

## **DIATOMITE**

Diatomaceous soil is derived from a naturally occurring, soft, chalk-like sedimentary rock that is easily crumbled into a fine white to off-white powder. This powder has an abrasive feel and is light due to its high porosity. The typical chemical composition of diatomaceous soil is 86% silicon, 5% sodium, 3% magnesium and 2% iron. There are 14 trace elements that are present in diatomaceous soil, including selenium and copper. Diatomaceous soil consists of the fossilized remains of diatoms or hard-shelled alga. The soil is used as a filtration aid, a mild abrasive, a mechanical insecticide, or as an absorbent for liquids, for cat litter, an activator in blood-clotting studies, and a component of dynamite. It is also heat resistant and can be used as a thermal insulator.

The biggest driving force in the development of new insecticides has been the desire to replace toxic insecticides with *green products* to minimize the negative effects of pesticides on the ecology in wilderness areas. The notorious DDT was originally introduced as a safer alternative to the lead, mercury and arsenic compounds which had been used in earlier years. It is true that when being used under the correct conditions almost any chemical substance is “safe”, but when being used under the wrong conditions, most insecticides can be a threat to health and/or the environment.

Some insecticides have been banned due to the negative effects on animals and/or humans. This happens with DDT and a number of related compounds due to the process of bioaccumulation, wherein the chemical, due to its stability and fat solubility, accumulates in the fat of organisms. DDT was often used in the past as a pesticide to control mosquitoes and malaria. However, DDT kills insects that are consumed by fish that are again caught by the fish eagle. This poisons a whole food chain. DDT also reduces the thickness of the eggshells of predatory birds like the fish eagle. The shells sometimes become too thin to be viable and consequently crack, causing reductions in these bird populations. Currently DDT is again being used to control the spread of malaria. It seems to be the lesser of two great evils.

Landowners in the Northern Cape have noticed that wild animals visit certain diatomite soil areas and roll in the soil. The studies that followed from this observation showed that there was a marked decline in the parasitic load on these animals. This was confirmed

when containers that were filled with diatomite were placed in trees, and the animals came to rub against them. Several trials followed and a marked effect was observed after a period of six weeks. The mechanism of action is unclear. Some researchers believe that it involves a mechanical action through the morphological structure of diatomite, which has sharp spikes and damages the body surface of the parasites. However, chemical action is probably more likely, but no scientific evidence exists to date to prove this theory Wildlife producers who export wildlife meat should consider using this green product instead of the traditional acaricides.

The application of diatomite as a parasite control measure involves the following:

- ***External control:*** This involves a rolling method where 200 to 300 kg of diatomitic Rol Mat (a rolling material) is spread over a small area. Wildlife will come and roll on these places. The diatoms then come into contact with the parasites that will shrink and eventually die.
- ***Internal control:*** A 5% concentrate of diatomite can be added to a salt lick or to the food.

#### **Bibliography**

Bothma ,J Du P & Du Toit , JG. 2010. Game ranch management. 5<sup>th</sup> Edition .  
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