

Introduction

Effective sedation or anesthesia of aquatic animals is dependent upon the anesthetic drug being evenly dispersed throughout the water column.

AQUI-S® has been specifically formulated to achieve uniform mixing of the anesthetic agent in water with the formation of a very fine emulsion. Uniform mixing of **AQUI-S®** within the water column can be best achieved by making a Stock Solution from the **AQUI-S®** concentrate prior to preparation of the Working Solution.

It is recommended that waterproof gloves and eye protection be worn when preparing and working with **AQUI-S®** concentrate, Stock Solutions, or Working Solutions.

Definitions

AQUI-S CONCENTRATE

AQUI-S® as supplied by the manufacturer (Figure 1).

STOCK SOLUTION

AQUI-S® concentrate diluted in water at a ratio of 1:10 (Figure 2).

WORKING SOLUTION

Where a Stock Solution is mixed into a treatment tank to produce sedative or anesthetic bath.

Notes

- Specific gravity of **AQUI-S®** concentrate is 1.089
- To convert from mL/m³ to mg/L, multiply by 1.089
- Aqui-S is approximately 50% isoeugenol
- 1 mL of Aqui-S contains 545 mg isoeugenol

1 Preparation of the Stock Solution

The Stock Solution should be composed of 1 part **AQUI-S®** concentrate to 9 parts water. Mixing is achieved by vigorous shaking. Do not use vortex mixers as this action is not suitable for forming a uniform emulsion.

The **AQUI-S®** Stock Solution should have a uniform milky appearance. Poor preparation of the Stock Solution can result in incomplete mixing of the **AQUI-S®** concentrate which can reduce the desired effect.

A good emulsion has an opaque almost solid milky white appearance, whereas a poor emulsion has a watery, almost transparent pale white appearance.

2 Preparation of the Working Solution

A Stock Solution of **AQUI-S®** should be prepared from the **AQUI-S®** concentrate. The Stock Solution is then used to prepare the Working Solution.

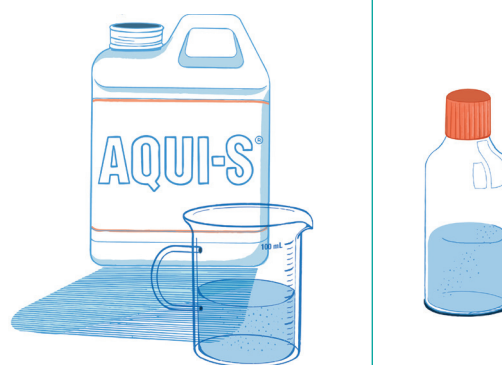


Figure 1

Concentrate

Figure 2

Stock Solution

For more information
contact our Customer Service:

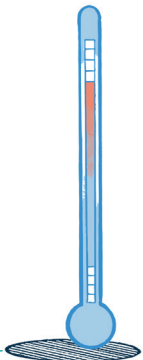


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Merck Animal Health is the exclusive distributor of AQUI-S in Canada. Please contact your local Merck Animal Health representative for more information about AQUI-S®.

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1.1 Stock Solution Preparation

		
TEMPERATURE	SALINITY	STORAGE
It is recommended that the water used to make the AQUI-S® Stock Solution is between 12° C and 25° C to help achieve proper mixing.	Fresh water or salt water may be used to make AQUI-S® Stock Solutions.	Do not keep AQUI-S® Stock Solutions for more than 6 hours. Shake vigorously before each use.

1.2 Preparing an AQUI-S® Stock Solution by volume

		
STEP 1	STEP 2	STEP 3
<p>Determine the AQUI-S®/isoeugenol concentration required for treatment: e.g. 5 mg/L AQUI-S® / 2.5 mg/L isoeugenol</p> <p>Determine the volume of water in the treatment bath: e.g. 1000 L water</p> <p>Calculate the total volume of AQUI-S® required: e.g. 5 mg/L AQUI-S® / 2.5 mg/L isoeugenol X 1000L = 4.6 mL AQUI-S concentrate</p>	<p>Measure out the total volume of AQUI-S® required. A syringe can be used to measure small volumes: e.g. 4.6 mL AQUI-S®</p>	<p>Mix the AQUI-S® in a 1:10 dilution with water and mix well (1-2 min) by shaking vigorously: e.g. 4.6 mL AQUI-S® + 41.4 mL water (46 mL Stock Solution total volume)</p>

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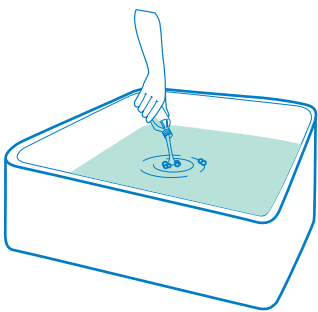
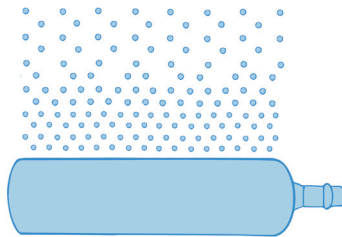
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1.3 Preparing an AQUI-S® Stock Solution by weight

			
STEP 1: Preparation and Calculations	STEP 2	STEP 3	STEP 4
<p>Use a scale and glass or plastic container.</p> <ul style="list-style-type: none"> Determine the AQUI-S®/isoeugenol concentration desired: e.g. 15 mg/ L AQUI-S® / 7.5 mg/L isoeugenol Determine the Treatment Bath / Working Solution volume: e.g. 1 m³ Calculate the total weight of AQUI-S® required for treatment: e.g. 15 mg/L x 1 m³ = 15 g 	<p>Tare the scale with the container that will be used to prepare the Stock Solution.</p> <p>Add 9 parts water by weighing 135 grams of water into the container.</p>	<p>Weigh required amount of AQUI-S® concentrate into the container: e.g. 15 g AQUI-S®</p>	<p>Shake vigorously (1-2 min): e.g. 15 g AQUI-S® and 135 g of water (150 g Stock Solution)</p>

2.1 Preparation of the Working Solution

		
STEP 1	STEP 2	STEP 3
<p>Make a Stock Solution of 1 part AQUI-S® to 9 parts water in a suitable container. Shake the Stock Solution vigorously to make a milky white emulsion.</p>	<p>Add the AQUI-S® Stock Solution to the Working Solution and ensure it is mixed well by aggressive stirring.</p>	<p>Ensure the oxygen concentration for the entire duration fish are in the Working Solution.</p>

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