

## THIS ARTICLE IS PART OF THE SERIES: We bring light in the dark of „black powders“

### Part 1/5: The raw materials and their differences

In the next five contributions, we will explain the differences between humic substances, charcoal and clay minerals, which are often equated by their appearance. The first part of the contribution series describes the formation process of these raw materials.

#### Humic substances

Humic substances are formed in a process lasting several millions of years. They are the result of an interaction of microbial processes, plant materials and special climatic conditions (see figure on the right). Thus, humic substances belong to the organic substances. Humic substances can be coloured from light brown to deep black.

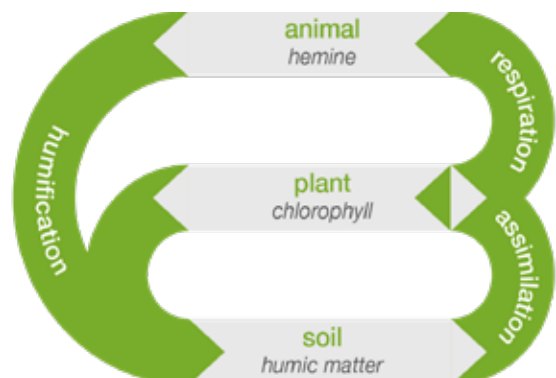


Figure 1: Formation process of humic substances.



Picture 1: Mining of clay minerals

#### Clay minerals

Clay minerals are extracted from thousands of years old rocks. Thus, clay minerals are a mineral substance. These rocks are composed of different layers that characterize a clay mineral. The layers contain aluminium, silicon and oxygen molecules. Clay minerals typically have a light grey or black colour.

## Charcoal

Charcoal is made from plant residues or sewage sludge. Depending on the use, the choice of raw materials may vary. Compared to the use in crop production, plant raw materials are preferred for the production of charcoal for animal nutrition. These include, for example, green cuttings, but also lignified plant components.



Picture 2: Chopping green cuttings

## Our product WH67®

The WH67® is based on natural humic acids, which represent a fraction of humic substances. When selecting raw materials, certain criteria must be fulfilled so that the humic substances can be used for further processing to WH67®.

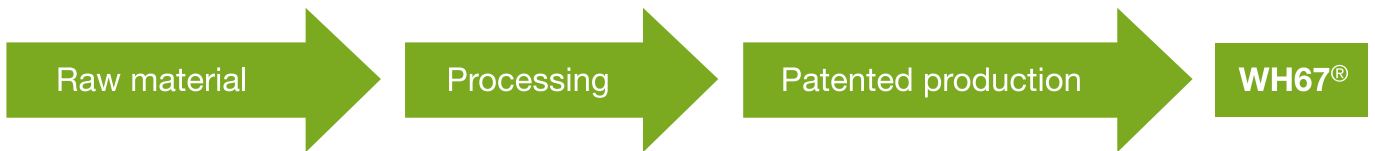


Figure 2: Production process of WH67®

## Conclusion

Humic substances, charcoal and clay minerals stand out due to their dark grey or black colour. However, all three substances are produced from completely different basic materials.



**NATURALLY  
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