

LIBRARY

**STANDARD
SAE J404g**

APPROVED AS ANSI G88.2-1973
BY AMERICAN NATIONAL
STANDARDS INSTITUTE

CHEMICAL COMPOSITIONS
OF SAE ALLOY STEELS

SPONSORED BY
SOCIETY OF AUTOMOTIVE ENGINEERS, INC.

PUBLISHED BY
SOCIETY OF AUTOMOTIVE ENGINEERS, INC., TWO PENNSYLVANIA PLAZA, N.Y., N.Y. 10001

SAENORM.COM : Click to view the full PDF of: J404g_197004

SAENORM.COM : Click to view the full PDF of j404g_197004

Approved by AMERICAN NATIONAL STANDARDS INSTITUTE December 18, 1973

An American National Standard implies a consensus of those substantially concerned with its scope and provisions. An American National Standard is intended as a guide to aid the manufacturer, the consumer, and the general public. The existence of an American National Standard does not in any respect preclude anyone, whether he has approved the standard or not, from manufacturing, marketing, purchasing, or using products, processes, or procedures not conforming to the standard. American National Standards are subject to

periodic review and users are cautioned to obtain the latest editions.

CAUTION NOTICE: This American National Standard may be revised or withdrawn at any time. The procedures of the American National Standards Institute require that action be taken to reaffirm, revise, or withdraw this standard no later than five years from the date of publication. Purchasers of American National Standards may receive current information on all standards by calling or writing the American National Standards Institute.

SAE Technical Board Rules and Regulations

All technical reports, including standards approved and practices recommended, are advisory only. Their use by anyone engaged in industry or trade is entirely voluntary. There is no agreement to adhere to any SAE Standard or SAE Recommended Practice, and no commitment to conform to or be guided by any technical report.

In formulating and approving technical reports, the Technical Board, its Councils and Committees will not investigate or consider patents which may apply to the subject matter. Prospective users of the report are responsible for protecting themselves against liability for infringement of patents.

CHEMICAL COMPOSITIONS OF SAE ALLOY STEELS

CHEMICAL COMPOSITIONS OF SAE ALLOY STEELS — SAE J404g

SAE Standard

Report of Iron and Steel Division approved June 1911 and last revised by Iron and Steel Technical Committee April 1970.

In 1941, the SAE Iron and Steel Division in collaboration with the American Iron and Steel Institute made a major change in the method of expressing composition ranges for the SAE steels. The plan, as now applied, is based in general on narrower ladle analysis ranges plus certain

