9g. Properties of Superconductors

B. W. ROBERTS

General Electric Research and Development Center

9g-1. Introduction. The historically first observed and most distinctive property of a superconductive body is the near total loss of resistance at a critical temperature T_c characteristic of each material. Figure 9g-1*a* illustrates schematically two types of possible transitions. The sharp vertical discontinuity in resistance is indicative of that found for a single crystal of a very pure element or one of a few well-annealed alloy compositions. The broad transition, illustrated by broken lines, suggests the transition shape seen for materials that are inhomogeneous and contain unusual strain distributions. Careful testing of the resistivity limits for superconductors shows that it is less than 4×10^{-23} ohm-cm while the lowest resistivity observed in metals is of the order of 10^{-13} ohm-cm. If one compares the resistivity of a superconductive body to that of copper at room temperature, the superconductive body is at least 10^{17} times less resistive.

The temperature interval ΔT_c, over which the transition between the normal and superconductive states takes place, may be of the order of as little as 2×10^{-5} K or several kelvins in width, depending upon the material state. The narrow transition width was attained in 99.9999 percent pure gallium single crystals.

A *type I superconductor* below T_c, as exemplified by a pure metal, exhibits perfect diamagnetism and excludes a magnetic field up to some critical field H_c, whereupon it reverts to the normal state as shown in the *H-T* diagram of Fig. 9g-1*b*.

The difference in entropy near absolute zero between the superconductive and normal states relates directly to the electronic specific heat γ:

$$(S_s - S_n)_{T \to 0} = -\gamma T$$

High-field Superconductivity. The discovery of the large current-carrying capability of Nb_3Sn and other similar alloys has led to an extensive study of the physical properties of these alloys. In brief, a high-field superconductor, or *type II superconductor*, passes from the perfect diamagnetic state at low magnetic fields to a mixed state and finally to a sheathed state before attaining the normal resistive state of the metal. The magnetization of a typical high-field superconductor is shown in Fig. 9g-1c. The magnetic field values separating the four stages are given as H_{c1}, H_{c2}, and H_{c3}. The superconductive state below H_{c1} is perfectly diamagnetic, identical to the state of most pure metals of the "soft" or type I. Between H_{c1} and H_{c2} a "mixed superconductive

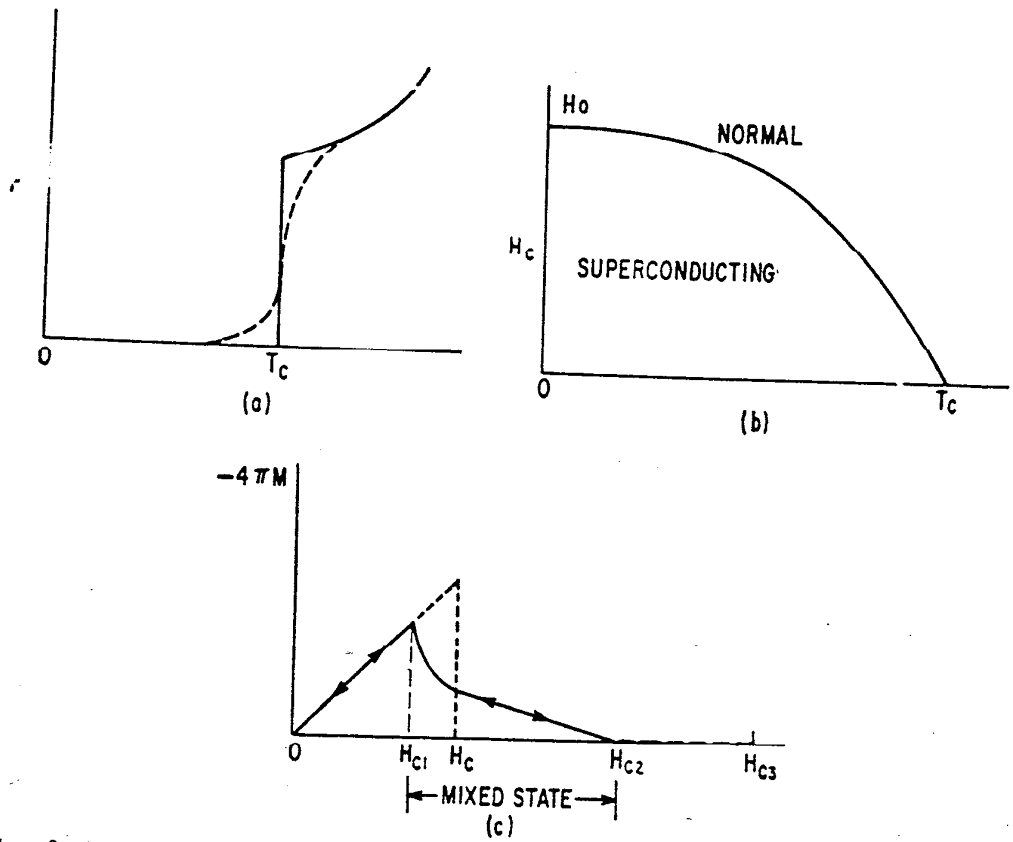

FIG. 9g-1. Physical properties of superconductors. (*a*) Resistivity versus temperature for a pure and perfect lattice (solid line). Impure and/or imperfect lattice (dashed line). (*b*) Magnetic field temperature dependence for type I or "soft" superconductors. (*c*) Schematic magnetization curve for "hard" or type II superconductors.

state" is found in which fluxons (a minimal unit of magnetic flux) create lines of normal superconductor in a superconductive matrix. The volume of the normal state is proportional to $-4\pi M$ in the "mixed state" region. Thus at H_{c2} the fluxon density has become so great as to drive the interior volume of the superconductive body completely normal. Between H_{c2} and H_{c3} the superconductor has a sheath of current-carrying superconductive material at the body surface, and above H_{c3} the normal state exists along with "fluctuations." With several types of careful measurement, it is possible to determine H_{c1}, H_{c2} and H_{c3}. Table 9g-3 contains some of the available data on high-field superconductive materials.

High-field superconductive phenomena are also related to specimen dimension and configuration. For instance, the *type I superconductor*, Hg, has entirely different magnetization behavior in high magnetic fields when contained in the very fine set of filamentary tunnels found in an unprocessed Vycor glass. The great majority of superconductive materials are type II. The elements in very pure form and a very few precisely stoichiometric and well-annealed compounds are type I with the possible exceptions of vanadium and niobium.

Metallurgical Aspects. The sensitivity of superconductive properties to the material state is most pronounced and has been used in a reverse sense to study and specify the detailed state of alloys. The mechanical state, the homogeneity, and the presence of impurity atoms and other electron-scattering centers are all capable of controlling the critical temperature and the current-carrying capabilities in high magnetic fields. Well-annealed specimens tend to show sharper transitions than those that are strained or inhomogeneous. This sensitivity to mechanical state underlines a general problem in the tabulation of properties for superconductive materials. The occasional divergent values of the critical temperature and of the critical fields quoted for a type II superconductor may lie in the variation in sample preparation. Critical temperature of materials studied early in the history of superconductivity must be evaluated in light of the probable metallurgical state of the material as well as the availability of less pure starting elements. It has been noted that recent work has given extended consideration to the metallurgical aspects of sample preparation.

9g-2. Notes Concerning Data. Table 9g-1 lists the elements and some of their superconductive properties. The data have been selected generally from recent studies in which sample purity and perfection appear to have been considered.

Table 9g-2 is a general and selected listing of superconductive materials. All compositions are denoted on an atomic basis, i.e., AB, AB_2 or AB_3 for compounds, unless otherwise noted. Solid solutions or odd compositions may be denoted as A_xB_{1-x}, or A_xB. A series of three or more alloys is indicated as A_xB_{1-x} or by actual indication of the atomic fraction range such as $A_{0-0.6}B_{1-0.4}$. The critical temperature of such a series of alloys is denoted by a range of values or possibly the maximum value.

The selection of the critical temperature from a transition observed in the effective permeability or the change in resistance, or possibly the incremental changes in frequency observed by certain techniques, is not often obvious from the literature. Most authors choose the midpoint of such curves as the probable critical temperature of the idealized material, and others will choose the highest temperature at which a deviation from the normal state property is observed. And in view of the previous discussions concerning the variability of the superconductive properties as a function of purity and other metallurgical aspects, it is recommended that appropriate literature be checked to determine the most probable critical temperature or critical field of a given alloy.

Table 9g-3 lists high magnetic field superconductors.

References to the data presented in this section, plus additional entries on superconductive materials as well as those materials specifically tested and found nonsuperconductive to some low temperature, may be found in the following publications by B. W. Roberts:

Superconductive Materials and Some of Their Properties, in "Progress in Cryogenics," vol. IV, pp. 160–231, Heywood and Co., London, 1964.

Superconductive Materials and Some of Their Properties, *NBS Tech. Note* 408, 1966.

or a successor report in preparation to the one above. (NBS Tech. Note 482, 1969).

