

DATA ACQUISITION SOFTWARE

Data acquisition of all relevant field data is realized by smart controlled hardware and directly sent to a storage unit. An additional interface that allows the storage of all data free of any possible manipulation on the blockchain is currently under development.



As an example the screenshot from above shows detailed temperature information over the period of composting. Each phase of composting is closely monitored and parameter curves are stored in short intervals locally on a storage devices in order to save bandwidth.

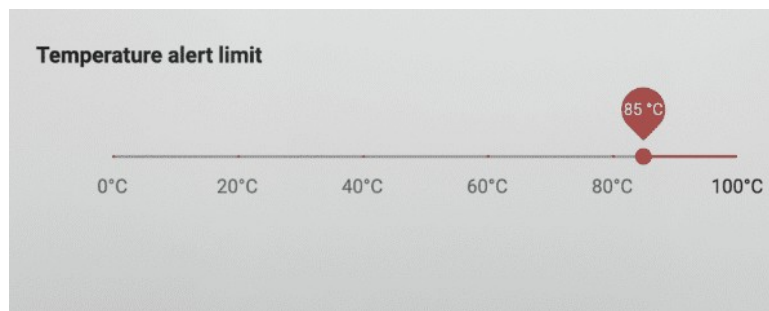
Additionally a set of relevant parameters is sent by data link to a permanently available monitoring server in order to be able to detect deviations from the planned composting process as soon as possible. We typically use such a data link every 20 to 30 minutes-



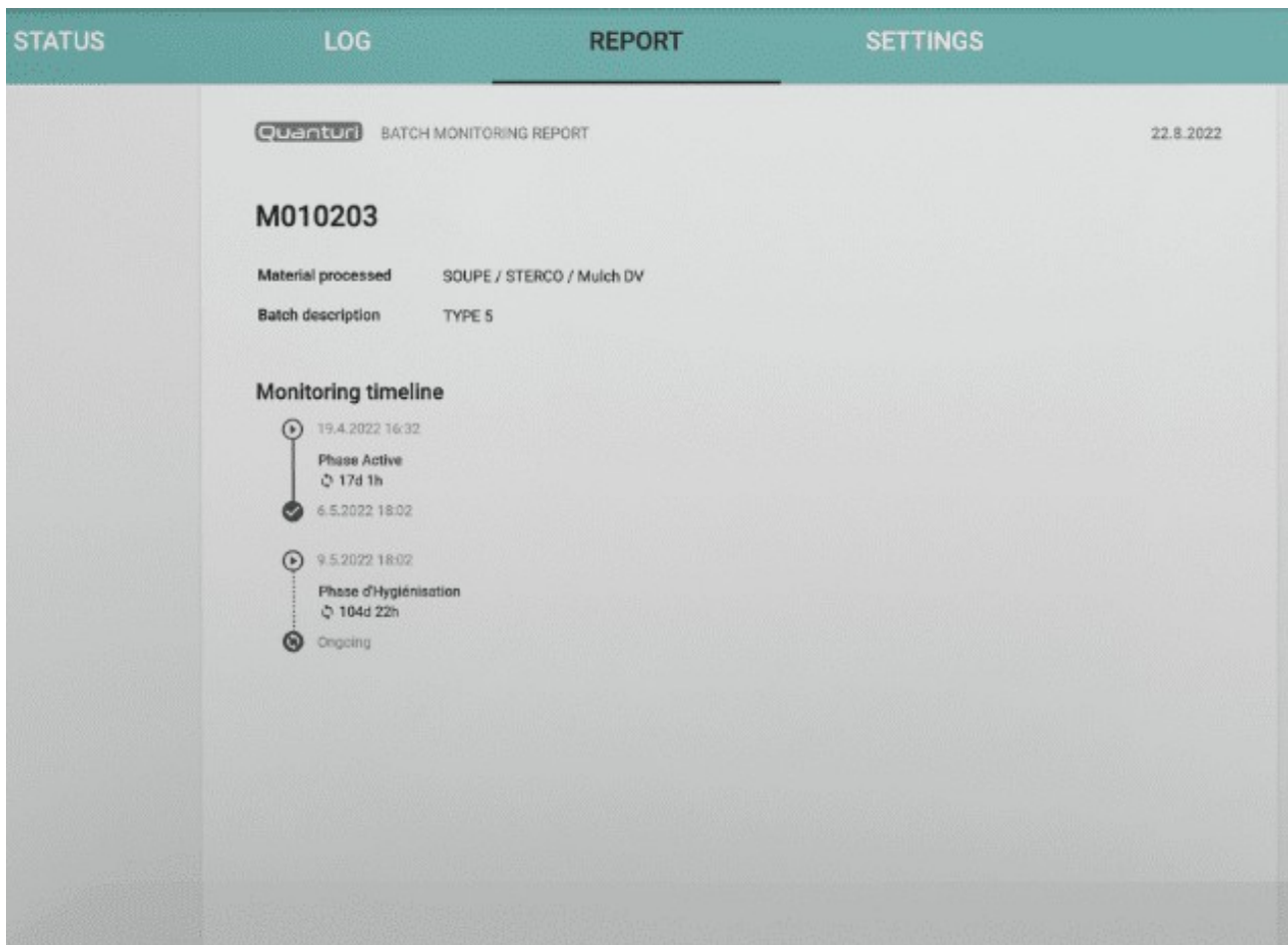
Apart from the automatic error detection, operators and supervisors have a graphical tool at their disposal that allows for manual control during every fermentation phase of every compost row.



This type of graphical representation is available for different periods of time. Usually only the necessary time for a full fermentation is contemplated, but as historical data is available as well, operators have the chance to compare temperature profiles from different times of the year. This is very suitable and avoids data misinterpretation due to variations in outside temperature.



Particularly because of variation in outside temperature it may occur, that erroneous temperature alert limits are set. These temperature alerts are of utmost importance, because of the peril of oxidation of already generated elementary carbon. Temperatures above the threshold may severely impact the compost piles carbon storage capacity and due to the exothermal nature of the oxidation process it may lead to a runaway condition, which has to be avoided under all circumstances.



As shown in the above screenshot, an individual tracing number is assigned to every compost pile. Under this number all relevant data, from the day of setting up the pile up to the day of maturation, is archived and available for control. As already mentioned an additional software module is being developed, that allows for direct storage on a blockchain, at least with the sample data that is sent by data link to the control servers (typically every 30 to 20 minutes).