

ACID DEMAND INDEX FOR TOTAL ALKALINITY ADJUSTMENT



Code 1546

The Acid Demand Index below states the amount of Muriatic Acid [Hydrochloric Acid, 31%] required to reduce high alkalinity in pool or spa water to the optimum range of 80-120 ppm CaCO₃. Use the table in conjunction with the alkalinity test result.

ALKALINITY READING ppm (mg/L) CaCO ₃	MURIATIC ACID REQUIREMENTS Pool Or Spa Volume In Gallons									
	100	250	500	1M	2.5M	5M	10M	20M	25M	50M
120	1	1	3	6	14	1.5	3.5	7	8.5	17
135	1	2	5	9	1.5	3	5.5	12	14	29
155	1.5	3.5	7	14.5	2.5	4.5	9	18	23	45
170	2	4.5	9	1	3	5.5	12	23	29	57
190	2.5	6	12	1.5	3.5	7.5	15	30	37	74
205	3	7	13.5	1.5	4.5	8.5	17	34	43	86
220	3	8	1	2	5	10	20	39	49	98
240	3.5	9	1	2.5	5.5	11.5	23	46	57	115
275	4.5	11.5	1.5	3	7	14	29	57	72	143
310	5.5	14	2	3.5	8.5	17	34	69	86	172
340	6.5	1	2	4	10	20	39	79	98	196
410	8	1.5	2.5	5	13	25	51	101	127	254
480	10	1.5	3	6	16	31	62	124	155	311
	ounces Muriatic Acid					pints Muriatic Acid				

WEIGHT & VOLUME CONVERSIONS

Pints Muriatic Acid	x 16	=	Fluid Ounces Muriatic Acid
Pints Muriatic Acid	÷ 8	=	Gallons Muriatic Acid
Fluid Ounces Muriatic Acid	x 0.09	=	Pounds Dry Acid [Sodium Bisulfate]
Pints Muriatic Acid	x 1.4	=	Pounds Dry Acid
Gallons Muriatic Acid	x 11.2	=	Pounds Dry Acid
Ounces Muriatic Acid	x 0.06	=	Pints Muriatic Acid

NOTE: Always consult manufacturer's recommendations regarding the maximum amount of acid to be added at one time.

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CALCULATING THE VOLUME OF A POOL OR SPA (MEASUREMENTS IN FEET)

RECTANGULAR SHAPE:

$$\text{Length} \times \text{Width} \times \text{Average Depth} \times 7.5 = \text{Volume in gallons}$$

ROUND SHAPE:

$$\text{Diameter} \times \text{Diameter} \times \text{Average Depth} \times 5.9 = \text{Volume in gallons}$$

OVAL SHAPE:

$$\text{Length} \times \text{Width} \times \text{Average Depth} \times 5.9 = \text{Volume in gallons}$$

EXAMPLE A:

A round spa with a diameter of 8.5' and average depth of 3.0' has an alkalinity test result of 205 ppm CaCO_3 .

1. Calculate volume of water as follows:

$$8.5' \times 8.5' \times 3.0' \times 5.9 = 1279 \text{ gallons}$$

2. On the 205 ppm line in the Acid Demand Index, read the volume [to total 1,300 gallons] as follows:

$$1000 + 100 + 100 + 100$$

3. Index Reading = 1.5 pt + 3 oz + 3 oz + 3 oz = 2.0 pints Muriatic Acid.

$$[9 \text{ ounces} \times 0.06 = 0.5 \text{ pints}]$$

4. 2.0 pints \times 1.4 = 2.8 lbs Dry Acid

EXAMPLE B:

A rectangular pool measures 20' by 40' with an average depth of 5' and has an alkalinity test result of 170 ppm CaCO_3 .

1. Calculate volume of water as follows:

$$40' \times 20' \times 5' \times 7.5 = 30,000 \text{ gallons}$$

2. On the 170 ppm line on the Acid Demand Index, read the volume [to total 30,000 gallons] as follows:

$$10,000 + 20,000$$

3. Index Reading = 12 + 23 = 35 pints Muriatic Acid

4. 35 pints \times 1.4 = 49 lbs Dry Acid