

Farm Mechanization FACTSHEET



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CALCIUM-WATER TABLE FOR TRACTOR TIRES

Traction can be increased by partially filling tractor tires with a calcium-water mixture. Volume, weight and minimum operating temperatures are given for various tire sizes and water-calcium mixtures.

The following table should be used when filling tractor drive tires for added traction. Water and calcium-water mixtures are shown with volumes required, total added tire weight and safe operation temperatures.

If in doubt of your temperature conditions, use the next strongest mixture. As the majority of your filling cost is labour not material, extra calcium chloride may be inexpensive insurance. The table is in imperial units reflecting the current tire industry practice.

Conversion to metric is as follows:

Imperial gallons multiplied by 4.5 = litres (l).
Pounds divided by 2.2 = kilograms (kg).

For maximum traction, tube type tires should be filled to the valve stem level when the tire is upright and the stem in the highest position. This is considered a 75% fill. For tubeless tires, it is recommended that the liquid level be maintained at 90% filling level so that the rim is always completely covered. This will lessen the possibility of rim corrosion.



Water-calcium mixtures are pumped into the tire with the valve stem in the highest position.

TIRE SIZE	RIM WIDTH	WATER		2.4 lb. CaCl ₂ / gal Water		4.2 lb. CaCl ₂ / gal Water		6 lb. CaCl ₂ / gal Water	
		Slush Free Solid	+32 ⁰ F [0 ⁰ C]	Slush Free Solid	+13 ⁰ F [-11 ⁰ C] -23 ⁰ F [-31 ⁰ C]	Slush Free Solid	-12 ⁰ F [-24 ⁰ C] -52 ⁰ F [-47 ⁰ C]	Slush Free Solid	-53 ⁰ F [-47 ⁰ C] -62 ⁰ F [-52 ⁰ C]
		Gal.	Wt.lb.	Gal.	Total Wt.lb.	Gal.	Total Wt.lb.	Gal.	Total Wt.lb.
9.5 - 16	8.00	10	100	9	112	8	114	8	128
12.4 - 16	10.00	17	170	16	198	15	213	14	224
18.4 - 16.1	16.00	41	410	37	459	35	497	32	512
8.3 - 24	7.00	11	110	9	112	9	129	8	128
9.5 - 24	8.00	14	140	13	161	12	170	12	192
11.2 - 24	10.00	20	200	18	223	17	241	16	256
12.4 - 24	11.00	25	250	23	285	22	312	21	336
13.6 - 24	12.00	32	320	28	347	27	383	25	400
14.9 - 24	13.00	39	390	36	446	33	469	32	512
16.9 - 24	15.00	51	510	46	570	43	611	41	656
17.5L-24	15.00	46	460	42	521	39	554	37	592
14.9 - 26	12.00	40	400	37	459	34	483	32	512
16.9 - 26	15.00	54	540	49	608	47	667	43	688
18.4 - 26	16.00	66	660	61	756	57	809	53	848
23.1 - 26	20.00	107	1070	97	1203	91	1292	86	1376
28L - 26	25.00	131	1310	119	1476	112	1590	106	1696
11.2 - 28	10.00	22	220	21	260	20	284	18	288
12.4 - 28	11.00	29	290	27	335	25	355	23	368
13.6 - 28	12.00	36	360	32	397	31	440	29	464
14.9 - 28	13.00	44	440	41	508	38	540	36	576
16.9 - 28	15.00	57	570	52	645	49	696	47	752
18.4 - 28	16.00	70	700	64	794	60	852	57	912
14.9 - 30	13.00	47	470	43	533	40	568	38	608
16.9 - 30	15.00	61	610	56	694	52	738	49	784
18.4 - 30	16.00	74	740	68	843	64	909	60	960
23.1 - 30	20.00	119	1190	109	1352	102	1448	97	1552
24.5 - 32	21.00	142	1420	130	1612	122	1732	115	1840
16.9 - 34	15.00	68	680	62	769	58	824	55	880
18.4 - 34	16.00	83	830	76	942	71	1008	67	1072
20.8 - 34	18.00	107	1070	97	1203	91	1292	86	1376
23.1 - 34	20.00	132	1320	121	1500	113	1605	107	1712
13.9 - 36	12.00	42	420	39	484	37	525	35	560
13.6 - 38	12.00	47	470	43	533	41	582	38	608
15.5 - 38	14.00	55	550	50	620	47	667	44	704
16.9 - 38	15.00	75	750	68	843	64	909	61	976
18.4 - 38	16.00	92	920	83	1029	78	1108	74	1184
20.8 - 38	18.00	117	1170	107	1327	100	1420	95	1520

NOTE: 1) Values are for **Type I Calcium Chloride** (77% CaCl₂). For **Type II** (94% CaCl₂) reduce the "lb. CaCl₂" weights 25%.
2) Values are for "fill to valve stem" level, 75% fill (tube tires). For tubeless tires, fill to 90% (increase values 20%).
3) Volumes are **imperial** gallons.

FOR FURTHER INFORMATION, CONTACT:

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