

# The Wizard

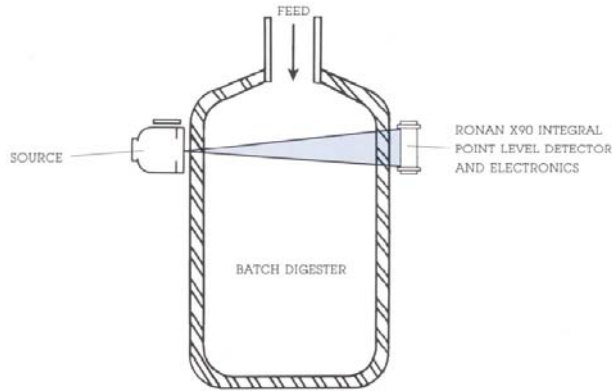
## Pulp and Paper Industry

## Applications 2

### Digesters

#### Batch process

Gamma point level gauges are used to monitor the batch digester filling cycle to a predetermined level. See below image.



A radiation source is placed opposite a single point detector at a desired level. When the mass of wood chips interrupts the radiation beam, the detector switches state, signaling the operator or a control device. This automatic level indicator assists the operator in reducing cook time and controls the digester product.

#### Continuous process

A gamma continuous level gauge is used to determine wood chip level in chip bins. The gauge monitors up to a ten-foot span.

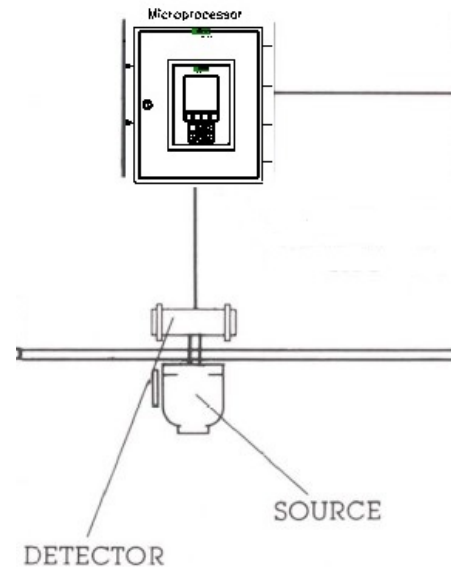
A single point gauge gamma gauge senses when the usually free-falling chips begin to fill the chute. The average radiation passed by the free-falling chips represents one state while a full chute greatly decreases the detected radiation, thus causing a switching action.

In the vapor phase continuous digester, a continuous level gauge senses the chip/liquor level over six-foot range. This application has been very successful

when severe foaming can be avoided. Experience indicates that soft-woods will generally foam while hard-woods will not.

#### Extraction Liquor Density

It is necessary to measure extraction liquor density at the most difficult part of the process – while it is at high temperature and pressure. A gamma density gauge is ideally suited to this application, by simply clamped to the existing piping. Special weirs, sampling lines, or ports are not needed. Typically applied on a 4" to 8" diameter line, the output is equivalent to 10-30% liquor concentration.



#### Blowdown Density

One method of computerizing the continuous digester requires a total density measurement and liquor density in the blow line. Ronan's Density Systems are non-contact, rugged, and clamp to the outside of the pipe. It is maintenance-free and wear-resistant.