

## Lucky Glider Rescue

### *Community Outreach for Sugar Gliders*

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## EGG SHELL COMPOSITION

### CONCEPTS OF EGGSHELL QUALITY

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<http://www.afn.org/~poultry/flkman4.htm>

### THE EGGSHELL ITSELF

A good quality eggshell will contain, on average, 2.2 grams of calcium in the form of calcium carbonate (CaCO<sub>3</sub>). Approximately 94% of a dry eggshell is calcium carbonate and has a typical mass of 5.5 grams,<sup>1</sup> although these values can differ depending on sources. Amounts as low as 78% have been published. The remaining mass is composed largely of phosphorus and magnesium, and trace amounts of sodium, potassium, zinc, manganese, iron, and copper.

The color of the eggs is nothing more than a result of a different breed. The quality, nutritional value, and taste are identical between white and brown eggs, though two notable differences are size and price.

A brown eggshell's increased tendency to break, when compared to white, is often attributed to this "thinning out" of calcium during deposition.

Adapted from: Lechtanski, V. L. *Inquiry-Based Experiments in Chemistry*; Oxford: New York, 2000; pp 159-165.

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### What is Egg Shell Quality and How to Preserve It

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There are many factors that affect the overall quality of the egg shell, but before discussing these factors, it is important to know what makes up the structure of the egg shell. The egg shell consists of about 94 to 97% calcium carbonate. The other three percent is organic matter and egg shell pigment. There are also as many as 8,000 microscopic pores in the shell itself. The outer coating of the shell itself consists of a mucous coating called the cuticle or bloom which is deposited on the shell just prior to lay. This protein like covering helps protect the interior contents of the egg from bacteria penetration through the shell. Egg shell quality is determined by the color, shape, and structure of the shell. Colors can range from white to tints to brown and egg shape can also vary.