

The Importance of Proper Coolant Formulations



**BUREAU
VERITAS**

CHART FOR MAINTAINING 50/50 COOLANT																							
FREEZE POINT (DEG. F OR DEG. C) VS. PERCENT ANTIFREEZE CONCENTRATE																							
		32	27	25	20	16	10	4	-6	-16	-27	-38	-46	-54	-60	-65	-70	-76	-76				
		32	25	20	15	10	5	-5	-12	-23	-34	-50	-65	-75	-84	-70	-55	-43	-30	-6			
PG deg F		0%	10%	15%	20%	25%	30%	35%	40%	45%	50%	55%	60%	65%	70%	75%	80%	85%	90%	100%			
EG deg F		0	-3	-4	-7	-9	-12	-16	-21	-27	-33	-39	-46	-54	-60	-60	-60	-60	-60	-60			
PG deg C		0	-4	-7	-9	-12	-15	-21	-24	-31	-37	-46	-54	-59	-64	-57	-48	-42	-34	-21			
EG deg C																							
SYSTEM CAPACITY																							
QUART, LITER, GALLON		DRAIN COOLANT, ADD ANTIFREEZE CONCENTRATE (QUARTS, LITERS, OR GALLONS)										DRAIN COOLANT, ADD WATER (QUARTS, LITERS, GALLONS)										QUART, LITER, GALLON	
10	5.0	4.4	4.1	3.8	3.3	2.9	2.3	1.7	0.9	0	0.9	1.7	2.3	2.9	3.3	3.8	4.1	4.4	5.0	10			
12	6.0	5.3	4.9	4.5	4.0	3.4	2.8	2.0	1.1	0	1.1	2.0	2.8	3.4	4.0	4.5	4.9	5.3	6.0	12			
14	7.0	6.2	5.8	5.3	4.7	4.0	3.2	2.3	1.3	0	1.3	2.3	3.2	4.0	4.7	5.3	5.8	6.2	7.0	14			
16	8.0	7.1	6.6	6.0	5.3	4.6	3.7	2.7	1.5	0	1.5	2.7	3.7	4.6	5.3	6.0	6.6	7.1	8.0	16			
18	9.0	8.0	7.4	6.8	6.0	5.1	4.2	3.0	1.6	0	1.6	3.0	4.2	5.1	6.0	6.8	7.4	8.0	9.0	18			
20	10.0	8.9	8.2	7.5	6.7	5.7	4.6	3.3	1.8	0	1.8	3.3	4.6	5.7	6.7	7.5	8.2	8.9	10.0	20			
22	11.0	9.8	9.1	8.3	7.3	6.3	5.1	3.7	2.0	0	2.0	3.7	5.1	6.3	7.3	8.3	9.1	9.8	11.0	22			
24	12.0	10.7	9.9	9.0	8.0	6.9	5.5	4.0	2.2	0	2.2	4.0	5.5	6.9	8.0	9.0	9.9	10.7	12.0	24			
26	13.0	11.6	10.7	9.8	8.7	7.4	6.0	4.3	2.4	0	2.4	4.3	6.0	7.4	8.7	9.8	10.7	11.6	13.0	26			
28	14.0	12.4	11.5	10.5	9.3	8.0	6.5	4.7	2.5	0	2.5	4.7	6.5	8.0	9.3	10.5	11.5	12.4	14.0	28			
30	15.0	13.3	12.4	11.3	10.0	8.6	6.9	5.0	2.7	0	2.7	5.0	6.9	8.6	10.0	11.3	12.4	13.3	15.0	30			
32	16.0	14.2	13.2	12.0	10.7	9.1	7.4	5.3	2.9	0	2.9	5.3	7.4	9.1	10.7	12.0	13.2	14.2	16.0	32			