TABLE 9g-1. PROPERTIES OF SUPERCONDUCTIVE ELEMENTS

Element	T_c, K		H_0, oersteds		θ_D*, K	γ, mJ mole^{-1} K^{-2}†
	Calorimetric	Magnetic	Calorimetric	Magnetic		
Al	1.183	1.196	104	99	420	1.36
Cd	0.518	0.56	29.6	30	209	0.688
Ga	1.087	1.091	59	51	317, 324.7	0.601, 0.596
Ga (β)	.....	6.2				
Ga (γ)	.....	7.62				
Hg (α)	4.16	4.154	380	410.9	87, 71.9	1.81
Hg (β)	.....	3.949	....	339	93	1.37
In	3.407	3.4035	282.7	293	109	1.66
Ir	.....	0.14	....	19	420	3.2
La (α)	4.80	4.9	....	....	142	10.0
La (β)	5.91	6.06	....	1,600	132	6.7
Mo	0.917	0.92	95	98	460	1.83
Nb	9.17	9.26	1,944	1,980	277	7.79
Os	.....	0.655	....	65	500	2.35
Pa	.....	1.4				
Pb	7.23	7.193	....	803	96.3	3.0
Re	1.699	1.698	188	198	415	2.35
Ru	.....	0.49	....	66	550	3.0
Sb	.....	2.6–2.7				
Sn	3.722	3.722	303	305.50	195	1.74
Ta	4.39	4.483	780	830	258	6.0
Tc	.....	8.22, 7.92				
Th	.....	1.368	131	162	168	4.65
Ti	0.42	0.39	56	100	425	3.32
Tl	2.38	2.39	176.5	171	78.5	1.47
U (α)	.....	0.68, 0.23	....	....	206	12.2
U (pseudo-γ)	.....	1.80 (extrapolated value)				
V	5.37	5.30	1,310	1,020	399	9.8
W	.....	0.012	....	1.07	550	3.0
Zn	0.852	0.875	51.8	53	309	0.66
Zr	.....	0.546	....	47	290	2.78
Zr (ω)	.....	0.65				

THIN FILMS FORMED AT VARIOUS TEMPERATURES

Element	T_c, K (magnetic)	H_0, oersteds (magnetic)	Element	T_c, K (magnetic)
Al	1.3–3.7		Mo	~5
Be	~6, ~8.4	$H_{c2} \gg 11{,}000$	Nb	6.5–9.4
Bi	~6.0		Re	1.9–~7
Ga	8.4, 7.2		Sn	4.6–4.7, 4.1
In	3.94–4.25, 3.7		Ti	1.3 max.
La	5.00–6.74		W	1.7–4.1

THIN FILMS FORMED UNDER HIGH PRESSURE

Element	T_c, K (magnetic)	Pressure	Element	T_c, K (magnetic)	Pressure
Bi II	3.916	25,000 atm	Se II	6.75, 6.95	~130 kb
	3.90	25,200 atm			
	3.86	26,800 atm	Si	7.1	120–130 kb
Bi III	7.25	27,000–28,400 atm	Te	~3.3	~56,000 atm
Ce	1.7	50 kb	Tl (f.c.c.)	1.45	35 kb
Ge	4.85–5.4	~120 kb	Tl (h.c.p.)	1.95	35 kb

* For another data set see K. Mendelssohn, "Cryophysics," p. 178, Interscience Publishers, Inc., New York, 1960.

† D. H. Parkinson, *Rept. Progr. Phys.* **21**, 226 (1958). See also F. Heiniger, E. Bucher, and J. Müller, Low Temperature Specific Heat of Transition Metals and Alloys, *Phys. Kondens. Materie* **5**, 243–284 (1966).

TABLE 9g-2. SELECTED SUPERCONDUCTIVE COMPOUNDS AND ALLOYS WITH CRITICAL TEMPERATURES, CRITICAL FIELDS, AND CRYSTAL STRUCTURE TYPE*

Substance	T_c, K	H_0, oersteds	Crystal structure type†
$Ag_xAl_yZn_{1-x-y}$	0.5–0.845		
$Ag_7BF_4O_8$	0.15	....	Cubic
$AgBi_2$	3.0–2.78		
$Ag_7F_{0.25}N_{0.75}O_{10.25}$	0.85–0.90		
Ag_7FO_8	0.3	....	Cubic
Ag_2F	0.066	2.5	
$Ag_{0.8-0.3}Ga_{0.2-0.7}$	6.5–8		
Ag_4Ge	0.85	....	Hex., c.p.
$Ag_{0.438}Hg_{0.562}$	0.64	....	$D8_2$
$AgIn_2$	~2.4	....	$C16$
$Ag_{0.1}In_{0.9}Te$ ($n = 1.40 \times 10^{22}$)‡	1.20–1.89	....	$B1$
$Ag_{0.2}In_{0.8}Te$ ($n = 1.07 \times 10^{22}$)	0.77–1.00	....	$B1$
AgLa (9.5 kb)	1.2	....	$B2$
Ag_7NO_{11}	1.04	57	Cubic
Ag_xPb_{1-x}	7.2 max.		
Ag_xSn_{1-x} (film)	2.0–3.8		
Ag_xSn_{1-x}	1.5–3.7		
$AgTe_3$	2.6	....	Cubic
$AgTh_2$	2.26	....	$C16$
$Ag_{0.03}Tl_{0.97}$	2.67		
$Ag_{0.94}Tl_{0.06}$	2.32		
Ag_xZn_{1-x}	0.5–0.845		
Al (film)	1.3–2.31		
Al (1 to 21 katm)	1.170–0.687	....	$A1$
$AlAu_4$	0.4–0.7	....	Like $A13$
Al_2CMo_3	10.0	....	$A13$
Al_2CMo_3	9.8–10.2	1700	$A13$ + trace 2d phase
Al_2CaSi	5.8		
$Al_{0.131}Cr_{0.088}V_{0.781}$	1.46	....	Cubic
$AlGe_2$	1.75		
$Al_{0.5}Ge_{0.5}Nb$	12.6	....	$A15$
$Al_{\sim 0.8}Ge_{\sim 0.2}Nb_3$	20.7	....	$A15$
$AlLa_3$	5.57	....	$D0_{19}$
Al_2La	3.23	....	$C15$
Al_3Mg_2	0.84	....	Cubic, f.c.
$AlMo_3$	0.58	....	$A15$
$AlMo_6Pd$	2.1		
AlN	1.55	....	$B4$
Al_2NNb_3	1.3	....	$A13$
$AlNb_3$	18.0	....	$A15$
Al_xNb_{1-x}	<4.2–13.5	....	$D8_b$
Al_xNb_{1-x}	12–17.5	....	$A15$
$Al_{0.27}Nb_{0.73-0.48}V_{0-0.25}$	14.5–17.5	....	$A15$
$AlNb_xV_{1-x}$	<4.2–13.5		
AlOs	0.39	....	$B2$
Al_3O_6	5.90		
AlPb (films)	1.2–7		
Al_2Pt	0.48–0.55	....	$C1$
Al_5Re_{24}	3.35	....	$A12$
Al_3Th	0.75	....	$D0_{19}$

* See Sec. 9g-2, Notes concerning Data.
† See Key Table, p. 9-145.
‡ n = number of normal carriers per cubic centimeter for semiconductor superconductors.

TABLE 9g-2. SELECTED SUPERCONDUCTIVE COMPOUNDS AND ALLOYS WITH CRITICAL TEMPERATURES, CRITICAL FIELDS, AND CRYSTAL STRUCTURE TYPE* (*Continued*)

Substance	T_c, K	H_0, oersteds	Crystal structure type†
$Al_xTi_yV_{1-x-y}$	2.05–3.62	....	Cubic
$Al_{0.108}V_{0.892}$	1.82	....	Cubic
Al_xZn_{1-x}	0.5–0.845		
$AlZr_3$	0.73	....	$L1_2$
AsBiPb	9.0		
AsBiPbSb	9.0		
$As_{0.33}InTe_{0.67}$ ($n = 1.24 \times 10^{22}$)	0.85–1.15	....	*B*1
$As_{0.5}InTe_{0.5}$ ($n = 0.97 \times 10^{22}$)	0.44–0.62	....	*B*1
$As_{0.50}Ni_{0.06}Pd_{0.44}$	1.39		
AsPb	8.4	....	*C*2
$AsPd_2$ (low-temperature phase)	0.60	....	Hexagonal
$AsPd_2$ (high-temperature phase)	1.70	....	*C*22
$AsPd_5$	0.46	....	Complex
AsRh	0.58	....	*B*31
$AsRh_{1.4-1.6}$	<0.03–0.56	....	Hexagonal
AsSn	4.10		
AsSn ($n = 2.14 \times 10^{22}$)	3.41–3.65	....	*B*1
$As_{\sim 2}Sn_{\sim 3}$	3.5–3.6, 1.21–1.17		
As_3Sn_4 ($n = 0.56 \times 10^{22}$)	1.16–1.19	....	Rhombohedral
Au_5Ba	0.4–0.7	....	$D2_d$
AuBe	2.64	....	*B*20
Au_2Bi	1.80	....	*C*15
Au_5Ca	0.34–0.38	....	$C15_b$
AuGa	1.2	....	*B*31
$Au_{0.40-0.92}Ge_{0.60-0.08}$	<0.32–1.63	....	Complex
AuIn	0.4–0.6	....	Complex
AuLu	<0.35	....	*B*2
$AuNb_3$	11.5	....	*A*15
$AuNb_3$	1.2	....	*A*2
$Au_{0-0.3}Nb_{1-0.7}$	1.1–11.0		
$Au_{0.02-0.98}Nb_3Rh_{0.98-0.02}$	2.53–10.9	....	*A*15
$AuNb_{3(1-x)}V_{3x}$	1.5–11.0	....	*A*15
$AuPb_2$	3.15		
$AuPb_2$ (film)	4.3		
$AuPb_3$	4.40		
$AuPb_3$ (film)	4.25		
Au_2Pb	1.18, 6–7	....	*C*15
$AuSb_2$	0.58	....	*C*2
AuSn	1.25	....	$B8_1$
Au_xSn_{1-x} (film)	2.0–3.8		
Au_5Sn	0.7–1.1	....	*A*3
Au_3Te_5	1.62	....	Cubic
$AuTh_2$	3.08	....	*C*16
AuTl	1.92		
AuV_3	0.74	....	*A*15
Au_xZn_{1-x}	0.50–0.845		
$AuZn_3$	1.21	....	Cubic
Au_xZr_y	1.7–2.8	....	*A*3
$AuZr_3$	0.92	....	*A*15
$BCMo_2$	5.4	....	Orthorhombic
$B_{0.02}C_{0.51}Mo_{0.47}$	12.5		
$BCMo_2$	5.3–7.0	....	Orthorhombic
BHf	3.1	....	Cubic
B_6La	5.7		

TABLE 9g-2. SELECTED SUPERCONDUCTIVE COMPOUNDS AND ALLOYS WITH CRITICAL TEMPERATURES, CRITICAL FIELDS, AND CRYSTAL STRUCTURE TYPE* (*Continued*)

