

## ***Method compliance: ASTM D1142***

### **What is the dewpoint temperature?**

The dewpoint temperature is the temperature at which the air can no longer "hold" all of the water vapor which is mixed with it, and some of the water vapor must condense into liquid water. The dew point is always lower than (or equal to) the air temperature.

*Natural gas dew point* is the temperature (at a given pressure) at which a condensed phase (solid or liquid) starts separating from gas. Thus, the gas dew point is the minimum temperature at which the natural hydrocarbon system remains in a single phase gaseous state. With further temperature decrease the first drop (crystal) of the condensate phase escapes from gas. In respect to natural gas, hydrocarbon (hydrocarbon condensate) dew points and water (non-hydrocarbon) dew points are of practical interest. Gas dew points are determined by condensing instruments.

### ***Scope***

### ***Significance and Use***

### ***Equipment specification***

- This test method covers the determination of the water vapor content of gaseous fuels by measurement of the dew point temperature and the calculation therefrom of the water vapor content.
- Generally, contracts governing the pipeline transmission of natural gas contain specifications limiting the maximum concentration of water vapor allowed. Excess water vapor can cause corrosive conditions, degrading pipelines equipment. It can also condense and freeze or form methane hydrates causing blockages. Water-vapor content also affects the heating value of natural gas, this influencing the quality of the gas. This test method permits the determination of water content of natural gas.

#### **Linetronic (Switzerland) DP-172000/M ASTM D1142, Standard Test Method for Water Vapor Content of Gaseous Fuels by Measurement of Dew-Point Temperature**

- Manometer Ø60mm, scale 0-160bar
- Refrigerant chamber with ¼" gas valve
- Stainless steel block with ¼" gas valve
- Plexiglas® Window
- External mirror in SS



## **GAS DEW POINT CONTROL**

Our experience in the Gas Dew Point Control Plants includes the largest gas treatment plant designed and built in the Russian Federation to meet 70% of the natural gas demand of a European country.

Control of water and hydrocarbon dew points of natural gas streams is required for both safe transportation and safe use of natural gases. Depending on market specifications, the typical natural gas dew points range from -5 °C to -20 °C as water dew point and from 0 °C to -10 °C as hydrocarbon dew point while lower values can be required for subsea pipeline transportation.

To meet these specifications, the removal of both water and C6+ hydrocarbon fraction that contribute most to hydrocarbon dew point is required. Several technologies are available to control gas dew points. The water dew point is achieved by means of dehydration processes (as described in the Gas Dehydration and Hydrates Control process) while the hydrocarbon dew point is achieved by means of gas cooling processes which are based both on gas expansion or on direct gas cooling to condensate the heavy hydrocarbons fraction. Alternatively, it is possible to use the Silica Gel adsorption process that allows both water and heavy hydrocarbons to be removed in a single step.