

## Use of Sodium Buffers in Layer Diets

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The addition of sodium bicarbonate or S-Carb®, purified sodium sesquicarbonate, has been shown to elevate the dietary electrolyte balance, improve acid/base balance and have a positive effect on eggshell quality. In a 1987 review Teeter summarized the following research results:

### ***Effect of Sodium Buffer Addition on Eggshell Quality:***

Investigator & Year	Thermoneutral	Heat Stress
Frank & Burger 1965	+	
Howes 1967		+
Mongin 1968	+	
Cox & Balloun 1968	-	
Pepper et. al 1968	=	
Latif & Quisenberry 1968	+	+
Charles et. al 1972	+	
Ferguson et. al.	=	
Ernst et. al 1975	=	+

Teeter 1987

Following egg production blood pH will fall due to the calcification process and production of carbonic acid. This leads to a short term acidosis in the layer. The addition of sodium buffers improves the metabolic buffering capacity of the bird, and reduces the severity of this acidosis. Austic recommended a minimum dietary electrolyte balance for layers greater than 200 meq/kg. Other researchers have agreed with this, showing the best response in diets with electrolyte balance between 200 and 300 meq/kg.

### ***Inclusion rates for S-Carb®:***

Typically S-Carb® is used to replace a portion of the salt in the layer diet. No data is available on the inclusion of trona based buffers. Recommended usage to replace salt with S-Carb® as shown below:

Salt Removed	S-Carb® Added	DEB Change
1 lbs/ton	1.5 lbs/ton	10 meq/kg
2 lbs/ton	3.0 lbs/ton	20 meq/kg
3 lbs/ton	4.5 lbs/ton	30 meq/kg