Substance	T_c, K	H_0, oersteds	Crystal structure type†
$B_{12}Lu$	0.48		
BMo	0.5 (extrapolated)		
BMo_2	4.74	....	*C*16
BNb	8.25	....	B_f
BRe_2	2.80, 4.6		
$B_{0.3}Ru_{0.7}$	2.58	....	$D10_2$
$B_{12}Sc$	0.39		
BTa	4.0	....	B_f
B_6Th	0.74		
BW_2	3.1	....	*C*16
B_6Y	6.5–7.1		
$B_{12}Y$	4.7		
BZr	3.4	....	Cubic
$B_{12}Zr$	5.82		
$BaBi_3$	5.69	740	Tetragonal
$Ba_xO_3Sr_{1-x}Ti$ ($n = 4.2 - 11 \times 10^{19}$)	<0.1–0.55		
$Ba_{0.13}O_3W$	1.9	....	Tetragonal
$Ba_{0.14}O_3W$	<1.25–2.2	....	Hexagonal
$BaRh_2$	6.0	....	*C*15
$Be_{22}Mo$	2.51	....	Cubic, like $Be_{22}Re$
$Be_8Nb_5Zr_2$	5.2		
$Be_{0.98-0.92}Re_{0.02-0.08}$ (quenched)	9.5–9.75	....	Cubic
$Be_{0.957}Re_{0.043}$	9.62	....	Cubic, like $Be_{22}Re$
BeTc	5.21	....	Cubic
$Be_{22}W$	4.12	....	Cubic, like $Be_{22}Re$
$Be_{13}W$	4.1	....	Tetragonal
Bi_3Ca	2.0		
$Bi_{0.5}Cd_{0.13}Pb_{0.25}Sn_{0.12}$ (weight fractions)	8.2		
BiCo	0.42–0.49		
Bi_2Cs	4.75	....	*C*15
Bi_xCu_{1-x} (electrodeposited)	2.2		
BiCu	1.33–1.40		
$Bi_{0.019}In_{0.981}$	3.86		
$Bi_{0.05}In_{0.95}$	4.65	....	α phase
$Bi_{0.10}In_{0.90}$	5.05	....	α phase
$Bi_{0.15-0.30}In_{0.85-0.70}$	5.3–5.4	....	α and β phases
$Bi_{0.34-0.48}In_{0.66-0.52}$	4.0–4.1		
Bi_3In_5	4.1		
$BiIn_2$	5.65		β phase
Bi_2Ir	1.7–2.3		
Bi_2Ir (quenched)	3.0–3.96		
BiK	3.6		
Bi_2K	3.58	....	*C*15
BiLi	2.47	....	$L1_0$, α phase
$Bi_{4-9}Mg$	0.7–~1.0		
Bi_3Mo	3–3.7		
BiNa	2.25	....	$L1_0$
$BiNb_3$ (high pressure and temperature)	3.05	....	*A*15
BiNi	4.25	....	$B8_1$
Bi_3Ni	4.06	....	Orthorhombic
$Bi_{1-0}Pb_{0-1}$	7.26–9.14		
$Bi_{1-0}Pb_{0-1}$ (film)	7.25–8.67		

TABLE 9g-2. SELECTED SUPERCONDUCTIVE COMPOUNDS AND ALLOYS WITH CRITICAL TEMPERATURES, CRITICAL FIELDS, AND CRYSTAL STRUCTURE TYPE* (*Continued*)

Substance	T_c, K	H_0, oersteds	Crystal structure type†
$Bi_{0.05-0.40}Pb_{0.95-0.60}$	7.35–8.4	....	Hexagonal, c.p. to ε phase
BiPbSb	8.9		
$Bi_{0.5}Pb_{0.31}Sn_{0.19}$ (weight fractions)	8.5		
$Bi_{0.5}Pb_{0.25}Sn_{0.25}$	8.5		
$BiPd_2$	4.0		
$Bi_{0.4}Pd_{0.6}$	3.7–4	....	Hexagonal, ordered
PiPd	3.7	....	Orthorhombic
Bi_2Pd	1.70	....	Monoclinic, α phase
Bi_2Pd	4.25	....	Tetragonal, β phase
BiPdSe	1.0	....	*C*2
BiPdTe	1.2	....	*C*2
BiPt	1.21	....	$B8_1$
BiPtSe	1.45	....	*C*2
BiPtTe	1.15	....	*C*2
Bi_2Pt	0.155	10	Hexagonal
Bi_2Rb	4.25	....	*C*15
$BiRe_2$	1.9–2.2		
BiRh	2.06	....	$B8_1$
Bi_2Rh	3.2	....	Orthorhombic, like NiB_3
Bi_4Rh	2.7	....	Hexagonal
Bi_3Sn	3.6–3.8		
BiSn	3.8		
Bi_xSn_y	3.85–4.18		
Bi_3Sr	5.62	530	$L1_2$
Bi_2Te	0.75–1.0		
Bi_5Tl_3	6.4	>400	
$Bi_{0.26}Tl_{0.74}$	4.4	....	Cubic, disordered
$Bi_{0.26}Tl_{0.74}$	4.15	....	$L1_2$, ordered?
Bi_2Y_3	2.25		
Bi_3Zn	0.8–0.9		
$Bi_{0.3}Zr_{0.7}$	1.51		
$BiZr_3$	2.4–2.8		
CCs_x	0.020–0.135	....	Hexagonal
C_8K (gold)	0.55		
$CGaMo_2$	3.7–4.1	....	Hexagonal, *H* phase
$CHf_{0.5}Mo_{0.5}$	3.4	....	*B*1
$CHf_{0.3}Mo_{0.7}$	5.5	....	*B*1
$CHf_{0.25}Mo_{0.75}$	6.6	....	*B*1
$CHf_{0.7}Nb_{0.3}$	6.1	....	*B*1
$CHf_{0.6}Nb_{0.4}$	4.5	....	*B*1
$CHf_{0.5}Nb_{0.5}$	4.8	....	*B*1
$CHf_{0.4}Nb_{0.6}$	5.6	....	*B*1
$CHf_{0.25}Nb_{0.75}$	7.0	....	*B*1
$CHf_{0.2}Nb_{0.8}$	7.8	....	*B*1
$CHf_{0.9-0.1}Ta_{0.1-0.9}$	5.0–9.0	....	*B*1
CK (excess K)	0.55	....	Hexagonal
C_8K	0.39	....	Hexagonal
$C_{0.40-0.44}Mo_{0.60-0.56}$	9–13		
CMo	6.5, 9.26		
CMo_2	12.2	....	Orthorhombic
$C_{0.44}Mo_{0.56}$	1.3	....	*B*1
$C_{0.5}Mo_xNb_{1-x}$	10.8–12.5	....	*B*1
$C_{0.6}Mo_{4.8}Si_3$	7.6	....	$D8_8$
$CMo_{0.2}Ta_{0.8}$	7.5	....	*B*1
$CMo_{0.5}Ta_{0.5}$	7.7	....	*B*1
$CMo_{0.75}Ta_{0.25}$	8.5	....	*B*1

TABLE 9g-2. SELECTED SUPERCONDUCTIVE COMPOUNDS AND ALLOYS WITH CRITICAL TEMPERATURES, CRITICAL FIELDS, AND CRYSTAL STRUCTURE TYPE* (*Continued*)

Substance	T_c, K	H_0, oersteds	Crystal structure type†
$CMo_{0.8}Ta_{0.2}$	8.7	....	$B1$
$CMo_{0.85}Ta_{0.15}$	8.9	....	$B1$
CMo_xTi_{1-x}	10.2 max.	....	$B1$
$CMo_{0.83}Ti_{0.17}$	10.2	....	$B1$
CMo_xV_{1-x}	2.9–9.3	....	$B1$
CMo_xZr_{1-x}	3.8–9.5	....	$B1$
$C_{0.1-0.9}N_{0.9-0.1}Nb$	8.5–17.9		
$C_{0-0.38}N_{1-0.62}Ta$	10.0–11.3		
CNb (whiskers)	7.5–10.5		
$C_{0.984}Nb$	9.8	....	$B1$
CNb (extrapolated)	~14		
$C_{0.7-1.0}Nb_{0.3-0}$	6–11	....	$B1$
CNb_2	9.1		
CNb_xTa_{1-x}	8.2–13.9		
CNb_xTi_{1-x}	<4.2–8.8	....	$B1$
$CNb_{0.6-0.9}W_{0.4-0.1}$	12.5–11.6	....	$B1$
$CNb_{0.1-0.9}Zr_{0.9-0.1}$	4.2–8.4	....	$B1$
CRb_x (gold)	0.023–0.151	....	Hexagonal
$CRe_{0.01-0.08}W$	1.3–5.0		
$CRe_{0.06}W$	5.0		
CTa	~11 (extrapolated)		
$C_{0.987}Ta$	9.7		
$C_{0.848-0.987}Ta$	2.04–9.7		
CTa (film)	5.09	....	$B1$
CTa_2	3.26	....	L_3'
$CTa_{0.4}Ti_{0.6}$	4.8	....	$B1$
$CTa_{1-0.4}W_{0-0.6}$	8.5–10.5	....	$B1$
$CTa_{0.2-0.9}Zr_{0.8-0.1}$	4.6–8.3	....	$B1$
CTc (excess C)	3.85	....	Cubic
$CTi_{0.5-0.7}W_{0.5-0.3}$	6.7–2.1	....	$B1$
CW	1.0		
CW_2	2.74	....	L_3'
CW_2	5.2	....	Cubic, f.c.
$CaIr_2$	6.15	....	$C15$
$Ca_xO_3Sr_{1-x}Ti$ ($n = 3.7 - 11.0 \times 10^{19}$)	<0.1–0.55		
$Ca_{0.1}O_3W$	1.4–3.4	....	Hexagonal
CaPb	7.0		
$CaRh_2$	6.40	....	$C15$
$Cd_{0.3-0.5}Hg_{0.7-0.5}$	1.70 1.92		
CdHg	1.77, 2.15	....	Tetragonal
$Cd_{0.0075-0.05}In_{1-x}$	3.24–3.36	....	Tetragonal
$Cd_{0.97}Pb_{0.03}$	4.2		
CdSn	3.65	>266	
$Cd_{0.17}Tl_{0.83}$	2.3		
$Cd_{0.18}Tl_{0.82}$	2.54		
$CeCo_2$	0.84	....	$C15$
$CeCo_{1.67}Ni_{0.33}$	0.46	....	$C15$
$CeCo_{1.67}Rh_{0.33}$	0.47	....	$C15$
$Ce_xGd_{1-x}Ru_2$	3.2–5.2	....	$C15$
$CeIr_3$	3.34		
$CeIr_5$	1.82		
$Ce_{0.005}La_{0.995}$	4.6		
Ce_xLa_{1-x}	1.3–6.3		
$Ce_xPr_{1-x}Ru_2$	1.4–5.3	....	$C15$
Ce_xPt_{1-x}	0.7–1.55		
$CeRu_2$	6.0	....	$C15$
$Co_xFe_{1-x}Si_2$	1.4 max.	....	$C1$

