

COMPOUNDED WATER SOLUBLE AMOXICILLIN

Amoxicillin and Amoxicillin Red

Veterinary Pharmaceutical Solutions (VPS) is the leader in amoxicillin formulation and compounding solutions in the livestock industry. VPS products have been field proven for over 25 years. The following best practices guide is based on data collected over decades of use, in combination with recent study completed in 2022. This guide serves as a useful tool for veterinarians to determine the product that is the best fit for individual producers, based on specific needs and situations.

The VPS patented formulation of Amoxicillin was launched in 1997 and Amoxicillin Red followed in 2009. Over 2 Billion pigs have been treated with our Amoxicillin formulations. Amoxicillin Red was specifically formulated for its higher miscibility and mixability with Ibuprofen and Meloxicam.



Amoxicillin Red



Amoxicillin

Mixability and Miscibility	+++	+++
Compatibility with Ibuprofen, Sodium Salicylate and Aspirin	+++	+
Palatability	+++	+++
Potency at 24 Hours	+++	++
Dose Range	+++ Up to 120 grams per gallon of stock solution	++ Up to 60 grams per gallon of stock solution
Other Attributes	VPS Amoxicillin formulations have been specifically patented and designed for swine.	

Best Practices

- Always mix **fresh solution daily** with cold water.
- Use a **dark pail with a lid** to protect from light degradation.
- Be sure to **calculate dosage** based on water intake.
- **Chlorine and other cleaning agents** can impact amoxicillin.
- Always **use caution when mixing multiple products** in the stock solution. There are many competitive interactions among products, for instance Tetracyclines, typically compete with Amoxicillin.
- **Heat, light and time will increase the rate of degradation** of most antibiotics in stock solution.
- All pharmaceutical products **lose potency in solution** over time.

Resources:

Akers MJ. Formulation and Stability of Solutions. *Int J Pharm Compd.* 2016 Jan-Feb;20(1):41-5.



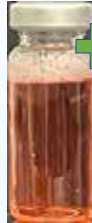
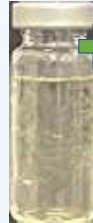








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Binson G, Grignon C, Le Moal G, et al. Overcoming stability challenges during continuous intravenous administration of high-dose amoxicillin using portable elastomeric pumps. *PLoS One.* 2019;14(8):e0221391.









Xuexiang He, Stephen P. Mezyk, Irene Michael, Despo Fatta-Kassinou, Dionysios D. Dionysiou. Degradation kinetics and mechanism of β -lactam antibiotics by the activation of H₂O₂ and Na₂S₂O₈ under UV-254nm irradiation. *Journal of Hazardous Materials.* 2014;279:375-383.

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MISCIBILITY RESULTS – OTHER PRODUCTS

	Alone	Meloxicam	Ibuprofen*	Sodium Salicylate	Aspirin	Blue Lite	
Amoxicillin Red		 +	 +	 +	 +	 +	Amoxicillin Red shows miscibility across all products
Amoxicillin		 x	 x	 x	 +	 +	<p>+ Aspirin is not stable in water</p> <p>* Ibuprofen is fully miscible with Amoxicillin Red, the visuals are bubbles.</p>

INTERACTIONS WITH CLEANING SOLUTIONS

	Alone	Bleach	Citric Acid	3% Hydrogen Peroxide	
Amoxicillin Red		 x	 x	 x	All cleaning agents will degrade pharmaceuticals
Amoxicillin		 x	 x	 x	Avoid mixing these products in stock solutions
					Completely flush medicator and water lines

TAKEAWAYS

- Mix products that have miscibility
- pH, hardness and water source did not impact miscibility
- Amoxicillin and Amoxicillin Red are miscible with electrolytes
- Amoxicillin Red is specifically formulated to:
 - Mix well with ibuprofen and meloxicam
 - Have strong miscibility with sodium salicylate and blue aspirin