiation depends on the product density. The probe will provide a density profile as it travels up and down inside the dip tube.

To avoid damages to the probe, the product temperature must not exceed 50° C.

*Application Density Profile Measurement on:*

- Hydrofluoric Acid
- Alkylations Plants
- ...