TABLE 1A—ALLOY STEEL COMPOSITIONS^a

SAE No.	Ladle Chemical Composition Limits, %									Corresponding AISI No.
	C	Mn	P	S	Si	Ni	Cr	Mo	V	
1330	0.28-0.33	1.60-1.90	0.035	0.040	0.20-0.35	—	—	—	—	1330
1335	0.33-0.38	1.60-1.90	0.035	0.040	0.20-0.35	—	—	—	—	1335
1340	0.38-0.43	1.60-1.90	0.035	0.040	0.20-0.35	—	—	—	—	1340
1345	0.43-0.48	1.60-1.90	0.035	0.040	0.20-0.35	—	—	—	—	1345
4012	0.09-0.14	0.75-1.00	0.035	0.040	0.20-0.35	—	—	0.15-0.25	—	4012
4023	0.20-0.25	0.70-0.90	0.035	0.040	0.20-0.35	—	—	0.20-0.30	—	4023
4024	0.20-0.25	0.70-0.90	0.035	0.035-0.050	0.20-0.35	—	—	0.20-0.30	—	4024
4027	0.25-0.30	0.70-0.90	0.035	0.040	0.20-0.35	—	—	0.20-0.30	—	4027
4028	0.25-0.30	0.70-0.90	0.035	0.035-0.050	0.20-0.35	—	—	0.20-0.30	—	4028
4032	0.30-0.35	0.70-0.90	0.035	0.040	0.20-0.35	—	—	0.20-0.30	—	—
4037	0.35-0.40	0.70-0.90	0.035	0.040	0.20-0.35	—	—	0.20-0.30	—	4037
4042	0.40-0.45	0.70-0.90	0.035	0.040	0.20-0.35	—	—	0.20-0.30	—	—
4047	0.45-0.50	0.70-0.90	0.035	0.040	0.20-0.35	—	—	0.20-0.30	—	4047
4118	0.18-0.23	0.70-0.90	0.035	0.040	0.20-0.35	—	0.40-0.60	0.08-0.15	—	4118
4130	0.28-0.33	0.40-0.60	0.035	0.040	0.20-0.35	—	0.80-1.10	0.15-0.25	—	4130
4135	0.33-0.38	0.70-0.90	0.035	0.040	0.20-0.35	—	0.30-1.10	0.15-0.25	—	—
4137	0.35-0.40	0.70-0.90	0.035	0.040	0.20-0.35	—	0.80-1.10	0.15-0.25	—	4137
4140	0.38-0.43	0.75-1.00	0.035	0.040	0.20-0.35	—	0.80-1.10	0.15-0.25	—	4140
4142	0.40-0.45	0.75-1.00	0.035	0.040	0.20-0.35	—	0.80-1.10	0.15-0.25	—	4142
4145	0.43-0.48	0.75-1.00	0.035	0.040	0.20-0.35	—	0.80-1.10	0.15-0.25	—	4145
4147	0.45-0.50	0.75-1.00	0.035	0.040	0.20-0.35	—	0.80-1.10	0.15-0.25	—	4147
4150	0.48-0.53	0.75-1.00	0.035	0.040	0.20-0.35	—	0.80-1.10	0.15-0.25	—	4150
4161	0.56-0.64	0.75-1.00	0.035	0.040	0.20-0.35	—	0.70-0.90	0.25-0.35	—	4161
4320	0.17-0.22	0.45-0.65	0.035	0.040	0.20-0.35	1.65-2.00	0.40-0.60	0.20-0.30	—	4320
4340	0.38-0.43	0.60-0.80	0.035	0.040	0.20-0.35	1.65-2.00	0.70-0.90	0.20-0.30	—	4340
E4340 ^b	0.38-0.43	0.65-0.85	0.025	0.025	0.20-0.35	1.65-2.00	0.70-0.90	0.20-0.30	—	E4340
4419	0.18-0.23	0.45-0.65	0.035	0.040	0.20-0.35	—	—	0.45-0.60	—	4520
4422	0.20-0.25	0.70-0.90	0.035	0.040	0.20-0.35	—	—	0.35-0.45	—	—
4427	0.24-0.29	0.70-0.90	0.035	0.040	0.20-0.35	—	—	0.35-0.45	—	—
4615	0.13-0.18	0.45-0.65	0.035	0.040	0.20-0.35	1.65-2.00	—	0.20-0.30	—	4615
4617	0.15-0.20	0.45-0.65	0.035	0.040	0.20-0.35	1.65-2.00	—	0.20-0.30	—	—
4620	0.17-0.22	0.45-0.65	0.035	0.040	0.20-0.35	1.65-2.00	—	0.20-0.30	—	4620
4621	0.18-0.23	0.70-0.90	0.035	0.040	0.20-0.35	1.65-2.00	—	0.20-0.30	—	4621
4626	0.24-0.29	0.45-0.65	0.035	0.04 max	0.20-0.35	0.70-1.00	—	0.15-0.25	—	—
4718	0.16-0.21	0.70-0.90	—	—	—	0.90-1.20	0.35-0.55	0.30-0.40	—	4718
4720	0.17-0.22	0.50-0.70	0.035	0.040	0.20-0.35	0.90-1.20	0.35-0.55	0.15-0.25	—	4720
4815	0.13-0.18	0.40-0.60	0.035	0.040	0.20-0.35	3.25-3.75	—	0.20-0.30	—	4815
4817	0.15-0.20	0.40-0.60	0.035	0.040	0.20-0.35	3.25-3.75	—	0.20-0.30	—	4817
4820	0.18-0.23	0.50-0.70	0.035	0.040	0.20-0.35	3.25-3.75	—	0.20-0.30	—	4820
