

Helium Laboratory

[Under Advanced Vacuum & Helium Technology Division]

Helium because of its unique electronic configuration finds potential applications in innumerable advanced research and industrial processes. However, its geological spread is surprisingly variable and singularly uneven - so that locating terrestrial helium supply sources demands concerted experimental research.

The Helium Laboratory at VECC, Kolkata, has been, over the years, committed to develop helium exploration strategies country-wide with special focus on geothermal areas. The pursuit is essentially to discover a prolonged supply source of the gas. Sample gases from a wide variety of sources have been analysed in detail. Helium research activities over the years have expanded into several concurrent areas that involve innovative aspects of helium application and demands an in-depth knowledge of the fundamental processes involved. These are listed below:

1. Helium assay in geothermal, soil, natural gas and coal-bed methane.
2. Exploring indigenous helium potential.
3. Development of helium enrichment and purification processes – cryogenic as well as non-cryogenic PSA process.
4. Monitoring helium and radon concentration in geothermal spring gas to obtain Geo-chemical Precursory Signals for Seismic Predictions.
5. Extraction of Helium from Natural Gas through Multi-stage PSA technique.
6. Technical support in cryogenic and gas separation applications.
7. Helium Isotopic studies towards delineating the characteristics of deep seated gases relevant to seismic phenomena

Researches concerning sources of helium invariably pose a geophysical and geo-chemical challenge. As a consequence it is often difficult to completely isolate one of the above mentioned activities from the other. Accordingly, our overall involvement in helium research appears as a mosaic pattern of interacting disciplines.



HELIUM ENRICHMENT PLANT



***IN SITU GEOCHEMICAL GAS MONITORING
STATION***