











































| free p | ath of el | ectrons | in air | | | | |
|------------------|--------------|-----------|-----------|--------------------|---------------------|------------------------|------------|
| Vacuum range | | | Р | ressure (mb | oar) | Mean free path | |
| Ambient pressure | | | | 1013 | | 68nm | |
| Low vacuum | | | | 300-1 | | 0.1-100um | |
| Medium vacuum | | | | 1-10-3 | 0.1-100mm | | |
| High vacuum | | | | 10-3-10-7 | | 10cm-1km | |
| ι | Jltra high v | acuum | | 10-7-10-12 | | 1km-10 ⁵ km | |
| Ext | remely higł | n vacuum | | <10 ⁻¹² | >10 ⁵ km | | |
| | | | lonizatio | n Energies (| (v) | | |
| H 13.6 | | | John Carl | | | | He 24.6 |
| Li 5.4 | Be 9.3 | B 8.3 | C 11.3 | N 14.5 | 0 13.6 | F 17.4 | Ne 21.6 |
| Na 5.1 | Mg 7.6 | Al 6.0 | Si 8.2 | P 10.5 | 5 10.4 | Cl 13.0 | Ar 15.8 |