34	17.0	15.1	14.0	12.8	11.3	9.7	7.8	5.7	3.1	0	3.1	5.7	7.8	9.7	11.3	12.8	14.0	15.1	17.0	34			
36	18.0	16.0	14.8	13.5	12.0	10.3	8.3	6.0	3.3	0	3.3	6.0	8.3	10.3	12.0	13.5	14.8	16.0	18.0	36			
38	19.0	16.9	15.6	14.3	12.7	10.9	8.8	6.3	3.5	0	3.5	6.3	8.8	10.9	12.7	14.3	15.6	16.9	19.0	38			
40	20.0	17.8	16.5	15.0	13.3	11.4	9.2	6.7	3.6	0	3.6	6.7	9.2	11.4	13.3	15.0	16.5	17.8	20.0	40			
44	22.0	19.6	18.1	16.5	14.7	12.6	10.2	7.3	4.0	0	4.0	7.3	10.2	12.6	14.7	16.5	18.1	19.6	22.0	44			
48	24.0	21.3	19.8	18.0	16.0	13.7	11.1	8.0	4.4	0	4.4	8.0	11.1	13.7	16.0	18.0	19.8	21.3	24.0	48			
52	26.0	23.1	21.4	19.5	17.3	14.9	12.0	8.7	4.7	0	4.7	8.7	12.0	14.9	17.3	19.5	21.4	23.1	26.0	52			
56	28.0	24.9	23.1	21.0	18.7	16.0	12.9	9.3	5.1	0	5.1	9.3	12.9	16.0	18.7	21.0	23.1	24.9	28.0	56			
60	30.0	26.7	24.7	22.5	20.0	17.1	13.8	10.0	5.5	0	5.5	10.0	13.8	17.1	20.0	22.5	24.7	26.7	30.0	60			
64	32.0	28.4	26.4	24.0	21.3	18.3	14.8	10.7	5.8	0	5.8	10.7	14.8	18.3	21.3	24.0	26.4	28.4	32.0	64			
68	34.0	30.2	28.0	25.5	22.7	19.4	15.7	11.3	6.2	0	6.2	11.3	15.7	19.4	22.7	25.5	28.0	30.2	34.0	68			
72	36.0	32.0	29.6	27.0	24.0	20.6	16.6	12.0	6.5	0	6.5	12.0	16.6	20.6	24.0	27.0	29.6	32.0	36.0	72			
76	38.0	33.8	31.3	28.5	25.3	21.7	17.5	12.7	6.9	0	6.9	12.7	17.5	21.7	25.3	28.5	31.3	33.8	38.0	76			
80	40.0	35.6	32.9	30.0	26.7	22.9	18.5	13.3	7.3	0	7.3	13.3	18.5	22.9	26.7	30.0	32.9	35.6	40.0	80			
84	42.0	37.3	34.6	31.5	28.0	24.0	19.4	14.0	7.6	0	7.6	14.0	19.4	24.0	28.0	31.5	34.6	37.3	42.0	84			
88	44.0	39.1	36.2	33.0	29.3	25.1	20.3	14.7	8.0	0	8.0	14.7	20.3	25.1	29.3	33.0	36.2	39.1	44.0	88			
92	46.0	40.9	37.9	34.5	30.7	26.3	21.2	15.3	8.4	0	8.4	15.3	21.2	26.3	30.7	34.5	37.9	40.9	46.0	92			
96	48.0	42.7	39.5	36.0	32.0	27.4	22.2	16.0	8.7	0	8.7	16.0	22.2	27.4	32.0	36.0	39.5	42.7	48.0	96			
100	50.0	44.4	41.2	37.5	33.3	28.6	23.1	16.7	9.1	0	9.1	16.7	23.1	28.6	33.3	37.5	41.2	44.4	50.0	100			