TABLE 9g-2. SELECTED SUPERCONDUCTIVE COMPOUNDS AND ALLOYS WITH CRITICAL TEMPERATURES, CRITICAL FIELDS, AND CRYSTAL STRUCTURE TYPE* (*Continued*)

Substance	T_c, K	H_0, oersteds	Crystal structure type†
$CoHf_2$	0.56	...	$E9_3$
$CoLa_3$	4.28		
$CoLu_3$	~0.35		
$Co_{0-0.01}Mo_{0.8}Re_{0.2}$	2–10		
$Co_{0.02-0.10}Nb_3Rh_{0.98-0.90}$	2.28–1.90	...	$A15$
$Co_xNi_{1-x}Si_2$	1.4 max.		$C1$
$Co_{0.5}Rh_{0.5}Si_2$	2.5		
$Co_xRh_{1-x}Si_2$	3.65 max.		
$Co_{\sim 0.3}Sc_{\sim 0.7}$	~0.35		
$CoSi_2$	1.40, 1.22	105	$C1$
Co_3Th_7	1.83	...	$D10_2$
Co_xTi_{1-x}	2.8 max.	...	Co in α-Ti
Co_xTi_{1-x}	3.8 max.	...	Co in β-Ti
$CoTi_2$	3.44	...	$E9_3$
$CoTi$	0.71	...	$A2$
CoU	1.7	...	$B2$, distorted
CoU_6	2.29	...	$D2_c$
$Co_{0.28}Y_{0.72}$	0.34		
CoY_3	<0.34		
$CoZr_2$	6.3	...	$C16$
$Co_{0.1}Zr_{0.9}$	3.9	...	$A3$
$Cr_{0.6}Ir_{0.4}$	0.4	...	Hexagonal, c.p.
$Cr_{0.65}Ir_{0.35}$	0.59	...	Hexagonal, c.p.
$Cr_{0.7}Ir_{0.3}$	0.76	...	Hexagonal, c.p.
$Cr_{0.72}Ir_{0.28}$	0.83		
Cr_3Ir	0.45	...	$A15$
$Cr_{0-0.1}NB_{1-0.9}$	4.6–9.2	...	$A2$
$Cr_{0.80}Os_{0.20}$	2.5	...	Cubic
Cr_xRe_{1-x}	1.2–5.2		
$Cr_{0.40}Re_{0.60}$	2.15	...	$D8_b$
$Cr_{0.8-0.6}Rh_{0.2-0.4}$	0.5–1.10	...	$A3$
Cr_3Ru (annealed)	3.3	...	$A15$
Cr_2Ru	2.02	...	$D8_b$
$Cr_{0.1-0.5}Ru_{0.9-0.5}$	0.34–1.65	...	$A3$
Cr_xTi_{1-x}	3.6 max.	...	Cr in α-Ti
Cr_xTi_{1-x}	4.2 max.	...	Cr in β-Ti
$Cr_{0.1}Ti_{0.3}V_{0.6}$	5.6	1360	
$Cr_{0.0175}U_{0.9825}$	0.75	...	β phase
$Cs_{0.32}O_3W$	1.12	...	Hexagonal
$Cu_{0.15}In_{0.85}$ (film)	3.75		
$Cu_{0.04-0.08}In_{1-x}$	4.4		
$CuLa$	5.85		
Cu_xPb_{1-x}	5.7–7.7		
CuS	1.62	...	$B18$
CuS_2	1.48–1.53	...	$C18$
$CuSSe$	1.5–2.0	...	$C18$
$CuSe_2$	2.3–2.43	...	$C18$
$CuSeTe$	1.6–2.0	...	$C18$
Cu_xSn_{1-x}	3.2–3.7		
Cu_xSn_{1-x} (film) (made at 10K)	3.6–7		
Cu_xSn_{1-x} (film) (made at 300K)	2.8–3.7		
$CuTe_2$	<1.25–1.3	...	$C18$
$CuTh_2$	3.49	...	$C16$
$Cu_{0-0.027}V$	3.9–5.3	...	$A2$
Cu_xZn_{1-x}	0.5–0.845		
$D_{0.12}Nb$	9.12		

TABLE 9g-2. SELECTED SUPERCONDUCTIVE COMPOUNDS AND ALLOYS WITH CRITICAL TEMPERATURES, CRITICAL FIELDS, AND CRYSTAL STRUCTURE TYPE* (*Continued*)

Substance	T_c, K	H_0, oersteds	Crystal structure type†
Er_xLa_{1-x}	1.4–6.3		
$Fe_{0-0.04}Mo_{0.8}Re_{0.2}$	1–10		
$Fe_{0.05}Ni_{0.05}Zr_{0.90}$	~3.9		
Fe_3Th_7	1.86	....	*D*10
Fe_xTi_{1-x}	3.2 max.	....	Fe in α-Ti
Fe_xTi_{1-x}	3.7 max.	....	Fe in β-Ti
$Fe_xTi_{0.6}V_{1-x}$	6.8 max.		
FeU_6	3.86	....	$D2_c$
$Fe_{0.1}Zr_{0.9}$	1.0	....	*A*3
$Ga_{0.5}Ge_{0.5}Nb_3$	7.3	....	*A*15
$GaLa_3$	5.84		
Ga_2Mo	9.5		
$GaMo_3$	0.76	....	*A*15
Ga_4Mo	9.8		
GaN (black)	5.85	....	*B*4
$GaNb_3$	14.5	....	*A*15
$Ga_xNb_3Sn_{1-x}$	14–18.37	....	*A*15
$Ga_{0.7}Pt_{0.3}$	2.9	....	*C*1
GaPt	1.74	....	*B*20
GaSb (120 kb, 77K, annealed)	4.24	....	*A*5
$Ga_{0-1}Sn_{1-0}$ (quenched)	3.47–4.18		
$Ga_{0-1}Sn_{1-0}$ (annealed)	2.6–3.85		
Ga_5V_2	3.55	....	Tetragonal, Mn_2Hg_5 type
GaV_3	16.8	....	*A*15
$GaV_{2.1-3.5}$	6.3–14.45	....	*A*15
$GaV_{4.5}$	9.15		
Ga_3Zr	1.38		
Gd_xLa_{1-x}	<1.0–5.5		
$Gd_xOs_2Y_{1-x}$	1.4–4.7		
$Gd_xRu_2Th_{1-x}$	3.6 max.	....	*C*15
GeIr	4.7	....	*B*31
Ge_2La	1.49, 2.2	....	Orthorhombic, distorted $ThSi_2$ type
$GeMo_3$	1.43	....	*A*15
$GeNb_2$	1.9		
$GeNb_3$ (quenched)	6–17	....	*A*15
$Ge_{0.29}Nb_{0.71}$	6	....	*A*15
$Ge_xNb_3Sn_{1-x}$	17.6–18.0	....	*A*15
$Ge_{0.5}Nb_3Sn_{0.5}$	11.3		
GePt	0.40	....	*B*31
Ge_3Rh_5	2.12	....	Orthorhombic related to $InNi_3$
Ge_2Sc	1.3		
Ge_3Te_4 ($n = 1.06 \times 10^{22}$)	1.55–1.80	....	Rhombohedral
Ge_xTe_{1-x} ($n = 8.5-64 \times 10^{20}$)	0.07–0.41	....	*B*1
GeV_3	6.01	....	*A*15
Ge_2Y	3.80	....	C_c
$Ge_{1.62}Y$	2.4		
$H_{0.33}Nb_{0.67}$	7.28	....	Cubic, b.c.
$H_{0.1}Nb_{0.9}$	7.38	....	Cubic, b.c.
$H_{0.05}Nb_{0.95}$	7.83	....	Cubic, b.c.
$H_{0.12}Ta_{0.88}$	2.81	....	Cubic, b.c.
$H_{0.08}Ta_{0.92}$	3.26	....	Cubic, b.c.
$H_{0.04}Ta_{0.96}$	3.62	....	Cubic, b.c.

