

Communication: Literature Survey on Diffusivities of Oxygen Aluminum, and Vanadium in Alpha Titanium, Beta Titanium, and in Rutile

by Z. Liu and G. Welsch

Page 1122:

Table II should read as follows:

Table II. The Pre-Exponential Constants and Activation Energies for Diffusion of Aluminum in Alpha Titanium

Ser. No.	Temp. (K)	D_0 (m ² /sec)	Q (kJ/mole)	Alloy	Method	Ref.
1	1107 to 1173	1.60×10^{-9}	99.2	Ti-10 at. pct Al	conc. grad.	44
2	833 to 921	9.59×10^{-10} ^a	92.5 ^a	Ti	conc. grad., EMA ^b	45
3	973 to 1173	1.58×10^{-12}	77.0	Ti-2Al	conc. grad.	46
4	973 to 1173	8.70×10^{-13}	70.7	Ti-4.1Al	conc. grad.	46

(a) derived from the published data

(b) electron microprobe analysis

Page 1122:

Table IV should read as follows:

Table IV. The Pre-Exponential Constants and Activation Energies for Diffusion of Aluminum in Beta Titanium

Ser. No.	Temp. (K)	D_0 (m ² /sec)	Q (kJ/mole)	Alloy	Method	Ref.
1	1256 to 1523	1.4×10^{-9}	91.7 ± 15	Ti-2 at. pct Al	conc. grad.	44
2	1256 to 1523	9.0×10^{-9}	107 ± 20	Ti-12 at. pct Al	conc. grad.	44
3	1373 to 1523	1.09×10^{-6}	172	Ti-2.2Al	conc. grad.	46
4	1373 to 1523	2.90×10^{-6}	180	Ti-4.55Al	conc. grad.	46

Page 1123:

Table V should read as follows:

Table V. The Pre-Exponential Constants and Activation Energies for Diffusion of Vanadium in Beta Titanium

Ser. No.	Temp. (K)	D_0 (m ² /sec)	Q (kJ/mole)	Alloy	Method	Ref.
1	1173 to 1521	6.0×10^{-6}	166 ± 20	Ti-2 at. pct V	conc. grad.	44
2	1173 to 1273	1.37×10^{-8}	239 ^a			
		3.10×10^{-8}	135 ^b	Ti	conc. grad.	13
3	1173 to 1273	5.89×10^{-8}	170 ^a			
		3.31×10^{-7}	157 ^b	Ti	conc. grad.	14
4	1173 to 1473	3.55×10^{-8}	161 ^a			
		3.98×10^{-7}	163 ^b	Ti-10V	conc. grad.	14
5	1173 to 1473	1.29×10^{-4}	273 ^a			
		7.00×10^{-7}	173 ^b	Ti-20V	conc. grad.	14
6	1173 to 1273	1.7×10^{-13}	34 ^c	Ti-15 at. pct V	conc. grad., XS ^d	52
7	1173 to 1273	1.3×10^{-13}	24 ^c	Ti-20 at. pct V	conc. grad., XS ^d	52
8	1223 to 1783	1.24×10^{-4}	239 ^e			
		4.46×10^{-8}	140 ^f	Ti-0.01 at. pct V	conc. grad.	53

(a) D_{01} and Q_1 , derived from the diffusion data(b) D_{02} and Q_2 , derived from the diffusion data

(c) derived from the published data

(d) X-ray spectra

(e) D_{01} and Q_1 (f) D_{02} and Q_2

Table VI should read as follows:

Table VI. The Pre-Exponential Constants and Activation Energies for Diffusion of Oxygen in Rutile

Ser. No.	Temp. (K)	D_0 (m ² /sec)	Q (kJ/mole)	Material	Method	Ref.
1	866 to 1033	8.7×10^{-2}	232	oxide scale on Ti	oxid.	55
2	866 to 1033	2.69×10^{-2}	243	oxide scale on Ti-6Al-2Sn-4Zr-2Mo	oxid.	56
3	1233 to 1673	1.7×10^{-6}	276	oxide scale on Ti	resonance capture	57
4	983 to 1573	2.0×10^{-7}	251	TiO ₂	isotope exchange	58
5	1079	only individual D 's		oxide scale on Ti	isotope exchange	59

Figure 1 should read as follows:

