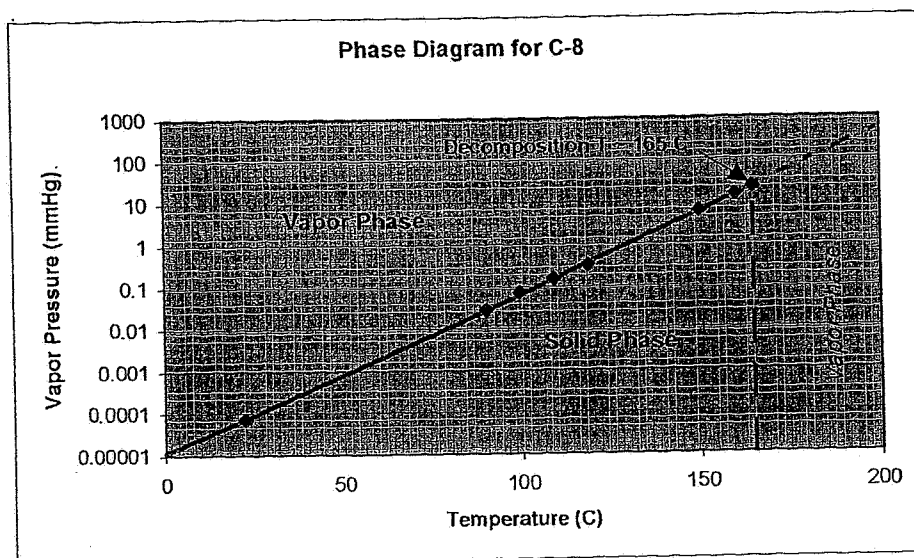


Phase Diagram of C-8

The phase diagram below shows the solid and vapor phases of C-8 as a function of temperature and pressure. There is no known melting point, so the liquid phase envelope is not shown on the diagram, rather, C-8 decomposes at high temperatures according to the reaction



where PFO is the perfluoro-octanoate portion of the compound. C-8 is the ammonium salt of PFO, or NH_4PFO . Various sources report the decomposition temperature range is 150°C - 165°C .



The experimental data used to generate the above diagram is from three different sources: 3M and two within DuPont. The solid line represents the solid-vapor equilibrium vapor pressure line, with the experimental data shown by diamond shaped points. The dotted line extrapolation of the solid line is a hypothetical vapor pressure curve above the decomposition point. The dashed line is an approximation of the decomposition line and its exact location is assumed (to our knowledge, no studies have been done to define the location or slope of this line).

Critical properties for C-8 have been estimated by DuPont's physical property expert by commonly used methods and can be summarized as follows

$$T_c = 1220 \text{ K} = 947^\circ\text{C}$$

$$P_c = 1.01325E + 06 \text{ Pa} = 10 \text{ atm}$$

$$V_c = 0.7365 \text{ m}^3/\text{kgmole}$$

$$\omega = \text{acentric factor} = 0.494$$