TABLE 9g-2. SELECTED SUPERCONDUCTIVE COMPOUNDS AND ALLOYS WITH CRITICAL TEMPERATURES, CRITICAL FIELDS, AND CRYSTAL STRUCTURE TYPE* (*Continued*)

Substance	T_c, K	H_0, oersteds	Crystal structure type†
$HfN_{0.989}$	6.6	....	*B*1
$Hf_{0-0.5}Nb_{1-0.5}$	8.3–9.5	....	*A*2
$Hf_{0.75}Nb_{0.25}$	>4.2		
$HfOs_2$	2.69	....	*C*14
$HfRe_2$	4.80	....	*C*14
$Hf_{0.14}Re_{0.86}$	5.86	....	*A*12
$Hf_{0.99-0.96}Rh_{0.01-0.04}$	0.85–1.51		
$Hf_{0-0.55}Ta_{1-0.45}$	4.4–6.5	....	*A*2
HfV_2	8.9–9.6	....	*C*15
Hg_xIn_{1-x}	3.14–4.55		
HgIn	3.81		
Hg_2K	1.20	....	Orthorhombic
Hg_3K	3.18		
Hg_4K	3.27		
Hg_8K	3.42		
Hg_3Li	1.7	....	Hexagonal
Hg_2Na	1.62	....	Hexagonal
Hg_4Na	3.05		
Hg_xPb_{1-x}	4.14–7.26		
HgSn	4.2		
Hg_xTl_{1-x}	2.30–4.109		
Hg_5Tl_2	3.86		
Ho_xLa_{1-x}	1.3–6.3		
$InLa_3$	9.83, 10.4	....	*L*1_2
$InLa_3$ (0–35 kb)	9.75–10.55		
$In_{1-0.86}Mg_{0-0.14}$	3.395–3.363	272.4–259.2	
$InNb_3$ (high pressure and temperature)	4–8, 9.2	....	*A*15
$In_{0-0.3}Nb_3Sn_{1-0.7}$	18.0–18.19	....	*A*15
$In_{0.5}Nb_3Zr_{0.5}$	6.4		
$In_{0.11}O_3W$	<1.25–2.8	....	Hexagonal
$In_{0.95-0.85}Pb_{0.05-0.15}$	3.6–5.05		
$In_{0.98-0.91}Pb_{0.02-0.09}$	3.45–4.2		
InPb	6.65		
InPd	0.7	....	*B*2
InSb (quenched from 170 kb into liquid N_2)	4.8	....	Like *A*5
$(InSb)_{0.95-0.10}Sn_{0.05-0.90}$ (various heat treatments)	3.8–5.1		
$(InSb)_{0-0.07}Sn_{1-0.93}$	3.67–3.74		
In_3Sn	~5.5		
In_xSn_{1-x}	3.4–7.3		
$In_{0.82-1}Te$ (n = 0.83–1.71 × 10^{22})	1.02–3.45	....	*B*1
$In_{1.000}Te_{1.002}$	3.5–3.7	....	*B*1
In_3Te_4 (n = 0.47 × 10^{22})	1.15–1.25	....	Rhombohedral
In_xTl_{1-x}	2.7–3.374	252–284	
$In_{0.8}Tl_{0.2}$	3.223	252	
$In_{0.62}Tl_{0.38}$	2.760		
$In_{0.78-0.69}Tl_{0.22-0.31}$	3.18–3.32	....	Tetragonal
$In_{0.69-0.62}Tl_{0.31-0.38}$	2.98–3.3	....	Cubic, f.c.
Ir_2La	0.48	....	*C*15
Ir_3La	2.32	....	*D*10_2
Ir_3La_7	2.24	....	*D*10_2

TABLE 9g-2. SELECTED SUPERCONDUCTIVE COMPOUNDS AND ALLOYS WITH CRITICAL TEMPERATURES, CRITICAL FIELDS, AND CRYSTAL STRUCTURE TYPE* (*Continued*)

Substance	T_c, K	H_0, oersteds	Crystal structure type†
Ir_5La	2.13		
Ir_2Lu	2.47		*C*15
Ir_3Lu	2.89		*C*15
IrMo	<1.0		*A*3
$IrMo_3$	8.8		*A*15
$IrMo_3$	6.8		$D8_b$
$IrNb_3$	1.9		*A*15
$Ir_{0.4}Nb_{0.6}$	9.8		$D8_b$
$Ir_{0.37}Nb_{0.63}$	2.32		$D8_b$
IrNb	7.9		$D8_b$
$Ir_{0.02}Nb_3Rh_{0.98}$	2.43		*A*15
$Ir_{0.05}Nb_3Rh_{0.95}$	2.38		*A*15
$Ir_{0.287}O_{0.14}Ti_{0.573}$	5.5		$E9_3$
$Ir_{0.265}O_{0.035}Ti_{0.65}$	2.30		$E9_3$
Ir_xOs_{1-x}	0.3-0.98 (max.)-0.6		
IrOsY	2.6		*C*15
$Ir_{1.5}Os_{0.5}$	2.4		*C*14
Ir_2Sc	2.07		*C*15
$Ir_{2.5}Sc$	2.46		*C*15
$IrSn_2$	0.65-0.78		*C*1
Ir_2Sr	5.70		*C*15
$Ir_{0.5}Te_{0.5}$	~3		
$IrTe_3$	1.18		*C*2
IrTh	<0.37		B_f
Ir_2Th	6.50		*C*15
Ir_3Th	4.71		
Ir_3Th_7	1.52		$D10_2$
Ir_5Th	3.93		$D2_d$
$IrTi_3$	5.40		*A*15
IrV_2	1.39		*A*15
IrW_3	3.82		
$Ir_{0.28}W_{0.72}$	4.49		
Ir_2Y	2.18, 1.38		*C*15
$Ir_{0.69}Y_{0.31}$	1.98, 1.44		*C*15
$Ir_{0.70}Y_{0.30}$	2.16		*C*15
Ir_2Y	1.09		*C*15
Ir_2Y_3	1.61		
Ir_xY_{1-x}	0.3-3.7		
Ir_2Zr	4.10		*C*15
$Ir_{0.1}Zr_{0.9}$	5.5		*A*3
$K_{0.27-0.31}O_3W$	0.50		Hexagonal
$K_{0.40-0.57}O_3W$	1.5		Tetragonal
$La_{0.55}Lu_{0.45}$	2.2		Hexagonal, La type
$La_{0.8}Lu_{0.2}$	3.4		Hexagonal, La Type
$LaMg_2$	1.05		*C*15
LaN	1.35		
La_xNd_{1-x}	1.4-6.3		
$LaOs_2$	6.5		*C*15
$LaPt_2$	0.46		*C*15
$La_{0.28}Pt_{0.72}$	0.54		*C*15
$LaRh_3$	2.60		
$LaRh_5$	1.62		
La_7Rh_3	2.58		$D10_2$
$LaRu_2$	1.63		*C*15
La_3S_4	6.5		$D7_3$
La_3Se_4	8.6		$D7_3$
$LaSi_2$	2.3		C_c

TABLE 9g-2. SELECTED SUPERCONDUCTIVE COMPOUNDS AND ALLOYS WITH CRITICAL TEMPERATURES, CRITICAL FIELDS, AND CRYSTAL STRUCTURE TYPE* (*Continued*)

Substance	T_c, K	H_0, oersteds	Crystal structure type†
La_xY_{1-x}	1.7–5.4		
LaZn	1.04	....	*B*2
LiPb	7.2		
$LuOs_2$	3.49	....	*C*14
$Lu_{0.275}Rh_{0.725}$	1.27	....	*C*15
$LuRh_5$	0.49		
$LuRu_2$	0.86	....	*C*14
$Mg_{\sim 0.47}Tl_{\sim 0.53}$	2.75	220	*B*2
Mg_2Nb	5.6		
Mn_xTi_{1-x}	2.3 max	....	Mn in α-Ti
Mn_xTi_{1-x}	1.1–3.0	....	Mn in β-Ti
MnU_6	2.32	....	$D2_c$
MoN	12	....	Hexagonal
Mo_2N	5.0	....	Cubic, f.c.
Mo_xNb_{1-x}	0.016–9.2		
Mo_3Os	7.2	....	*A*15
$Mo_{0.62}Os_{0.38}$	5.65	....	$D8_b$
Mo_3P	5.31	....	DO_e
$Mo_{0.5}Pd_{0.5}$	3.52	....	*A*3
Mo_3Re	10.0		
Mo_xRe_{1-x}	1.2–12.2		
$MoRe_3$	9.25, 9.89	....	*A*12
$Mo_{0.42}Re_{0.58}$	6.35	....	$D8_b$
$Mo_{0.52}Re_{0.48}$	11.1		
$Mo_{0.57}Re_{0.43}$	14.0		
$Mo_{\sim 0.605}Re_{0.395}$	10.6		
MoRh	1.97	....	*A*3
Mo_xRh_{1-x}	1.5–8.2	....	Cubic, b.c.
MoRu	9.5–10.5	....	*A*3
$Mo_{0.61}Ru_{0.39}$	7.18	....	$D8_b$
$Mo_{0.2}Ru_{0.8}$	1.66	....	*A*3
Mo_3Sb_4	2.1		
Mo_3Si	1.30	....	*A*15
$MoSi_{0.7}$	1.34		
Mo_xSiV_{3-x}	4.54–16.0	....	*A*15
Mo_xTc_{1-x}	10.8–15.8		
$Mo_{0.16}Ti_{0.84}$	4.18, 4.25	<985	
$Mo_{0.913}Ti_{0.087}$	2.95		
$Mo_{0.04}Ti_{0.96}$	2.0	....	Cubic
$Mo_{0.025}Ti_{0.975}$	1.8		
Mo_xU_{1-x}	0.7–2.1		
Mo_xV_{1-x}	0–~5.3		
Mo_2Zr	4.27–4.75	....	C15
NNb (whiskers)	10–14.5		
NNb (diffusion wires)	16.10		
NNb (film)	6–9	....	*B*1
$N_{0.988}Nb$	14.9	....	*B*1
$N_{0.824-0.988}Nb$	14.4–15.3	....	*B*1
$N_{0.70-0.795}Nb$	11.3–12.9	....	Cubic and tetragonal
NNb_xO_y	13.5–17.0	....	*B*1
NNb_xO_y	6.0–11		
$N_{100-42\ w/o}Nb_{0-58\ w/o}Ti$	15–16.8		
$N_{100-75\ w/o}Nb_{0-25\ w/o}Zr$	12.5–16.35		
NNb_xZr_{1-x}	9.8–13.8	....	*B*1
$N_{0.93}Nb_{0.85}Zr_{0.15}$	13.8	....	*B*1
$N_xO_yTi_z$	2.9–5.6	....	Cubic
$N_xO_yV_z$	5.8–8.2	....	Cubic

TABLE 9g-2. SELECTED SUPERCONDUCTIVE COMPOUNDS AND ALLOYS WITH CRITICAL TEMPERATURES, CRITICAL FIELDS, AND CRYSTAL STRUCTURE TYPE* (*Continued*)

