ANIMAL SCIENCE PRODUCTS® INCORPORATED

VAC-PAC PLUS® INTERNATIONAL

Vac-Pac Plus International excels in drinking water stabilizer comparison

Abstract

Samples of seven drinking water stabilizers were evaluated for oxidizer neutralization, buffering power, solubility and color intensity. Stabilizers included Vac-Pac Plus Int., Protekto Vac, Blue Farm, Chlor Block, Cevamune, Vac Safe and Arteguard. Vac-Pac Plus Int. combined unsurpassed oxidizer neutralization, solubility, and color intensity with the strongest buffering power. Other stabilizers varied in oxidizer neutralization and color intensity, all with weaker buffering, and in the case of the effervescent tablet products, notable undissolved residue in the stock solution.

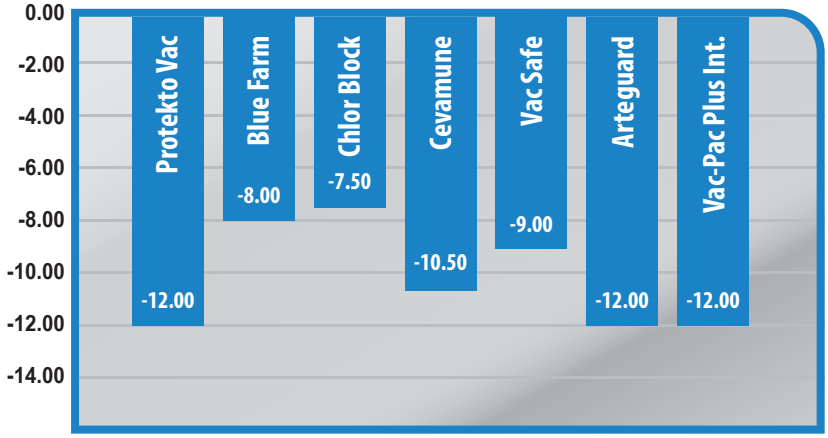
Antioxidant power

Stabilizers were compared on the ability to reduce an initial concentration of 12 ppm oxidizer in drinking water solutions when used at label rates. Vac-Pac Plus Int., Protekto Vac and Arteguard were sufficiently powerful to eliminate residual chlorine from the 12 ppm starting point. Other stabilizers were less potent and unable to eliminate the same risk of oxidation. The amount of neutralizing power in each stabilizer is shown in the graph.

Buffering capacity of stabilizer in stock solutions

Stock solutions were prepared at 5 and 9 pH, and each stabilizer was added to these solutions at the label directions for stock solution concentrations. The final stabilized pH of each solution was measured to determine the stabilizer's power to raise acidic pH and at the same time lower alkaline pH into a range most compatible with vaccines. Vac-Pac Plus Int. provided optimal buffering in both alkaline and acidic directions. Other stabilizers produced solutions that were either not as strongly buffered or much more acidic, regardless of whether the initial water pH was acidic or alkaline.

Oxidizer Reduced, ppm



Adjusting Stock Solution pH from Extremes

Stabilizer	Acid stock pH5	Alkaline stock pH 9
Protekto Vac	5.53	8.53
Bluefarm	5.76	6.55
Chlor Block	5.96	6.07
Cevammune	5.60	5.64
Vac Safe	6.79	6.84
Arteguard	6.73	8.94
Vac-Pac Plus Int.	7.80	8.00

Final buffered pH of stock solutions with stabilizers used at label recommended dilutions in acidic (pH 5) and alkaline (pH 9) stock solutions. Red = below pH 6 or above pH 8, yellow = below pH 7, green = pH 7-8. Vac-Pac Plus Int. reduced alkaline and increased acidic pH to within a vaccine-compatible 7-8 range.

Made in the USA

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Sedimentation

Two of the stabilizers, Cevamune and Arteguard, were presented as effervescent tablets, with labels directing at least 10 minute wait period for dissolving prior to adding vaccine. Cevamune did aggressively effervesce during the 10 minute dissolving time. Arteguard did not effervesce notably. Both of these tablet products left undissolved residue in the stock solution. Most notably, the gummy sediment of Arteguard could be removed from the bottom of the beaker after 8 hours, as pictured below.

Color intensity

Drinking water solutions were prepared and photographed to compare color intensity, a desired property for identifying vaccinated poultry. Arteguard was slightly less intense and Protekto Vac was notably less intense than the other stabilizers. Protekto Vac is reported to not stain tongues for vaccinate identification. Users have not reported staining impact of Arteguard. Photographs comparing the drinking water dilutions are exhibited at right.

Summary

Vaccine stabilizers were tested for oxidizer neutralization, stock solution buffering, sedimentation, and color intensity for poultry identification. Vac-Pac Plus Int. combined unsurpassed oxidizer neutralization, solubility, and color intensity with the strongest buffering power. Other stabilizers varied in oxidizer neutralization and color intensity, all with weaker buffering, and in the case of the effervescent tablet products, notable undissolved residue in the stock solution.

Protekto Vac

Bluefarm

Chlor Block

Cevamune

Vac-Safe

Arteguard

Vac-Pac Plus International

Color intensity of drinking water solutions.

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