

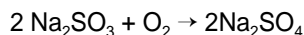


DOWEX Ion Exchange Resins

The Removal of Oxygen and Chlorine from Water

The Removal of Oxygen

Dissolved oxygen can be reduced by using sodium sulfite according to following reaction:



Based on this equation, a minimum of 7.87 mg Na₂SO₃ is necessary per mg dissolved O₂. The table shows levels required to remove different amounts of dissolved oxygen:

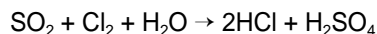
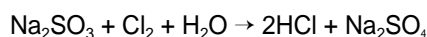
Dissolved Oxygen		Sodium Sulfite (theoretical amount)	
cc/liter**	mg/l	mg/l	lbs/ 1000 gal.
0.1	0.14	1.1	0.0094
0.2	0.29	2.3	0.019
0.3	0.43	3.4	0.028
0.4	0.57	4.5	0.038
0.5	0.72	5.6	0.047
1.0	1.4	11.3	0.094
2.0	2.9	22.5	0.19
5.0	7.2	56.3	0.47
10.0	14.3	112.5	0.94

**1 cc dissolved oxygen per liter = 1.43 mg/l

1 mg/l dissolved oxygen = 0.698 cc/liter

The Removal of Chlorine

Chlorine is a strong oxidant and may readily degrade ion exchange resins. Chlorine levels in water can be reduced using sulphur dioxide or sodium sulphite according to following reactions:



Per gram of chlorine to remove, one needs to add a minimum of 0.91 gram of SO₂ or 1.78 gram of Na₂SO₃. This leads to following amounts of reducing agents to add per 1000 liter of water for the given chlorine levels:

Cl ₂ mg/l	Na ₂ SO ₃ (theoretical amount)		SO ₂ (theoretical amount)	
	g/1000 l	lbs/1000 gal.	g/1000 l	lbs/ 1000 gal.
0.1	0.18	0.0015	0.09	0.00075
0.5	0.89	0.0075	0.45	0.0038
1	1.78	0.015	0.91	0.0075
2	3.56	0.030	1.82	0.015
3	5.34	0.045	2.73	0.0225
4	7.12	0.06	3.64	0.03
5	8.90	0.075	4.55	0.038
10	17.80	0.15	9.10	0.075

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DOWEX

Ion Exchange Resins

For more information about DOWEX resins,
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WARNING: Oxidizing agents such as nitric acid attack organic ion exchange resins under certain conditions. This could lead to anything from slight resin degradation to a violent exothermic reaction (explosion). Before using strong oxidizing agents, consult sources knowledgeable in handling such materials.

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