ABSTRACT

PROCESS TO PRODUCE NITROGEN USING A DOUBLE COLUMN PLUS AN AUXILIARY LOW PRESSURE SEPARATION ZONE

A process is set forth for the cryogenic distillation of an air feed to produce nitrogen, particularly high pressure nitrogen of various purity, varying from low purity (up to 98% nitrogen) to ultra-high purity (less than 1 part per billion of oxygen). The nitrogen may be produced at two different pressures and two different purities. The process uses an auxiliary low pressure separation zone in addition to the conventional high pressure column and low pressure column. The auxiliary low pressure separation zone, which is operated at the same pressure as the low pressure column and which is heat integrated with the top of the high pressure column by means of its bottom reboiler/condenser, pretreats the crude liquid oxygen from the bottom of the high pressure column.

(Figure 1)