



Technical Note #114

Measurement of Ethyl Mercaptan in LP-Gas Vapor using Gastec Tube No. 72

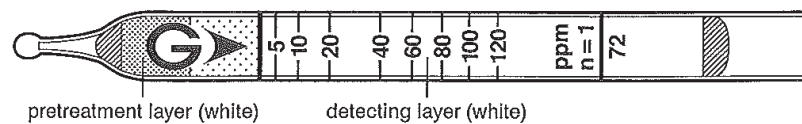
LP-Gas (propane) has no odor in its natural state. Ethyl mercaptan, a strong smelling odorant, is added to LP-Gas (propane) to alert consumers of a gas leak. However, the odor in propane gas can fade in intensity over time through oxidation, adsorption/absorption, or interaction with impurities.

The National Fire Protection Association (NFPA) states that ethyl mercaptan in the ratio of 1 pound per 10,000 gallons of LP-gas (liquefied petroleum gas, or liquid propane gas) has been recognized as an effective odorant.

A ratio of 1 pound per 10,000 gallons of liquid LP-gas equates to 3.7 ppm ethyl mercaptan in the gas at 1 standard atmosphere pressure and 68° F (20° C). However, the measurable amount of ethyl mercaptan odorant varies as a function of LP-gas temperature, as illustrated on the following chart:

Temperature °F of LP-Gas	Equivalent (ppm) of 1 lb. Ethyl Mercaptan per 10,000 gallons of LP-Gas
32 - 34	2.9
35 - 38	3.0
39 - 42	3.1
43 - 47	3.2
48 - 51	3.3
52 - 56	3.4
57 - 60	3.5
60 - 64	3.6
65 - 69	3.7
70 - 72	3.8
73 - 75	3.9
76 - 78	4.0
79 - 82	4.1
83 - 85	4.2

To determine the actual concentration of ethyl mercaptan odorant in LP-gas set up a suitable sample container for purging and collecting LP-gas vapor (for further details see ASTM D5305 *Standard Test Method for Determination of Ethyl Mercaptan in LP-Gas Vapor*).



Use Gastec Tube No. 72 (Ethyl Mercaptan) to perform a simple 1 stroke 90-second test of the LP-gas vapor sample. Temperature correction of the detector tube reading may be necessary, which is determined by the temperature of the Gastec tube. For accurate results, ensure the Gastec tube has been at ambient temperature for 15-minutes



before testing and use the temperature displayed on the Nextteq Thermal Ring located on the Gastec Pump for correction.

Gastec pump and tubes can only be purchased through an authorized distributor. For information on an authorized distributor in your area, please contact Nextteq directly at 877-312-2333 x20.