5015	0.12-0.17	0.30-0.50	0.035	0.040	0.20-0.35	—	0.30-0.50	—	—	5015
50B40	0.38-0.43	0.75-1.00	0.035	0.040	0.20-0.35	—	0.40-0.60	—	—	—
50B44	0.43-0.48	0.75-1.00	0.035	0.040	0.20-0.35	—	0.40-0.60	—	—	50B44
5046	0.43-0.48	0.75-1.00	0.025	0.040	0.20-0.35	—	0.20-0.35	—	—	—
50B46 ^c	0.44-0.49	0.75-1.00	0.035	0.040	0.20-0.35	—	0.20-0.35	—	—	50B46
50B50 ^c	0.48-0.53	0.75-1.00	0.035	0.040	0.20-0.35	—	0.40-0.60	—	—	50B50
5060	0.56-0.64	0.75-1.00	0.035	0.040	0.20-0.35	—	0.40-0.60	—	—	—
50B60 ^c	0.56-0.64	0.75-1.00	0.035	0.040	0.20-0.35	—	0.40-0.60	—	—	50B60
5115	0.13-0.18	0.70-0.90	0.035	0.040	0.20-0.35	—	0.70-0.90	—	—	—
5120	0.17-0.22	0.70-0.90	0.035	0.040	0.20-0.35	—	0.70-0.90	—	—	5120
5130	0.28-0.33	0.70-0.90	0.035	0.040	0.20-0.35	—	0.80-1.10	—	—	5130
5132	0.30-0.35	0.60-0.80	0.035	0.040	0.20-0.35	—	0.75-1.00	—	—	5132
5135	0.33-0.38	0.60-0.80	0.035	0.040	0.20-0.35	—	0.80-1.05	—	—	5135
5140	0.38-0.43	0.70-0.90	0.035	0.040	0.20-0.35	—	0.70-0.90	—	—	5140
5145	0.43-0.48	0.70-0.90	0.035	0.040	0.20-0.35	—	0.70-0.90	—	—	5145
5147	0.46-0.51	0.70-0.95	0.035	0.040	0.20-0.35	—	0.85-1.15	—	—	5147
5150	0.48-0.53	0.70-0.90	0.035	0.040	0.20-0.35	—	0.70-0.90	—	—	5150
5155	0.51-0.59	0.70-0.90	0.035	0.040	0.20-0.35	—	0.70-0.90	—	—	5155
5160	0.56-0.64	0.75-1.00	0.035	0.040	0.20-0.35	—	0.70-0.90	—	—	5160
51B60 ^c	0.56-0.64	0.75-1.00	0.035	0.040	0.20-0.35	—	0.70-0.90	—	—	51B60
50100 ^b	0.98-1.10	0.25-0.45	0.025	0.025	0.20-0.35	—	0.40-0.60	—	—	—
51100 ^b	0.98-1.10	0.25-0.45	0.025	0.025	0.20-0.35	—	0.90-1.15	—	—	E51100
52100 ^b	0.98-1.10	0.25-0.45	0.025	0.025	0.20-0.35	—	1.30-1.60	—	—	E52100
6118	0.16-0.21	0.50-0.70	0.035	0.040	0.20-0.35	—	0.50-0.70	—	0.10-0.15	6118
6150	0.48-0.53	0.70-0.90	0.035	0.040	0.20-0.35	—	0.80-1.10	—	0.15	6150
8115	0.13-0.18	0.70-0.90	0.035	0.040	0.20-0.35	0.20-0.40	0.30-0.50	0.08-0.15	—	8115
81B45 ^c	0.43-0.48	0.75-1.00	0.035	0.040	0.20-0.35	0.20-0.40	0.35-0.55	0.08-0.15	—	81B45
8615	0.13-0.18	0.70-0.90	0.035	0.040	0.20-0.35	0.40-0.70	0.40-0.60	0.15-0.25	—	8615
8617	0.15-0.20	0.70-0.90	0.035	0.040	0.20-0.35	0.40-0.70	0.40-0.60	0.15-0.25	—	8617
8620	0.18-0.23	0.70-0.90	0.035	0.040	0.20-0.35	0.40-0.70	0.40-0.60	0.15-0.25	—	8620
8622	0.20-0.25	0.70-0.90	0.035	0.040	0.20-0.35	0.40-0.70	0.40-0.60	0.15-0.25	—	8622
8625	0.23-0.28	0.70-0.90	0.035	0.040	0.20-0.35	0.40-0.70	0.40-0.60	0.15-0.25	—	8625
8627	0.25-0.30	0.70-0.90	0.035	0.040	0.20-0.35	0.40-0.70	0.40-0.60	0.15-0.25	—	8627
8630	0.28-0.33	0.70-0.90	0.035	0.040	0.20-0.35	0.40-0.70	0.40-0.60	0.15-0.25	—	8630
8637	0.35-0.40	0.75-1.00	0.035	0.040	0.20-0.35	0.40-0.70	0.40-0.60	0.15-0.25	—	8637
8640	0.38-0.43	0.75-1.00	0.035	0.040	0.20-0.35	0.40-0.70	0.40-0.60	0.15-0.25	—	8640
8642	0.40-0.45	0.75-1.00	0.035	0.040	0.20-0.35	0.40-0.70	0.40-0.60	0.15-0.25	—	8642
8645	0.43-0.48	0.75-1.00	0.035	0.040	0.20-0.35	0.40-0.70	0.40-0.60	0.15-0.25	—	8645
86B45 ^c	0.43-0.48	0.75-1.00	0.035	0.040	0.20-0.35	0.40-0.70	0.40-0.60	0.15-0.25	—	—

(Table continued on next page)