The Importance of Proper Coolant Formulations

		(ROUNDED TO NEAREST WHOLE UNIT)																			
PG >>>>		+32F	+27F	+25F	+20F	+16F	+10F	+4F	-6F	-16F	-27F	-38F	CANNOT BE READ FROM REFRACTOMETER								<<<<PG
EG>>>>		+32F	+25F	+20F	+15F	+10F	+5F	-5F	-12F	-23F	-34F	-50F	CANNOT BE READ FROM REFRACTOMETER								<<<<EG
SYSTEM CAPACITY		0%	10%	15%	20%	25%	30%	35%	40%	45%	0.5	55%	60%	65%	70%	75%	80%	85%	90%	100%	SYSTEM CAPACITY
		0C	-3C	-4C	-7C	-9C	-12C	-16C	-21C	-27C	-33C	-39C	CANNOT BE READ FROM REFRACTOMETER								
		0C	-3C	-4C	-7C	-9C	-12C	-16C	-21C	-27C	-33C	-39C	CANNOT BE READ FROM REFRACTOMETER								
QUART, LITER, GALLON	DRAIN COOLANT, ADD ANTIFREEZE CONCENTRATE (QUARTS, LITERS, OR GALLONS).	DRAIN COOLANT, ADD WATER (QUARTS, LITERS, GALLONS)																			QUART, LITER, GALLON
10	5	4	4	4	3	3	2	2	1	0	1	2	2	3	3	4	4	4	5	5	10
12	6	5	5	5	4	3	3	2	1	0	1	2	3	3	4	5	5	5	6	6	12
14	7	6	6	5	5	4	3	2	1	0	1	2	3	4	5	5	6	6	7	7	14
16	8	7	7	6	5	5	4	3	1	0	1	3	4	5	5	6	7	7	8	8	16
18	9	8	7	7	6	5	4	3	2	0	2	3	4	5	6	7	7	8	9	9	18
20	10	9	8	8	7	6	5	3	2	0	2	3	5	6	7	8	8	9	10	10	20
22	11	10	9	8	7	6	5	4	2	0	2	4	5	6	7	8	9	10	11	11	22
24	12	11	10	9	8	7	6	4	2	0	2	4	6	7	8	9	10	11	12	12	24
26	13	12	11	10	9	7	6	4	2	0	2	4	6	7	9	10	11	12	13	13	26
28	14	12	12	11	9	8	6	5	3	0	3	5	6	8	9	11	12	12	14	14	28
30	15	13	12	11	10	9	7	5	3	0	3	5	7	9	10	11	12	13	15	15	30
32	16	14	13	12	11	9	7	5	3	0	3	5	7	9	11	12	13	14	16	16	32
34	17	15	14	13	11	10	8	6	3	0	3	6	8	10	11	13	14	15	17	17	34
36	18	16	15	14	12	10	8	6	3	0	3	6	8	10	12	14	15	16	18	18	36
38	19	17	16	14	13	11	9	6	3	0	3	6	9	11	13	14	16	17	19	19	38
40	20	18	16	15	13	11	9	7	4	0	4	7	9	11	13	15	16	18	20	20	40
44	22	20	18	17	15	13	10	7	4	0	4	7	10	13	15	17	18	20	22	22	44
48	24	21	20	18	16	14	11	8	4	0	4	8	11	14	16	18	20	21	24	24	48
52	26	23	21	20	17	15	12	9	5	0	5	9	12	15	17	20	21	23	26	26	52
56	28	25	23	21	19	16	13	9	5	0	5	9	13	16	19	21	23	25	28	28	56
60	30	27	25	23	20	17	14	10	5	0	5	10	14	17	20	23	25	27	30	30	60
64	32	28	26	24	21	18	15	11	6	0	6	11	15	18	21	24	26	28	32	32	64
68	34	30	28	26	23	19	16	11	6	0	6	11	16	19	23	26	28	30	34	34	68
72	36	32	30	27	24	21	17	12	7	0	7	12	17	21	24	27	30	32	36	36	72
76	38	34	31	29	25	22	18	13	7	0	7	13	18	22	25	29	31	34	38	38	76
80	40	36	33	30	27	23	18	13	7	0	7	13	18	23	27	30	33	36	40	40	80
84	42	37	35	32	28	24	19	14	8	0	8	14	19	24	28	32	35	37	42	42	84
88	44	39	36	33	29	25	20	15	8	0	8	15	20	25	29	33	36	39	44	44	88
92	46	41	38	35	31	26	21	15	8	0	8	15	21	26	31	35	38	41	46	46	92
96	48	43	40	36	32	27	22	16	9	0	9	16	22	27	32	36	40	43	48	48	96
100	50	44	41	38	33	29	23	17	9	0	9	17	23	29	33	38	41	44	50	50	100