NOTE ON MEDICAL OXYGEN PRODUCTION USING MSDH SECTION OF DISTILLERY PLANT

Considering the high demand of medical oxygen due to the present pandemic conditions, the possibility of producing medical oxygen utilizing the existing equipment of distillery plant is explored. Quality of medical oxygen is 95% concentrated Oxygen. This can be produced using the following existing equipment in the distillery plant:

1.0 Existing Instrument Air Compressor & Dryer system and associated instrument air piping system.

2.0 Existing Molecular Sieve De Hydration (MSDH) section.

3.0 Existing handling, compression, storage and filling facility in Carbon Di Oxide Plant.

Atmospheric air is compressed and then dehumidified (moisture removal in the dryer) in the existing "Instrument air compressor and dryer system". The air filters available in the existing system will remove the physical contaminants from atmospheric air to the level of < 1 µ. Moisture is also removed in the existing system to the level of – 20 ºC Atmospheric Dew Point (ADP) in case of Refrigerant dryer and – 40 ºC ADP in case of Heatless type dryer.

Generally the instrument air pressure is around 7 bar(g) and depending upon the existing MSDH operating pressure requirement, the above pressure shall be reduced to required level and then shall be passed through the existing Molecular Sieve Vessels in order to remove other gases such as Nitrogen, etc so that Oxygen with > 95% concentration is produced.

The medical oxygen thus produced shall be taken to existing Carbon Di Oxide Production plant for storage and further filling in Oxygen cylinders / containers for transportation.

Major change in the existing set up is to replace the "existing Absolute Alcohol producing molecular sieve" with "Oxygen producing Molecular Sieve". To that extent consultation with existing MSDH Plant SUPPLIER and Molecular Sieve SUPPLIER (ZEOCHEM / EQUIVALENT) is required to ascertain the maximum oxygen production capacity and other operational requirements such as Molecular sieve regeneration procedure. MSDH plant SUPPLIER and Molecular Sieve SUPPLIER shall be consulted for changes in the DCS programming, if any.