Cryogens production and distribution at TIFR, Mumbai, INDIA

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Low temperature facility (LTF) of Tata Institute of Fundamental Research, (TIFR) Mumbai, India, is one of the largest facilities in India under the R & D sector and has been operating and maintaining cryogenic plant for about five decades. LTF provides liquid helium and liquid nitrogen along with the cryogenic support services to various facilities and laboratories of the institute. LTF supports the on-demand needs of cryogens to the more than 40 users, including the instrument facilities such as NMR, SQUID, PPMS, VSM, milli-kelvin to micro Kelvin refrigerators, Mössbauer, nano-kelvin, spectroscopes etc. Our annual consumption is about 1,00,00 liters of liquid helium and 2,25,000 liters of liquid nitrogen. LTF handles more than 75 liquid nitrogen and 32 liquid helium dewars along with high pressure helium gas cylinders (about 1300 cylinders), vacuum systems, gas analyzers, gas flow meters, sensors, detectors etc. TIFR also houses a helium refrigerator to cool the quarter wave resonating cavities for the superconducting linear accelerator. The liquid nitrogen for the above LINAC and the beam hall, is supplied from the 5000 liters storage vessel by the vacuum insulated tube, which is about 175 meters long pipeline. We will present the in depth details about the cryogen production and distribution at our institute.