

FERMILAB
BEAMS DIVISION
MECHANICAL SUPPORT DEPARTMENT

Recycler Vacuum Certification Requirements

SPECIFICATION #
1351-ES-296407

WRITTEN BY:

L. Nobrega

APPROVED BY:

T. Anderson, Mechanical Support Department

S. Nagaitsev, Recycler Department Head

August 27, 2003

The purpose of this document is to outline the minimum requirements that must be met by each component before it is installed in the Recycler vacuum system. The requirements are as follows:

1. The total pressure must not exceed 2×10^{-10} Torr with equivalent system pumping.
2. The maximum level of contamination allowed is three orders of magnitude lower than the H_2 partial pressure.
3. Partial pressures of the base gases must be within the following limits:
 - a. $H_2 > 70\%$
 - b. $CH_4 < 5\%$
 - c. $H_2O < 10\%$
 - d. $CO + N_2 < 10\%$
 - e. $C_2H_6 < 5\%$
 - f. $CO_2 < 10\%$
4. All component installations must be approved by the Recycler Lead Vacuum Engineer or the Recycler Department Head.

Exceptions may be made for special cases only with the approval of the Recycler Lead Vacuum Engineer or the Recycler Department Head.