Substance	T_c, K	H_0, oersteds	Crystal structure type †
$N_{0.34}Re$	4–5	....	Cubic, f.c.
NTa	12–14 –(extrapolated)	....	*B*1
NTa (film)	4.84	....	*B*1
$N_{0.6-0.987}Ti$	<1.17–5.8	....	*B*1
$N_{0.82-0.99}V$	2.9–7.9	....	*B*1
NZr	9.8	....	*B*1
$N_{0.906-0.984}Zr$	3.0–9.5	....	*B*1
$Na_{0.28-0.35}O_3W$	0.56	....	Tetragonal
$Na_{0.28}Pb_{0.72}$	7.2		
NbO	1.25		
$NbOs_2$	2.52	....	*A*12
Nb_3Os	1.05	....	*A*15
$Nb_{0.6}Os_{0.4}$	1.89, 1.78	....	$D8_b$
$Nb_3Os_{0.02-0.10}Rh_{0.98-0.90}$	2.42–2.30	....	*A*15
$Nb_{0.6}Pd_{0.4}$	1.60	....	$D8_f$ plus cubic
$Nb_3Pd_{0.02-0.10}Rh_{0.98-0.90}$	2.49–2.55	....	*A*15
$Nb_{0.62}Pt_{0.38}$	4.21	....	$D8_b$
Nb_3Pt	10.9	....	*A*15
Nb_5Pt_3	3.73	....	$D8_b$
$Nb_3Pt_{0.02-0.98}Rh_{0.98-0.02}$	2.52–9.6	....	*A*15
$Nb_{0.38-0.18}Re_{0.62-0.82}$	2.43–9.70	....	*A*12
Nb_3Rh	2.64	....	*A*15
$Nb_{0.60}Rh_{0.40}$	4.21	....	$D8_b$ plus other
$Nb_3Rh_{0.98-0.90}Ru_{0.02-0.10}$	2.42–2.44	....	*A*15
Nb_xRu_{1-x}	1.2–4.8		
NbS_2	6.1–6.3	....	Hexagonal, $NbSe_2$ type
NbS_2	5.0–5.5	....	Hexagonal/three-layer type
$Nb_3Sb_{0-0.7}Sn_{1-0.3}$	6.8–18	....	*A*15
$NbSe_2$	5.15–5.62	....	Hexagonal, NbS_2 type
$Nb_{1-1.05}Se_2$	2.2–7.0	....	Hexagonal, NbS_2 type
Nb_3Si	1.5	....	$L1_2$
Nb_3SiSnV_3	4.0		
Nb_3Sn	18.05	....	*A*15
$Nb_{0.8}Sn_{0.2}$	18.18, 18.5	....	*A*15
Nb_xSn_{1-x} (film)	2.6–18.5		
$NbSn_2$	2.60	620	Orthorhombic
Nb_3Sn_2	16.6	....	Tetragonal
$NbSnTa_2$	10.8	....	*A*15
Nb_2SnTa	16.4	....	*A*15
$Nb_{2.5}SnTa_{0.5}$	17.6	....	*A*15
$Nb_{2.75}SnTa_{0.25}$	17.8	....	*A*15
$Nb_{3x}SnTa_{3(1-x)}$	6.0–18.0		
NbSnTaV	6.2	....	*A*15
$Nb_2SnTa_{0.5}V_{0.5}$	12.2	....	*A*15
$NbSnV_2$	5.5	....	*A*15
Nb_2SnV	9.8	....	*A*15
$Nb_{2.5}SnV_{0.5}$	14.2	....	*A*15
Nb_xTa_{1-x}	4.4–9.2	....	*A*2
$NbTc_3$	10.5	....	*A*12
Nb_xTi_{1-x}	0.6–9.8		
$Nb_{0.6}Ti_{0.4}$	9.8		
Nb_xU_{1-x}	1.95 max.		
$Nb_{0.88}V_{0.12}$	5.7	....	*A*2
$Nb_{0.75}Zr_{0.25}$	10.8		

TABLE 9g-2. SELECTED SUPERCONDUCTIVE COMPOUNDS AND ALLOYS WITH CRITICAL TEMPERATURES, CRITICAL FIELDS, AND CRYSTAL STRUCTURE TYPE* (*Continued*)

Substance	T_c, K	H_0, oersteds	Crystal structure type †
$Nb_{0.66}Zr_{0.33}$	10.8		
$Ni_{0.3}Th_{0.7}$	1.98	....	$D10_2$
$NiZr_2$	1.52		
$Ni_{0.1}Zr_{0.9}$	1.5	....	$A3$
$O_3Rb_{0.27-0.29}W$	1.98	....	Hexagonal
O_3SrTi ($n = 1.7–12.0 \times 10^{19}$)	0.12–0.37		
O_3SrTi ($n = 10^{18}–10^{21}$)	0.05–0.47		
O_3SrTi ($n = \sim 10^{20}$)	0.47		
OTi	0.58		
$O_3Sr_{0.08}W$	2–4	....	Hexagonal
$O_3Tl_{0.30}W$	2.0–2.14	....	Hexagonal
OV_3Zr_3	7.5	....	$E9_3$
OW_3 (film)	3.35, 1.1	....	$A15$
OsReY	2.0	....	$C14$
Os_2Sc	4.6	....	$C14$
OsTa	1.95	....	$A12$
Os_3Th_7	1.51	....	$D10_2$
Os_xW_{1-x}	0.9–4.1		
OsW_3	$\sim$3		
Os_2Y	4.7	....	$C14$
Os_2Zr	3.0	....	$C14$
Os_xZr_{1-x}	1.50–5.6		
PPb	7.8		
$PPd_{3.0-3.2}$	<0.35–0.7	....	$D0_{11}$
P_3Pd_7 (high temperature)	1.0	....	Rhombohedral
P_3Pd_7 (low temperature)	0.70	....	Complex
PRh	1.22		
PRh_2	1.3	....	$C1$
PW_3	2.26	....	$D0_e$
Pb_2Pd	2.95	....	$C16$
Pb_4Pt	2.80	....	Related to $C16$
Pb_2Rh	2.66	....	$C16$
PbSb	6.6		
PbTe (plus 0.1 w/o Pb)	5.19		
PbTe (plus 0.1 w/o Tl)	5.24–5.27		
$PbTl_{0.27}$	6.43	756	
$PbTl_{0.17}$	6.73	796	
$PbTl_{0.12}$	6.88	849	
$PbTl_{0.075}$	6.98	880	
$PbTl_{0.04}$	7.06	864	
$Pb_{1-0.26}Tl_{0-0.74}$	7.20–3.68		
$PbTl_2$	3.75–4.1		
Pb_3Zr_5	4.60	....	$D8_8$
$PbZr_3$	0.76	....	$A15$
$Pd_{0.9}Pt_{0.1}Te_2$	1.65	....	$C6$
$Pd_{0.05}Ru_{0.05}Zr_{0.9}$	$\sim$9		
$Pd_{2.2}S$ (quenched)	1.63	....	Cubic
$PdSb_2$	1.25	....	$C2$
PdSb	1.50	....	$B8_1$
PdSbSe	1.0	....	$C2$
PdSbTe	1.2	....	$C2$
Pd_4Se	0.42	....	Tetragonal
$Pd_{6-7}Se$	0.66	....	Like Pd_4Te
$Pd_{2.8}Se$	2.3		
Pd_xSe_{1-x}	2.5 max.		
PdSi	0.93	....	$B31$
PdSn	0.41	....	$B31$

TABLE 9g-2. SELECTED SUPERCONDUCTIVE COMPOUNDS AND ALLOYS WITH CRITICAL TEMPERATURES, CRITICAL FIELDS, AND CRYSTAL STRUCTURE TYPE* (*Continued*)

Substance	T_c, K	H_0, oersteds	Crystal structure type †
$PdSn_2$	3.34		
Pd_2Sn	0.41	....	$C37$
Pd_3Sn_2	0.47–0.64	....	$B8_2$
$PdTe$	2.3, 3.85	....	$B8_1$
$PdTe_{1.02-1.08}$	2.56–1.88	....	$B8_1$
$PdTe_2$	1.69	....	$C6$
$PdTe_{2.1}$	1.89	....	$C6$
$PdTe_{2.3}$	1.85	....	$C6$
$Pd_{1.1}Te$	4.07	....	$B8_1$
$PdTh_2$	0.85	....	$C16$
$Pd_{0.1}Zr_{0.9}$	7.5	....	$A3$
$PtSb$	2.1	....	$B8_1$
$PtSi$	0.88	....	$B31$
$PtSn$	0.37	....	$B8_1$
$PtTe$	0.59	....	Orthorhombic
$PtTh$	0.44	....	B_f
Pt_3Th_7	0.98	....	$D10_2$
Pt_5Th	3.13		
$PtTi_3$	0.58	....	$A15$
$Pt_{0.02}U_{0.98}$	0.87	....	β phase
$PtV_{2.5}$	1.36	....	$A15$
PtV_3	2.87–3.20	....	$A15$
$PtV_{3.5}$	1.26	....	$A15$
$Pt_{0.5}W_{0.5}$	1.45	....	$A1$
Pt_xW_{1-x}	0.4–2.7		
Pt_2Y_3	0.90		
Pt_2Y	1.57, 1.70	....	$C15$
Pt_3Y_7	0.82	....	$D10_2$
$PtZr$	3.0	....	$A3$
$Re_{0.64}Ta_{0.36}$	1.46	....	$A12$
$Re_{24}Ti_5$	6.60	....	$A12$
Re_xTi_{1-x}	6.6 max.		
$Re_{0.76}V_{0.24}$	4.52	....	$D8_b$
$Re_{0.92}V_{0.08}$	6.8	....	$A3$
$Re_{0.6}W_{0.4}$	6.0		
$Re_{0.5}W_{0.5}$	5.12	....	$D8_b$
Re_2Y	1.83	....	$C14$
Re_2Zr	5.9	....	$C14$
Re_6Zr	7.40	....	$A12$
$Rh_{17}S_{15}$	5.8	....	Cubic
$Rh_{\sim 0.24}Sc_{\sim 0.76}$	0.88, 0.92		
Rh_xSe_{1-x}	6.0 max.		
Rh_2Sr	6.2	....	$C15$
$Rh_{0.4}Ta_{0.6}$	2.35	....	$D8_b$
$RhTe_2$	1.51	....	$C2$
$Rh_{0.67}Te_{0.33}$	0.49		
Rh_xTe_{1-x}	1.51 max.		
$RhTh$	0.36	....	B_f
Rh_3Th_7	2.15	....	$D10_2$
Rh_5Th	1.07		
Rh_xTi_{1-x}	2.25–3.95		
$Rh_{0.02}U_{0.98}$	0.96		
RhV_3	0.38	....	$A15$
RhW	~3.4	....	$A3$
RhY_3	0.65		
Rh_2Y_3	1.48		
Rh_2Y	1.07	....	$C15$
Rh_5Y	0.56		
$RhZr_2$	10.8	....	$C16$
$Rh_{0.005}Zr$ (annealed)	5.8		

