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Gas purification Units

In India, the gases supplied for testing purposes are not pure as required.

For WVTR testing, N₂ gas is required, free of moisture content.

For OTR testing, O₂ & N₂+H₂ gases are required, O₂ should be free of CO₂ and N₂+H₂ should be free of moisture.

Thus for making this gases free of moisture and CO₂ contents we, **HEMETEK**, have standardized on **GAS PURIFICATION UNITS** all over India which removes moisture and CO₂ contents from the gases and makes gases pure and as required for testing.



EFFECT of NON-PURE GASES

In **WVTR**, which requires N₂ gas for testing and the gas cylinder contains moisture, then the results generated by these gases will not be valid since the gas cylinder already contains the moisture and the mixture of transmission of moisture through film and moisture content in the cylinder is displayed as a final result.

In **OTR**, the CO₂ content in O₂ cylinder will degrade the life of Oxygen Sensor.



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Precautions for Increasing Sensor Life

- ✓ The sensor life will be more dependant on the usage and any abuse.
- ✓ If the unit is overranged excessively frequently the sensor will be depleted much quicker than one that has not been.
- ✓ A unit that tests only the lowest of O₂TR, tests with RH and very rarely overranges will likely have the longest of lifespans.
- ✓ The IR sensor is more dependant on the noise of the power source. The power supply should be connected in a manner that reflects the Site prep instructions in the manual and the use of a UPS usually will greatly help as well. This will help all of the electronics in the unit not just the IR sensor.
- ✓ Gases used for testing should be pure gases. Recommended gases for WVTR is 99.97% pure N₂ and for OTR 99.99% pure O₂ and mixture of 98%N₂+2%H₂. The actual H₂ percentage may vary from 1 to 3%. Oxygen content in (N₂ + H₂) gas mixture should be in the range 4-6 ppm.
 - a. The component gases used i.e N₂ & Hydrogen should be High purity Gases. (Purity 99.995 or better). These gases are NOT Industrial grade gases whose purity is 99 to 99.5% only.
 - b. The High purity grade Nitrogen used has to be produced from Cryogenic state (liquid Nitrogen stage), which enables impurities level to be controlled to 2ppm. Industrial grade N₂ is cheaper as is produced from Gas stage only.
 - c. In order to test 4 to 6 ppm level of Oxygen, dedicated Oxygen trace analysers have to be used. Gas Chromatography cannot be used for this application. GC can be used for Hydrogen Analysis only to the best of our knowledge. Pls verify from your supplier / his certificate about the instrument used for this parameter testing
 - d. Both N₂ & H₂ are pre analysed for impurities & then only used for mixture.
 - e. Individual cylinders are analysed & certified for Gas mixture content. (H₂ concentration & impurities)