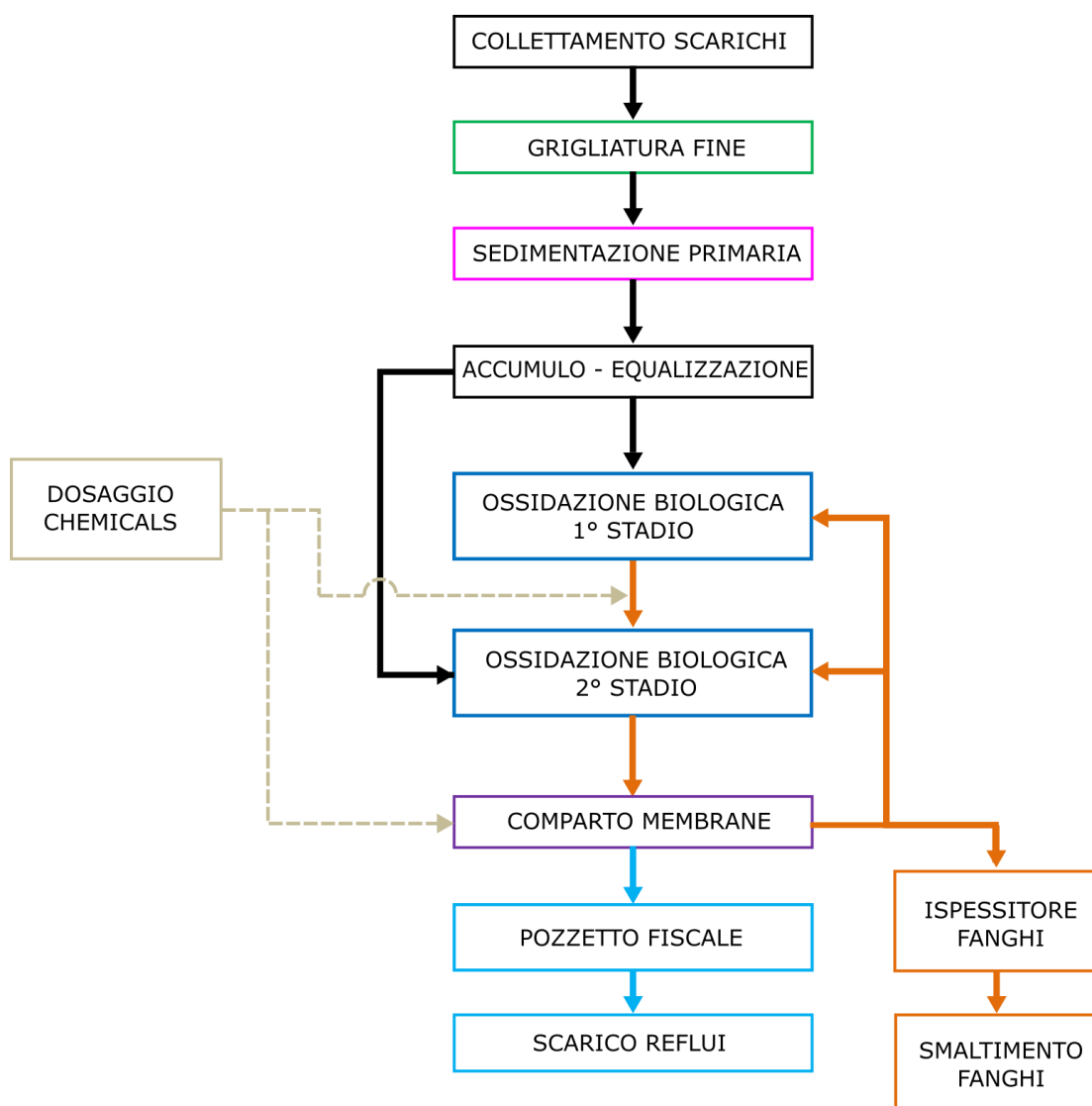


## MBR MEMBRANES

### TECHNICAL INFORMATION 1

### MBR MODULES IN WINERIES

Wineries are one of the most suitable applications for the use of MBR membranes.  
In fact, wineries have high BOD and COD values that would entail very large oxidation volumes using conventional treatment plants.  
Usually the treatment chain takes place as follows:



