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Accelerator Science and Technology Centre

CCLRC Daresbury Laboratory

Vacuum Science Group

Vacuum Systems

Definitions Relevant to Quality Control Documentation for ASTeC Vacuum Projects

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1. Scope

This document defines terms which are commonly used in ASTeC Vacuum Quality Control Documentation. Whilst many are drawn from accepted practice elsewhere, their scope is strictly limited in this form to the context of this set of documentation. Their collection here is purely a matter of convenience and saves repetition in each document.

2. Definitions Relevant to Vacuum Pressure Regions

"Low vacuum"	Pressures between atmosphere (10^5 Pa) and 1 mbar (100 Pa).
"Medium vacuum"	Pressures between 1 mbar (100 Pa) and 10^{-3} mbar (0.1 Pa).
"High vacuum"	Pressures between 10^{-3} mbar (0.1 Pa) and 10^{-6} mbar (10^{-4} Pa).
"Very High vacuum"	Pressures between 10^{-6} mbar (10^{-4} Pa) and 10^{-9} mbar (10^{-7} Pa).
"Ultra High vacuum (UHV)"	Pressures between 10^{-9} mbar (10^{-7} Pa) and 10^{-11} mbar (10^{-9} Pa).
"Extreme High vacuum (XHV)"	Pressures below 10^{-11} mbar (10^{-9} Pa).
"Pressure region"	One of the above.

3. Definitions Relevant to Operation of Vacuum Systems

"Service"	Normal or expected operating conditions for a particular item, especially pressure range in which it will work.
"Clean vacuum"	Where the partial pressures of specified contaminants are lower than some set of reference values (which may be expressed as ratios or percentages).
"Vacuum item"	Any vacuum vessel, component, assembly or sub-assembly.
"Backstreaming"	The flow of a gas or gaseous species from the forevacuum side of a vacuum pump to the high vacuum side.
"Ultimate"	The base pressure reached in a leak tight clean vacuum system after a sufficient time for a quasi-equilibrium state to be reached.

4. Definitions Relevant to Manufacturing or Procurement

"Manufacturing documentation"	Any specification or call for tender issued by ASTeC or other authorised body, or order placed with a manufacturer by ASTeC or other authorised body. This will include any agreed drawings.
"Agreed"	Agreed in writing by ASTeC or other authorised body.
"Stated"	Specifically stated in the manufacturing documentation issued by ASTeC or other authorised body.
"Suitable"	Agreed to be suitable for the intended purpose by ASTeC or other authorised body.

5. Authority

In all cases, the authority for interpretation of specifications and for determining whether or not compliance with specification or procedures has been achieved shall be the duly appointed representative of ASTeC or a duly appointed agent acting on behalf of ASTeC.

Note: In this set of documents, where the term ASTeC is used, whenever relevant this should be interpreted as including any agent or body acting on behalf of or with the authority of ASTeC