TABLE 9g-2. SELECTED SUPERCONDUCTIVE COMPOUNDS AND ALLOYS WITH CRITICAL TEMPERATURES, CRITICAL FIELDS, AND CRYSTAL STRUCTURE TYPE* (*Continued*)

Substance	T_c, K	H_0, oersteds	Crystal structure type †
$Rh_{0-0.45}Zr_{1-0.55}$	2.1–10.8		
$Rh_{0.1}Zr_{0.9}$	9.0	…	Hexagonal, c.p.
Ru_2Sc	1.67	…	$C14$
Ru_2Th	3.56	…	$C15$
RuTi	1.07	…	$B2$
$Ru_{0.05}Ti_{0.95}$	2.5		
$Ru_{0.1}Ti_{0.9}$	3.5		
$Ru_xTi_{0.6}V_y$	6.6 max.		
$Ru_{0.45}V_{0.55}$	4.0	…	$B2$
RuW	7.5	…	$A3$
Ru_2Y	1.52	…	$C14$
Ru_2Zr	1.84	…	$C14$
$Ru_{0.1}Zr_{0.9}$	5.7	…	$A3$
SbSn	1.30–1.42, 1.42–2.37	…	$B1$ or distorted $B1$
$SbTi_3$	5.8	…	$A15$
Sb_2Tl_7	5.2		
$Sb_{0.01-0.03}V_{0.99-0.97}$	3.76–2.63	…	$A2$
SbV_3	0.80	…	$A15$
Si_2Th	3.2	…	C_c, α phase
Si_2Th	2.4	…	$C32$, β phase
SiV_3	17.1	…	$A15$
$Si_{0.9}V_3Al_{0.1}$	14.05	…	$A15$
$Si_{0.9}V_3B_{0.1}$	15.8	…	$A15$
$Si_{0.9}V_3C_{0.1}$	16.4	…	$A15$
$SiV_{2.7}Cr_{0.3}$	11.3	…	$A15$
$Si_{0.9}V_3Ge_{0.1}$	14.0	…	$A15$
$SiV_{2.7}Mo_{0.3}$	11.7	…	$A15$
$SiV_{2.7}Nb_{0.3}$	12.8	…	$A15$
$SiV_{2.7}Ru_{0.3}$	2.9	…	$A15$
$SiV_{2.7}Ti_{0.3}$	10.9	…	$A15$
$SiV_{2.7}Zr_{0.3}$	13.2	…	$A15$
Si_2W_3	2.8, 2.84		
$Sn_{0.174-0.104}Ta_{0.826-0.896}$	6.5–<4.2	…	$A15$
$SnTa_3$	8.35	…	$A15$, highly ordered
$SnTa_3$	6.2	…	$A15$, partially ordered
$SnTaV_2$	2.8	…	$A15$
$SnTa_2V$	3.7	…	$A15$
Sn_xTe_{1-x} (n = 10.5–20 × 10^{20})	0.07–0.22	…	$B1$
Sn_xTl_{1-x}	2.37–5.2		
SnV_3	3.8	…	$A15$
$Sn_{0.02-0.057}V_{0.98-0.943}$	2.87–∼1.6	…	$A2$
$Ta_{0.025}Ti_{0.975}$	1.3	…	Hexagonal
$Ta_{0.05}Ti_{0.95}$	2.9	…	Hexagonal
$Ta_{0.05-0.75}V_{0.095-0.25}$	4.30–2.65	…	$A2$
$Ta_{0.8-1}W_{0.2-0}$	1.2–4.4	…	$A2$
$Tc_{0.1-0.4}W_{0.9-0.6}$	1.25–7.18	…	Cubic
$Tc_{0.50}W_{0.50}$	7.52	…	α plus σ
$Tc_{0.60}W_{0.40}$	7.88	…	σ plus α
Tc_6Zr	9.7	…	$A12$
$Th_{0-0.55}Y_{1-0.45}$	1.2–1.8		
$Ti_{0.70}V_{0.30}$	6.14	…	Cubic
Ti_xV_{1-x}	0.2–7.5		
$Ti_{0.5}Zr_{0.5}$ (annealed)	1.23		
$Ti_{0.5}Zr_{0.5}$ (quenched)	2.0		
V_2Zr	8.80	…	$C15$
$V_{0.26}Zr_{0.74}$	≈5.9		
W_2Zr	2.16	…	$C15$

Key to Crystal Structure Types Found in Table 9g-2

"Struck-turbericht" type*	Example	Class
$A1$	Cu	Cubic f.c.
$A2$	W	Cubic, b.c.
$A3$	Mg	Hexagonal, close packed
$A4$	Diamond	Cubic, f.c.
$A5$	White Sn	Tetragonal, b.c.
$A6$	In	Tetragonal, b.c. (f.c. cell usually used)
$A7$	As	Rhombohedral
$A8$	Se	Trigonal
$A10$	Hg	Rhombohedral
$A12$	α-Mn	Cubic, b.c.
$A13$	β-Mn	Cubic
$A15$	"β-W," (WO_3)	Cubic
$B1$	NaCl	Cubic, f.c.
$B2$	CsCl	Cubic
$B3$	ZnS	Cubic
$B4$	ZnS	Hexagonal
$B8_1$	NiAs	Hexagonal
$B8_2$	Ni_2In	Hexagonal
$B10$	PbO	Tetragonal
$B11$	γ-CuTi	Tetragonal
$B17$	PtS	Tetragonal
$B18$	CuS	Hexagonal
$B20$	FeSi	Cubic
$B27$	FeB	Orthorhombic
$B31$	MnP	Orthorhombic
$B32$	NaTl	Cubic, f.c.
$B34$	PdS	Tetragonal
B_f	δ-CrB	Orthorhombic
B_g	MoB	Tetragonal, b.c.
B_h	WC	Hexagonal
B_i	γ'-MoC	Hexagonal
$C1$	CaF_2	Cubic, f.c.
$C1_b$	MgAgAs	Cubic, f.c.
$C2$	FeS_2	Cubic
$C6$	CdI_2	Trigonal
$C11_b$	$MoSi_2$	Tetragonal, b.c.
$C12$	$CaSi_2$	Rhombohedral
$C14$	$MgZn_2$	Hexagonal
$C15$	Cu_2Mg	Cubic, f.c.
$C15_b$	$AuBe_5$	Cubic
$C16$	$CuAl_2$	Tetragonal, b.c.
$C18$	FeS_2	Orthorhombic
$C22$	Fe_2P	Trigonal
$C23$	$PbCl_2$	Orthorhombic
$C32$	AlB_2	Hexagonal
$C36$	$MgNi_2$	Hexagonal
$C37$	Co_2Si	Orthorhombic
$C49$	$ZrSi_2$	Orthorhombic
$C54$	$TiSi_2$	Orthorhombic
C_c	Si_2Th	Tetragonal, b.c.
$D0_3$	BiF_3	Cubic, f.c.
$D0_{11}$	Fe_3C	Orthorhombic
$D0_{18}$	Na_3As	Hexagonal
$D0_{19}$	Ni_3Sn	Hexagonal
$D0_{20}$	$NiAl_3$	Orthorhombic
$D0_{22}$	$TiAl_3$	Tetragonal
$D0_e$	Ni_2P	Tetragonal, b.c.
$D1_3$	Al_4Ba	Tetragonal, b.c.
$D1_c$	$PtSn_4$	Orthorhombic
$D2_1$	CaB_6	Cubic
$D2_c$	MnU_6	Tetragonal, b.c.
$D2_d$	$CaZn_5$	Hexagonal
$D5_2$	La_2O_3	Trigonal
$D5_8$	Sb_2S_3	Orthorhombic
$D7_3$	Th_3P_4	Cubic, b.c.
$D7_b$	Ta_3B_4	Orthorhombic
$D8_1$	Fe_3Zn_{10}	Cubic, b.c.
$D8_2$	Cu_5Zn_8	Cubic, b.c.
$D8_3$	Cu_9Al_4	Cubic
$D8_8$	Mn_5Si_3	Hexagonal
$D8_b$	CrFe	Tetragonal
$D8_i$	Mo_2B_5	Rhombohedral
$D10_2$	Fe_3Th_7	Hexagonal
$E2_1$	$CaTiO_3$	Cubic
$E9_3$	Fe_3W_3C	Cubic, f.c.
$L1_0$	CuAu	Tetragonal
$L1_2$	Cu_3Au	Cubic
L_{2b}'	ThH_2	Tetragonal, b.c.
$L3'$	Fe_2N	Hexagonal

* See W. B. Pearson, "A Handbook of Lattice Spacings and Structures of Metals," vol. 1, p. 79; vol. 2, p. 3; Pergamon Press, New York, 1958, 1967.