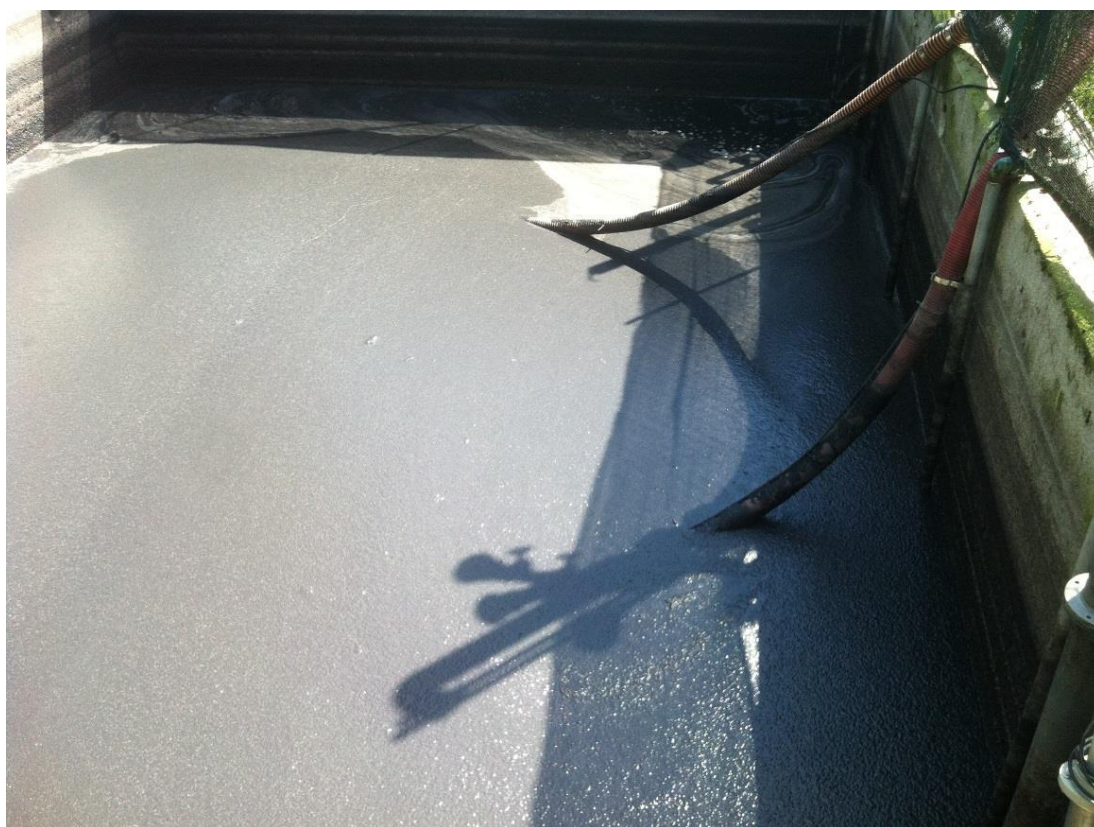
## Primary sedimentation

The primary sedimentation process is necessary to remove:

- Tartaric acid crystals that can develop in wine (tartrate), usually calcium tartrates
- Diatomaceous earth
- Sand

## Equalization tank

The equalization tank is used to regulate the functioning of the biological plant by eliminating peaks of hydraulic loads and uniform chemical features.



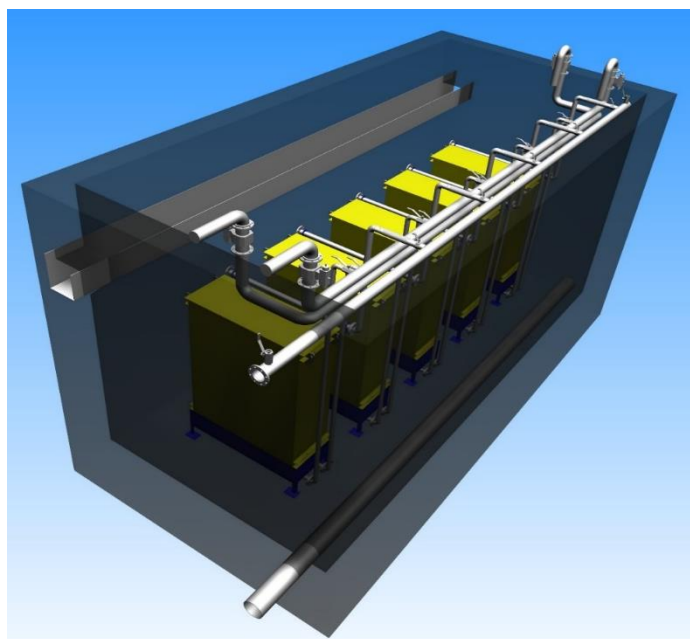
## Double oxidation

The double oxidation tank is used to guarantee the correct functioning of the plant during the harvesting and allows you to treat smaller quantities during the rest of the year by emptying one of the tanks in order to reduce operating costs.



## Membrane division

MBR membranes separate sludge from permeate through membranes and not through sedimentation.



The advantages of MBR membranes compared to conventional waste water treatment plant are the following:

- **Increased quality of the effluent:** filtration through membranes with very small pores (0,08 Micron) guarantees the production of high-quality effluents with hardly no bacterial load that can be reused in agriculture. This way you can avoid other processes such as disinfection with many advantages both economical and for the environment.
- **Increased security of the effluent's quality:** filtration process through membranes produces good quality water despite the quality of the sludge.
- **Easy management and maintenance of the processes:** the MBR advantage is a less demanding maintenance and management of the biological process, the suction of the permeate and the control of filtration is completely automatic and needs no labour. The process is automatic and operator doesn't need to worry about sludge settling with difficult controls of the sedimentation curve such as bacteria analysis, microscope analysis, dosage of auxiliary flocculation products etc.
- **Smaller footprint:** the biological treatment in the membrane bioreactor occurs with a high concentration of activated sludge (2-3 times more than conventional plants). This means the efficiency of the biological process is increased compared to conventional treatment allowing us to reduce the dimension of the active sludge tank. Moreover, MBR doesn't need a sedimentation tank and allows us to reduce footprint and investment costs.
- **Reduced production of sludge in excess:** solid/liquid separation is not based on the sedimentation features of the sludge that in conventional processes has a big limit in the choice of high SRT levels (sludge age). The MBR reactor can work with higher sludge age (15-25g) that guarantee biologically stabilized bacterial colonies which thanks to endogenous respiration increase more slowly producing lower quantities of sludge.
- **Upgrading of pre-existing plants:** thanks to the small footprint and the flexibility of the modules the MBR system is suitable for upgrading and developing pre-existing plants especially where the surface available for the installation of conventional activated sludge process is inadequate.

**MBR plants for wineries installed with Everblue's MBR modules can guarantee:**

- **Longer life of the membranes compared to other membranes available on the market**
- **Cost saving during construction and plants operations**
- **Greater permeability and higher-quality of the permeate compared to other membranes available on the market**

**EVERBLUE THE MOST RESISTANT MBR MODULE  
WITH THE MOST ROBUST MEMBRANE ELEMENTS**

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*masters of filtration*

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