

Application

Ink coating on specialty films

Targets: Film coating manufacturers, printing and finishing industries, ink producers, printing machine builders, printers, specialty film printers

Application

Printing and coating industries are fiercely competitive and evidenced by everyday items like laptop skins, greeting cards, magazine covers, and packaging labels.

Homogeneity is the hallmark of film coating and ink manufacturers. High operation speeds combined with efficient use of resources are required in order to compete effectively in the marketplace.

Ink manufacturers grind and mix ingredients in order to produce a medium. Printers or other devices utilizing the ink must yield quality products. A company selling the final product must offer affordable pricing.

In these contexts, inline viscosity measurement stands out as the most reliable way to ensure quality and uniform applications on paper, film, and specialty substrates

Challenges

Failure to maintain the proper viscosity setting for specialty film coatings can result in:

- Material waste due to incorrect ink recipes / proportions of ingredients, pigments, solvents or water
- Bad ink quality resulting from incorrect recipe / mixing error
- Unnecessary material cost due to excessive ink consumption
- Non – homogeneity
- Inconsistent color and contrast
- Manual viscosity checks / increased maintenance
- Longer batch runs

Causing:

- Batch rejects and increased costs
- Bad process efficiency and increased manufacturing costs
- Quality and reputation issues

Solution

The installation of one inline viscometer in the ink tank allows exact and continuous ink monitoring. The same MIVI sensor can adjust the viscosity according to its temperature, flow, pigments, solvent addition, chemical reactions, and additional, required characteristics.

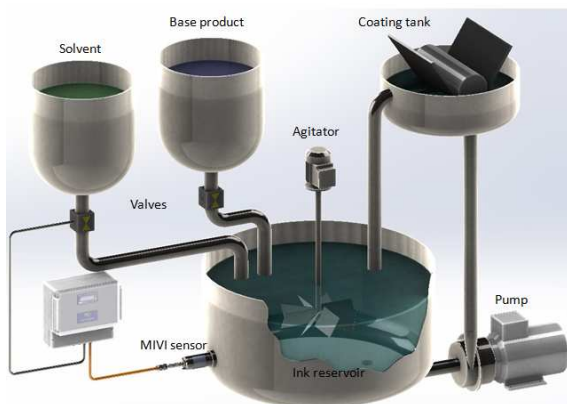
Installation - Operation

- The mixing tank is supplied with a primary product and solvent.
- Solvent injection ensures ink mixture heterogeneity.
- Sequential control is used between 2 injections.
- The viscosity value is programmed at a set point.
- Solvent injection time is proportional to the difference between the viscosity value just before injection and the required one.
- A temperature control warms or cools the product so it reaches the correct viscosity.

The MIVI inline process viscometer:

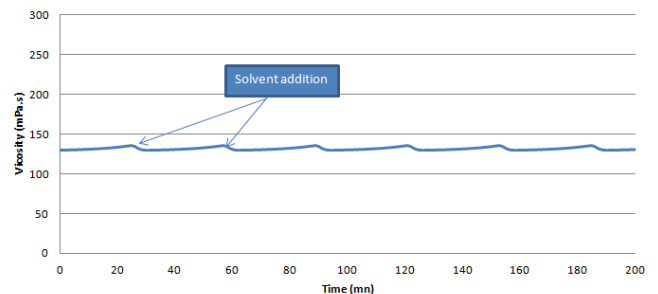
- is easily fitted in the ink tank or in a pipe
- continuously delivers viscosity and temperature information to the electronic cabinet
- the controller instantly assures viscosity, temperature, and level alarms

Operation diagram



Viscosity records obtained at a major specialty films manufacturer site

Viscosity control by solvent addition in coating process



Onsite installation



Key product characteristics

- Permanent operation with no drift in time, no cleaning
- Sensitivity in high and low viscosities
- Tolerant to particles
- Suitable to Newtonian and non-Newtonian fluids
- Solvent and water-based ink compatibility in one sensor
- Robust over time, no moving parts, simple maintenance
- Ex-proof agreements (ATEX, FM) if required
- Electronic controller can include high and low viscosity alarms, temperature alarms, and automatic systems
- Many mounting positions