

Farm Mechanization FACTSHEET

CALCIUM-WATER MIXTURE 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.

		WATER		2.4 lb. CaCl ₂ / gal Water			4.2 lb. CaCl ₂ / gal Water			6 lb. CaCl ₂ / gal Water		
TIRE SIZE	RIM WIDTH	Slush Free +32 ⁰ F Solid [0 ⁰ C]		Slush Free +13 ⁰ F [-11 ⁰ C] Solid -23 ⁰ F [-31 ⁰ C]			Slush Free -12 ⁰ F [-24 ⁰ C] Solid -52 ⁰ F [-47 ⁰ C]			Slush Free -53 ⁰ F [-47 ⁰ C] Solid -62 ⁰ F [-52 ⁰ C]		
		Gal.	Wt.lb.	Water Gal.	CaCl ₂ lb.	Total Wt.lb.	Water Gal.	CaCl ₂ lb.	Total Wt.lb.	Water Gal.	CaCl ₂ lb.	Total Wt.lb.
9.5 - 16	8.00	10	100	9	22	112	8	34	114	8	48	128
12.4 - 16	10.00	17	170	16	38	198	15	63	213	14	84	224
18.4 - 16.1	16.00	41	410	37	89	459	35	147	497	32	192	512
8.3 - 24	7.00	11	110	9	22	112	9	38	129	8	48	128
9.5 - 24	8.00	14	140	13	31	161	12	50	170	12	72	192
11.2 - 24	10.00	20	200	18	43	223	17	71	241	16	96	256
12.4 - 24	11.00	25	250	23	55	285	22	92	312	21	126	336
13.6 - 24	12.00	32	320	28	67	347	27	113	383	25	150	400
14.9 - 24	13.00	39	390	36	86	446	33	139	469	32	192	512
16.9 - 24	15.00	51	510	46	110	570	43	181	611	41	246	656
17.5L- 24	15.00	46	460	42	101	521	39	164	554	37	222	592
14.9 - 26	12.00	40	400	37	89	459	34	143	483	32	192	512
16.9 - 26	15.00	54	540	49	118	608	47	197	667	43	258	688
18.4 - 26	16.00	66	660	61	146	756	57	239	809	53	318	848
23.1 - 26	20.00	107	1070	97	233	1203	91	382	1292	86	516	1376
28L - 26	25.00	131	1310	119	286	1476	112	470	1590	106	636	1696
11.2 - 28	10.00	22	220	21	50	260	20	84	284	18	108	288
12.4 - 28	11.00	29	290	27	65	335	25	105	355	23	138	368
13.6 - 28	12.00	36	360	32	77	397	31	130	440	29	174	464
14.9 - 28	13.00	44	440	41	98	508	38	160	540	36	216	576
16.9 - 28	15.00	57	570	52	125	645	49	206	696	47	282	752
18.4 - 28	16.00	70	700	64	154	794	60	252	852	57	342	912
14.9 - 30	13.00	47	470	43	103	533	40	168	568	38	228	608
16.9 - 30	15.00	61	610	56	134	694	52	218	738	49	294	784
18.4 - 30	16.00	74	740	68	163	843	64	269	909	60	360	960
23.1 - 30	20.00	119	1190	109	261	1352	102	428	1448	97	582	1552
24.5 - 32	21.00	142	1420	130	312	1612	122	512	1732	115	690	1840
16.9 - 34	15.00	68	680	62	149	769	58	244	824	55	330	880
18.4 - 34	16.00	83	830	76	182	942	71	298	1008	67	402	1072
20.8 - 34	18.00	107	1070	97	233	1203	91	382	1292	86	516	1376
23.1 - 34	20.00	132	1320	121	290	1500	113	475	1605	107	642	1712
13.9 - 36	12.00	42	420	39	94	484	37	155	525	35	210	560
13.6 - 38	12.00	47	470	43	103	533	41	172	582	38	228	608
15.5 - 38	14.00	55	550	50	120	620	47	197	667	44	264	704
16.9 - 38	15.00	75	750	68	163	843	64	269	909	61	366	976
18.4 - 38	16.00	92	920	83	199	1029	78	328	1108	74	444	1184
20.8 - 38	18.00	117	1170	107	257	1327	100	420	1420	95	570	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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