

Table 1.4: Diffusivity of miscellaneous impurities in silicon.

Impurity	Temperature range (°C)	D_0 (cm ² /s)	E_a (eV)	Mechanism	Reference
Cr	1,100-1,250	0.01	1.0		24
Cu	800-1,100	4.0×10^{-2}	1.0	Interstitial	23
Cu (interstitial)		4.7×10^{-3}	0.43	Interstitial	23
Fe	1,100-1,250	6.2×10^{-3}	0.87	Interstitial	23
Ga		225	4.12		28
Ge		6.26×10^5	5.28		28
H ₂		9.4×10^{-3}	0.48	Interstitial	23
He		0.11	1.26		28
In or Tl		16.5	3.9		28
		269	4.19		6
K	800-1,000	1.1×10^{-3}	0.76	Interstitial	23
Li	25-1,350	2.3×10^{-3} to 9.4×10^{-4}	0.63 to 0.78	Interstitial	23
N		0.05	3.65		6
Na	800-1,100	1.6×10^{-3}	0.76	Interstitial	23
Ni	450-800	0.1	1.9	Interstitial	23
O ₂	700-1,240	7×10^{-2}	2.44		26
O (interstitial)	330-1,250	0.17	2.54	Interstitial	26
P (intrinsic)		3.85	3.66	Vacancy	6
Pt	800-1,100	1.5×10^2 to 1.7×10^2	2.22 to 2.15	Interstitial	27
S		0.92	2.2	Interstitial	28
Sb (intrinsic)		0.214	3.65	Vacancy	6
Si (interstitial)		0.015	3.89	Vacancy	6
Sn		32	4.25		28
Zn		0.1	1.4	Interstitial	28

Figure 1.23 presents the values from table 1.4 in graphical form versus temperature, the graph is useful for comparing relative diffusivities.

As mentioned in previous sections, the size mismatch between a diffusing specie and the silicon lattice can result in lattice strain which may enhance the diffusivity of co-diffusing specie. Table 1.5 presents the relative sizes of selected impurities versus silicon.