

## Suggested Guidelines for Preparing and Using AQUI-S®20E as a Sedative

### General Information:

- 20 - 40 mg/L eugenol (AQUI-S®20E is 10% eugenol) should work for sedation to handleable in most situations.
- Fish will usually become handleable in 1 - 5 minutes.
- The quantity of AQUI-S®20E needed for treatment can be (1) weighed out (grams) on a balance or (2) measured out (milliliters) in a graduated cylinder (as follows):

### Weigh out amount (grams) of AQUI-S®20E

To weigh out the amount (grams) of AQUI-S®20E on a balance, use the following formula or Table 1 below. **Note:** After AQUI-S®20E has been weighed out, it should be added directly, while constantly mixing, to the full volume of treatment water. Do not make stock solutions or other dilute solutions of AQUI-S®20E before use. Rinse weighing container with treatment water to ensure all AQUI-S®20E is dispensed.

$$\text{AQUI-S}^{\circledR}20\text{E (grams)} = (A \times B \times C) \div D$$

Where: A = target concentration eugenol (mg/L)

B = treatment water volume (gal)

C = 0.00378 (conversion factor for grams per gallon)

D = 0.1 (to account for the fact that AQUI-S®20E is 10% eugenol)

**Example:** Weigh amount (grams) of AQUI-S®20E to achieve target eugenol concentration:

Target concentration eugenol = 30 mg/L

Treatment water volume = 10 gal

$$\text{Amount AQUI-S}^{\circledR}20\text{E (grams) to add} = (30 \times 10 \times 0.00378) \div 0.1 = \mathbf{11.3\text{ g}}$$

**Table 1.** Amount (grams) of AQUI-S®20E to add to treatment water to achieve target eugenol concentration.

Target Conc. eugenol (mg/L)	Volume of Treatment Water (gal)									
	5	10	15	20	25	30	35	40	45	50
10	1.9 g	3.8 g	5.7 g	7.6 g	9.5 g	11.4 g	13.3 g	15.1 g	17.0 g	18.9 g
15	2.8 g	5.7 g	8.5 g	11.4 g	14.2 g	17.0 g	19.9 g	22.7 g	25.6 g	28.4 g
20	3.8 g	7.6 g	11.4 g	15.1 g	18.9 g	22.7 g	26.5 g	30.3 g	34.1 g	37.9 g
25	4.7 g	9.5 g	14.2 g	18.9 g	23.7 g	28.4 g	33.1 g	37.9 g	42.6 g	47.3 g
30	5.7 g	11.3 g	17.0 g	22.7 g	28.4 g	34.1 g	39.8 g	45.4 g	51.1 g	56.8 g

Visit the AQUI-S 20E website for more calculations if your dose and /or concentration is not listed: <http://www.aqui-s.com/>

### Measure out volume (milliliters) of AQUI-S®20E

To measure out the volume (milliliters) of AQUI-S®20E in a graduated cylinder, use the following formula or Table 2 below. **Note:** After AQUI-S®20E has been measured out, it should be added directly, while constantly mixing, to the full volume of treatment water. Do not make stock solutions or other dilute solutions of AQUI-S®20E before use. Rinse<sup>+</sup> measuring container with treatment water to ensure all AQUI-S®20E is dispensed.

**Example:** Measure volume (milliliters) of AQUI-S®20E to achieve target eugenol concentration:

Target concentration eugenol = 30 mg/L  
Treatment water volume = 10 gal

$$\text{AQUI-S}^{\circledR}20\text{E (milliliters)} = [(A \times B \times C) \div D] \div E$$

Where: A = target concentration eugenol (mg/L)  
B = treatment water volume (gal)  
C = 0.00378 (conversion factor for grams per gallon)  
D = 0.1 (to account for the fact that AQUI-S®20E is 10% eugenol)  
E = 1.124 (specific gravity of AQUI-S®20E)

$$\text{Volume of AQUI-S}^{\circledR}20\text{E (ml) to add} = [(30 \times 10 \times 0.00378) \div 0.1] \div 1.124 = \mathbf{10.1 \text{ ml}}$$

**Table 2.** Volume (milliliters) of AQUI-S®20E to add to treatment water to achieve target eugenol concentration.

Target Conc. eugenol (mg/L)	Volume of Treatment Water (gal)									
	5	10	15	20	25	30	35	40	45	50
10	1.7 ml	3.4 ml	5.1 ml	6.7 ml	8.4 ml	10.1 ml	11.8 ml	13.5 ml	15.2 ml	16.8 ml
15	2.5 ml	5.1 ml	7.6 ml	10.1 ml	12.6 ml	15.2 ml	17.7 ml	20.2 ml	22.7 ml	25.3 ml
20	3.4 ml	6.7 ml	10.1 ml	13.5 ml	16.8 ml	20.2 ml	23.6 ml	26.9 ml	30.3 ml	33.7 ml
25	4.2 ml	8.4 ml	12.6 ml	16.8 ml	21.1 ml	25.3 ml	29.5 ml	33.7 ml	37.9 ml	42.1 ml
30	5.1 ml	<b>10.1 ml</b>	15.2 ml	20.2 ml	25.3 ml	30.3 ml	35.4 ml	40.4 ml	45.5 ml	50.5 ml

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