TABLE 9g-3. HIGH CRITICAL MAGNETIC FIELD SUPERCONDUCTIVE COMPOUNDS AND ALLOYS WITH CRITICAL TEMPERATURES, H_{c1}, H_{c2}, H_{c3}, AND THE TEMPERATURE OF FIELD OBSERVATIONS, T_{obs}

Substance	T_c, K	H_{c1}, kg	H_{c2}, kg	H_{c3}, kg	T_{obs}, K*
Al_2CMo_3	9.8–10.2	0.091	156		1.2
$AlNb_3$	...	0.375		...	
$Ba_xO_3Sr_{1-x}Ti$	<0.1–0.55	0.0039 max.			
$Bi_{0.5}Cd_{0.1}Pb_{0.27}Sn_{0.13}$	...	...	>24		3.06
Bi_xPb_{1-x}	7.35–8.4	0.122 max.	~30 max.	...	4.2
$Bi_{0.56}Pb_{0.44}$	8.8	...	15	...	4.2
$Bi_{7.5w/o}Pb_{92.5w/o}$	...	...	2.32	...	
$Bi_{0.099}Pb_{0.901}$	...	0.29	2.8		
$Bi_{0.02}Pb_{0.98}$	...	0.46	0.73		
$Bi_{0.52}Pb_{0.32}Sn_{0.16}$	...	...	>25		3.06
$Bi_{1-0.93}Sn_{0-0.07}$	...	...	0–0.032	...	3.7
Bi_5Tl_3	6.4	...	>5.56	...	3.35
C_8K (excess K)	0.55	...	0.160 ($H \perp c$)	...	0.32
C_8K	0.39	...	0.730 ($H \parallel c$)	...	0.32
			0.025 ($H \perp c$)	...	0.32
			0.250 ($H \parallel c$)	...	0.32
$C_{0.44}Mo_{0.56}$	12.5–13.5	0.087	98.5	...	1.2
CNb	8–10	0.12	16.9	...	4.2
$CNb_{0.4}Ta_{0.6}$	10–13.6	0.19	14.1	...	1.2
CTa	9–11.4	0.22	4.6	...	1.2
$Ca_xO_3Sr_{1-x}Ti$	<0.1–0.55	0.002–0.004		...	
$Cd_{0.1}Hg_{0.9}$ (by weight)	...	0.23	0.34		2.04
$Cd_{0.05}Hg_{0.95}$	...	0.28	0.31	...	2.16
$Cr_{0.10}Ti_{0.30}V_{0.60}$	5.6	0.071	84.4	...	0
GaN	5.85	0.725	...	...	4.2
Ga_xNb_{1-x}	...	...	>28	...	4.2
GaSb (annealed)	4.24	...	2.64	...	3.5
$GaV_{1.95}$	5.3	...	73§	...	
$GaV_{2.1-3.5}$	6.3–14.45	...	230–300‡		0
GaV_3	...	0.4	350§	...	0
			500‡	...	
$GaV_{4.5}$	9.15	...	121†		0
Hf_xNb_y	...	...	>52–>102	...	1.2
Hf_xTa_y	...	...	>28–>86	...	1.2
$Hg_{0.05}Pb_{0.95}$	...	0.235	2.3	...	
$Hg_{0.101}Pb_{0.899}$	...	0.23	4.3		4.2
$Hg_{0.15}Pb_{0.85}$	~6.75	...	>13	...	2.93
$In_{0.98}Pb_{0.02}$	3.45	0.1	...	0.12	2.76
$In_{0.96}Pb_{0.04}$	3.68	0.1	0.12	0.25	2.94
$In_{0.94}Pb_{0.06}$	3.90	0.095	0.18	0.35	3.12
$In_{0.913}Pb_{0.087}$	4.2	~0.17	0.55	2.65	
$In_{0.316}Pb_{0.684}$	...	0.155	3.7	...	4.2
$In_{0.17}Pb_{0.83}$	...	...	2.8	5.5	4.2
$In_{1.000}Te_{1.002}$	3.5–3.7	...	1.2†	...	0
$In_{0.95}Tl_{0.05}$	...	0.263	0.263	...	3.3
$In_{0.90}Tl_{0.10}$	...	0.257	0.257	...	3.25
$In_{0.83}Tl_{0.17}$	...	0.242	0.39	...	3.21
$In_{0.75}Tl_{0.25}$	...	0.216	0.50	...	3.16
LaN	1.35	0.45	...	...	0.76
La_3S_4	6.5	≈0.15	>25	...	1.3
La_3Se_4	8.6	≈0.2	>25	...	1.25
$Mo_{0.52}Re_{0.48}$	11.1	...	14–21	22–33	4.2
			18–28	37–43	1.3
$Mo_{0.6\pm0.05}Re_{0.395}$	10.6	...	14–20	20–37	4.2
			19–26	26–37	1.3
$Mo_{\sim0.5}Tc_{\sim0.5}$	...	...	~75†	...	0
$Mo_{0.16}Ti_{0.84}$	4.18	0.028	98.7†	...	0
			36–38	...	3.0
$Mo_{0.913}Ti_{0.087}$	2.95	0.060	~15	...	4.2
$Mo_{0.1-0.3}U_{0.9-0.7}$	1.85–2.06	...	>25	...	
$Mo_{0.17}Zr_{0.83}$	...	...	~30		
$N_{(12.8w/o)}Nb$	15.2	...	>9.5		13.2
NNb (wires)	16.1	...	153†	...	0
			132	...	4.2
			95	...	8
			53	...	12
NNb_xO_{1-x}	13.5–17.0	...	~38	...	
NNb_xZr_{1-x}	9.8–13.8	...	4–>130		4.2
$N_{0.93}Nb_{0.85}Zr_{0.15}$	13.8	...	>130	...	4.2
$Na_{0.086}Pb_{0.914}$	...	0.19	6.0	...	
$Na_{0.016}Pb_{0.984}$	...	0.28	2.05		
Nb	9.15	...	2.020		1.4
			1.710	...	4.2
Nb	...	0.4–1.1	3–5.5	...	4.2
Nb (unstrained)	...	1.1–1.8	3.40	6–9.1	4.2
Nb (strained)	...	1.25–1.92	3.44	6.0–8.7	4.2
Nb (cold-drawn wire)	...	2.48	4.10	≈10	4.2
Nb (film)	...	...	>25	...	4.2
NbSc	...	...	>30	...	

TABLE 9g-3. HIGH CRITICAL MAGNETIC FIELD SUPERCONDUCTIVE COMPOUNDS AND ALLOYS WITH CRITICAL TEMPERATURES, H_{c1}, H_{c2}, H_{c3}, AND THE TEMPERATURE OF FIELD OBSERVATIONS, T_{obs} (*Continued*)

Substance	T_c, K	H_{c1}, kg	H_{c2}, kg	H_{c3}, kg	T_{obs}, K*
Nb_3Sn	......	0.170	221	......	4.2
			70	......	14.15
			54	......	15
			34	......	16
			17	......	17
$Nb_{0.1}Ta_{0.9}$	......	0.084	0.154	......	4.195
$Nb_{0.2}Ta_{0.8}$	......	......	10	......	4.2
$Nb_{0.65-0.75}Ta_{0.02-0.10}Zr_{0.25}$	......	......	>70->90	......	4.2
Nb_xTi_{1-x}	......	......	148 max.	......	1.2
			120 max.	......	4.2
$Nb_{0.222}U_{0.778}$	......	1.98	23	......	1.2
Nb_xZr_{1-x}	......	......	127 max.	......	1.2
			94 max.	......	4.2
O_3SrTi	0.43	0.0049†	0.504†	......	0
O_3SrTi	0.33	0.00195†	0.420†	......	0
$PbSb_{1 w/o}$ (quenched)	......	......	>1.5	......	4.2
$PbSb_{1 w/o}$ (annealed)	......	......	>0.7	......	4.2
$PbSb_{2.8 w/o}$ (quenched)	......	......	>2.3	......	4.2
$PbSb_{2.8 w/o}$ (annealed)	......	......	>0.7	......	4.2
$Pb_{0.871}Sn_{0.129}$	......	0.45	1.1		
$Pb_{0.965}Sn_{0.035}$	......	0.53	0.56		
$Pb_{1-0.26}Tl_{0-0.74}$	7.20-3.68	......	2-6.9†	......	0
$PbTl_{0.17}$	6.73	......	4.5†	......	0
$Re_{0.26}W_{0.74}$	......	......	>30		
$Sb_{0.93}Sn_{0.07}$	......	......	0.12	......	3.7
SiV_3	17.0	0.55	156§		
Sn_xTe_{1-x}	......	0.00043-0.00236	0.005-0.0775	......	0.012-0.079
Ta (99.95 %)	......	0.425	1.850	......	1.3
		0.325	1.425	......	2.27
		0.275	1.175	......	2.66
		0.090	0.375	......	3.72
$Ta_{0.5}Nb_{0.5}$	......	......	3.55	......	4.2
$Ta_{0.65-0}Ti_{0.35-1}$	4.4-7.8	......	>14-138	......	1.2
$Ta_{0.5}Ti_{0.5}$	......	......	138	......	1.2
Te	~3.3	0.25†	......	......	0
Tc_xW_{1-x}	5.75-7.88	......	8-44	......	4.2
Ti	......	......	......	2.7	4.2
$Ti_{0.75}V_{0.25}$	5.3	0.029†	199†	......	0
$Ti_{0.775}V_{0.225}$	4.7	0.024†	172†	......	0
$Ti_{0.615}V_{0.385}$	7.07	0.050	~34	......	4.2
$Ti_{0.516}V_{0.484}$	7.20	0.062	~28	......	4.2
$Ti_{0.415}V_{0.585}$	7.49	0.078	~25	......	4.2
$Ti_{0.12}V_{0.88}$	......	......	17.3	28.1	4.2
$Ti_{0.09}V_{0.91}$	......	......	14.3	16.4	4.2
$Ti_{0.06}V_{0.94}$	......	......	8.2	12.7	4.2
$Ti_{0.03}V_{0.97}$	......	......	3.8	6.8	4.2
Ti_xV_{1-x}	......	......	108 max.	......	1.2
V	5.31	~0.8	~3.4	......	1.79
		~0.75	~3.15	......	2
		~0.45	~2.2	......	3
		~0.30	~1.2	......	4
$V_{0.26}Zr_{0.74}$	≈5.9	0.238	......	......	1.05
		0.227	......	......	1.78
		0.185	......	......	3.04
		0.165	......	......	3.5
W (film)	1.7-4.1	......	>34	......	1

* Temperature of critical field measurement.
† Extrapolated.
‡ Linear extrapolation.
§ Parabolic extrapolation.