

FACT SHEET

GLYCOL DEHYDRATORS

What is the purpose of a Glycol Dehydrator?

Glycol dehydration units are used in the natural gas industry to remove water from natural gas streams to prevent corrosion and hydrate formation (mineral deposits) in pipelines.

What Pollutants are emitted?

Pollutants known to be emitted include benzene, toluene, ethylbenzene, the xylene isomers, n-hexane, and in some cases, 2,2,4-trimethylpentane (iso-octane). Ethylene glycol may be emitted at very low concentrations.

What are the Equipment Control Options?

The two most common methods of controlling emissions are condensation and combustion. Combustion devices typically include flares, incinerators, and the reboiler firebox. Condensation has become the most widely used method of controlling emissions from glycol dehydrators because of its lower capital and operating costs, simplicity, safety, and suitability for remote/unattended operation. There are several types of condensers currently used by the natural gas industry, including air-cooled, glycol-cooled, and water-cooled exchanges. Hybrid systems including both condensation and combustion are also used.

What are Equipment Variations?

There are several equipment variations that occur on different glycol dehydration units. The three most notable ones are the flash tank, the glycol pump, and stripping gas. The flash tank is used to recover gas from the rich glycol as its pressure is reduced from relatively high pressure (200-1000 psig) down to the flash tank pressure (typically 20-60 psig). The most widely used glycol pump is a gas/glycol energy exchange pump (e.g., Kimray pump). This pump uses the high-pressure glycol leaving the absorber to provide part of its required driving energy. Stripping gas is used on some units. Stripping gas is injected into the reboiler to "roll" or mix the glycol and help remove pockets of water.