Drying

Maximum dryness for optimal performance

Dew Point

STABILITY, FLEXIBILITY, RELIABILITY

Air, nitrogen and vacuum drying techniques will thoroughly remove moisture and water from your system prior to start-up. We achieve your optimal dew point level so that you can be sure of the integrity of your product and the ongoing performance of your system.

a.hak
INDUSTRIAL SERVICES

Multiple services, singular solutions
for the Oil, Gas & Petrochemical Industry

Prior to commissioning and start-up, it can be essential to carry out a drying procedure to thoroughly remove water and moisture from the system. This procedure will help to maintain the purity of the product to be transported through the system, minimize corrosion (growth) and optimize efficiency and safety.

A.Hak Industrial Services offers flexible solutions for completely drying your system ahead of start-up. This is necessary following a pressure or leak/tightness test during pre-commissioning in order to achieve the required dew point levels. Our personnel has the knowledge and expertise to assess your particular situation and advise the safest, most reliable and most cost-effective solution.

BENEFITS

- System stability
- Problem-free start-up
- Low dew points <100 ppm
- Flexibility
- Drying of dead-ends or valves
- Reduction of corrosion (growth)
- Inert systems

Before drying can commence, an engineer will examine your system to estimate the required drying time and ensure it is ready for the best drying procedure based on the process limitations. In case pigging, which is the best solution, is possible, it accelerates the draining process and will ensure no free water is left in the system.

After completion of the engineering phase, a single or a combination of drying techniques can be implemented.

AIR DRYING

The purpose of using compressors, in combination with a desiccant dryer, is to push the moisture outside the system and replace it with dry air. These desiccant dryers are able to provide a dew point of approximately -46°C. To lower or prevent the pollution and risks of oil drops we can offer a filter unit or 100% oil free compressor. By heating dry air to 100°C or more, the drying process can be accelerated. This can be a cost saving option for the client in case time is more valuable than the extra cost for fuel. To minimize the risk of corrosion growth in systems that will not be put online immediately, we recommend to put the system in a gaseous nitrogen environment after drying.

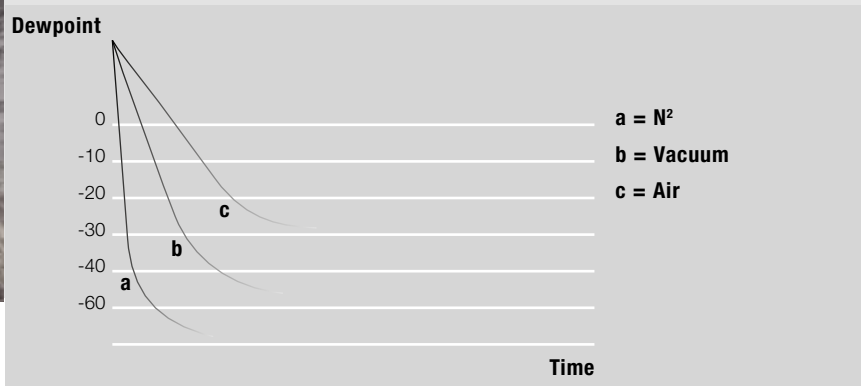
NITROGEN DRYING

Liquid nitrogen can be delivered in high volume and vaporized into gaseous nitrogen through our high flow pumps which offer ten times the flow rate of a normal compressor. This dryer and inert gas can be used to push moisture outside the system to produce a dew point of approximately -60°C while inerting the system at the same time. Temperatures up to +350°C can be achieved resulting in minimal drying time and maximum efficiency.

VACUUM DRYING

Vacuum pumps are used to remove saturated air to a level which permits the water and moisture to evaporate. The main principle is that water and moisture will vaporize at different temperatures depending on the vacuum pressure. Our vacuum pumps can achieve dew point levels up to -50°C.

Achieving the optimum dew point for your system



Air/Nitrogen drying

Saturated air is replaced by dry air or nitrogen untill all water is vaporised.

N² pump & compressor

NITROGEN

AIR

AIR

Water

Vacuum pump

Vacuum drying

Pressure is continously reduced untill the water is vaporized and the saturated air is removed.

TURNING UP THE HEAT

During an offshore pipeline construction project in the Netherlands, a piece of insulated pipeline fell overboard, completely filling the insulation layer with water. The pipeline was constructed to transport warm water and, as a result of the incident, was not maintaining the level of insulation required during transportation.

The first estimate to dry the pipeline was predicted at 18 months and would have resulted in substantial downtime and financial loss. After consulting A.Hak Industrial Services to review the situation, it was clear that it would not be possible to use air or nitrogen to dry the insulation layer because of the small inlet in the center of the lake and the vulnerability of the insulation layer.

We applied a vacuum drying technique operated from a barge. Since the pipeline was constructed to transport warm water we used that heat to raise the temperature of the inner core of the pipeline, minimizing drying time.

As a result the pipeline stayed online during the drying process which was completed within 6 months.

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