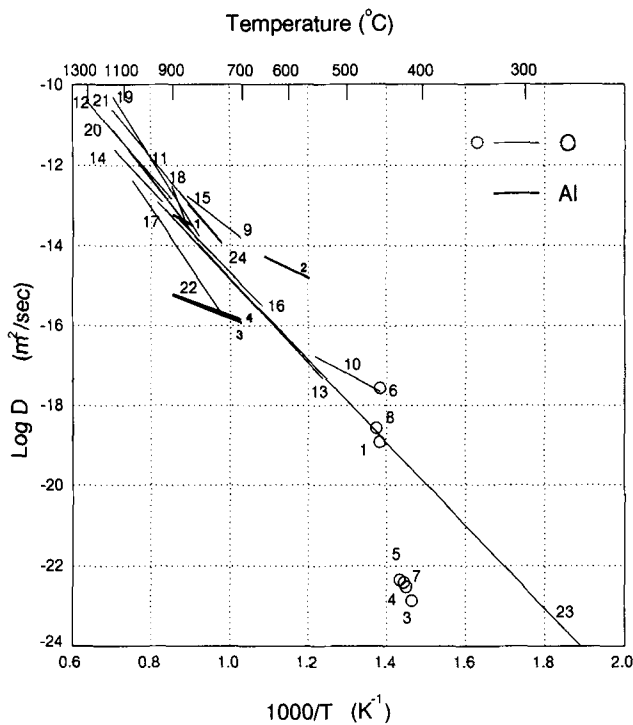


Fig. 1—The diffusivity of oxygen and aluminum in alpha-Ti. The numbers in the plot correspond to the series numbers in Tables I and II.

Figure 2 should read as follows:

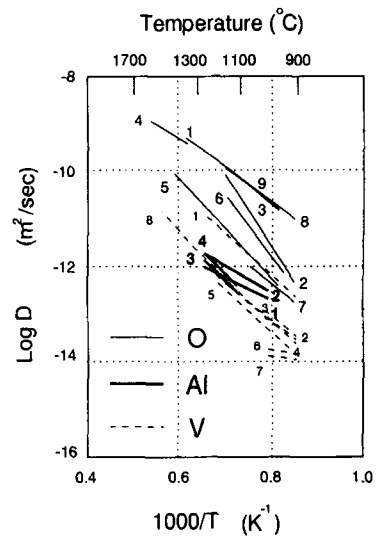


Fig. 2—The diffusivity of oxygen, aluminum, and vanadium in beta-Ti. The numbers in the plot correspond to the series numbers in Tables III, IV, and V.

Figure 3 should read as follows:

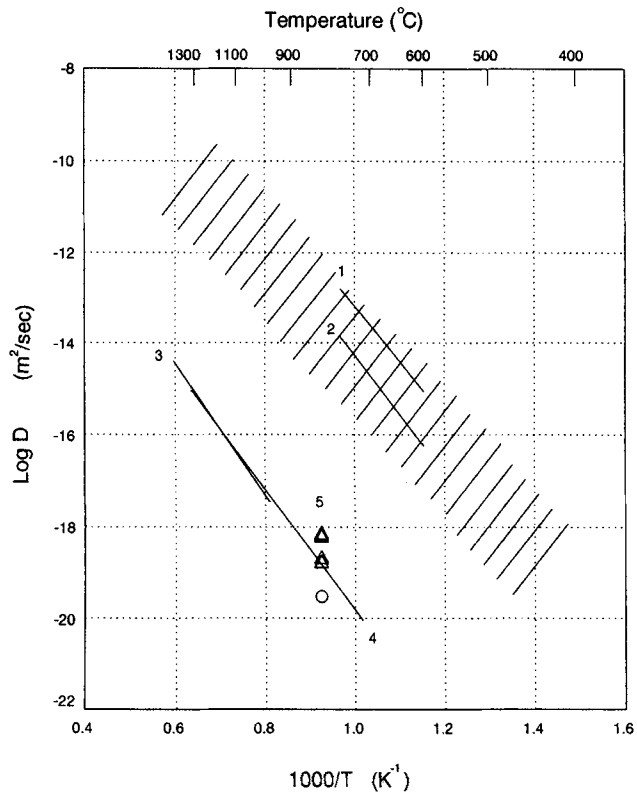


Fig. 3—The diffusivity of oxygen in rutile. The numbers in the plot correspond to the series numbers in Table VI. The triangles and the circle indicate the diffusivities along and perpendicular to the *c*-axis of rutile crystals.¹⁵⁹¹ The diffusivity of oxygen in α -Ti is indicated by the hatched area.