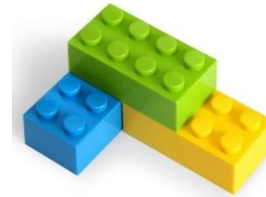
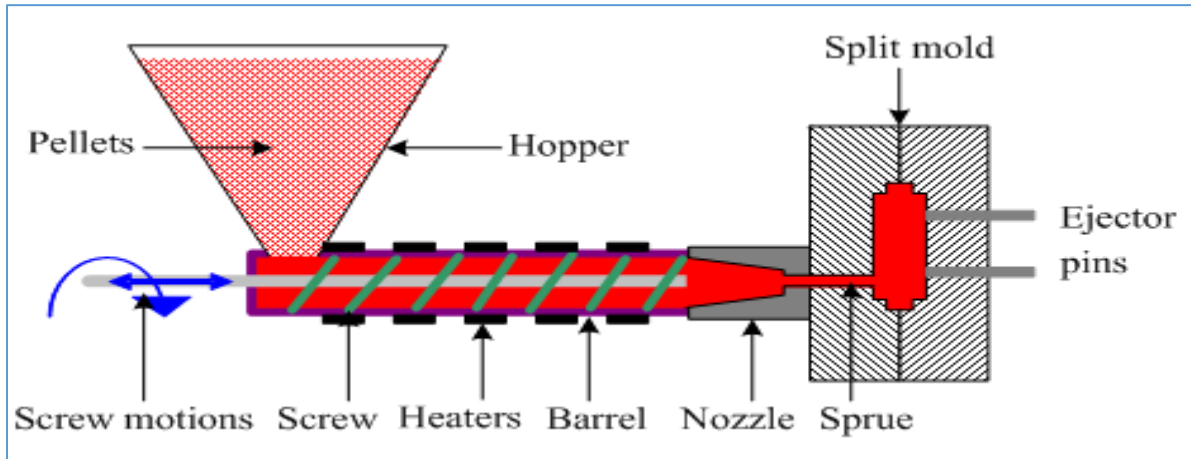


# **Edgetech Instruments**

## Aluminum Oxide Dewpoint Transmitter Application Note

### Application: Injection Molding



### Application Description:

Clean, hot, dry, compressed air is commonly used to purge the plastic pellets within the hopper of an injection molding facility. The air is usually dehydrated using regenerative desiccant dryers which typically produce an outlet moisture level of  $-40$  to  $-60$  °F ( $-40$  to  $-50$  °C) dew point. Moisture analyzers are typically installed on the outlet of the dryer to ensure that the dryers are operating properly, producing dry air that meets the moisture levels required. A simple sample system is used to continually sample the air and allow it to cool before coming in contact with the moisture transmitter's sensor. The desiccant dryers usually have rotating dryer beds, such that while the active desiccant bed(s) dry the air, the other bed(s) is simultaneously being regenerated. In order to improve the efficiency of the dryer, the rotation of the beds can be based on the moisture level of the air rather than on a simple timing basis, improving process efficiency. The air is then heated to a temperature range of  $140$  to  $375$  °F ( $60$  to  $190$  °C) and feed into the hopper to dry the plastic pellets. In addition to the air's humidity and temperature, the amount of time the pellets must be dried in order to reach a satisfactory moisture content, plays a critical role. After the air leaves the hopper it may pass through an aftercooler depending on its typical temperature. Aftercoolers are used to reduce the air temperature to the recommended dryer inlet temperature. If the air enters into the dryer above the recommended temperature, the dryer does not work as efficiently.



**Why Moisture Measurement is desired/required:**

Improper moisture level of the plastic pellets drastically effects the product quality of the finished plastic products. The detrimental effects include:

- Tensile strength
- Product color
- Product clarity
- Surface texture

**Typical Application Conditions/Parameters:**

Dryer output: Regenerative desiccant dryers

Temperature: 100°F and hotter

Pressure: 100 psig

Outlet Dew/Frost Point Range at Line Pressure: -40°F (-40°C)

**Equipment Recommended:**

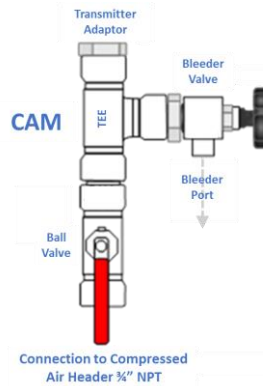
Product name and/or model number: AcuDew Dewpoint Transmitter



Potential Sample Systems depending on the conditions of the compressed air line:

A. Pipe-Mounted System: CAM (Compressed Air Module)

- Ambient compressed air temperature
- Clean/filtered compressed air



B. Typical Plate-Mounted Sample System

- Hot compressed air temperature
- Particulates entrained in the compressed air

