Process Events:
• Centrifuge separates fine solids from unclarified wine/juice
• Clarified wine/juice is produced
• Backwash of separated solids goes to desludge
• Desludge is reclaimed via RDV or distillation

Water Events:
• Water cleaning of lines, tanks and centrifuge
• Water used for product transfer and recirculation
• Water used for cooling of operating centrifuge
• Chemical cleaning of lines, tanks and centrifuge
• Cellar area cleaning

Waste Events:
• Water cleaning of lines, tanks and centrifuge
• Chemical cleaning of lines, tanks and centrifuge
• Water used for product transfer and recirculation
• Cellar area cleaning
• Desludge production from centrifuge, grit and hydrocyclone
• Product loss through water cut outs at transfers

Best Practices:
• Caustic/chemical re-use for centrifuge cleaning
• Cooling water and recirculation water re-use
• Minimising product transfer cut out volumes to drain
• Desludge lees recovery is maximised
• Smart scheduling of production batches
**Process Events:**
- Wine and juice lees are clarified
- Solid waste as spent earth is produced

**Waste Events:**
- Spent earth to solids waste
- Cleaning chemicals to drain
- Wash down water to drain
- Product loss through water cut out at transfers

**Water Events:**
- Water use for product transfers
- Water use for filter cleaning
- Area cleans
- Chemical use for filter, tank and line cleaning
- Vacuum pump water for filter operation

**Best Practice:**
- Recirculation of filter vacuum water
- Minimising water use on earth removal from the filter
- Smart scheduling of RDV batches to maximise earth cake use
**Barrel Hall/Oak**

**Process Events:**
- Wine is transferred into barrel
- Wine is aged or fermented in barrel
- Wine is removed for blending
- Barrels are topped with wine
- Barrels are stored

**Waste Events:**
- Barrel wash down water to drain
- Product loss through water cut out at transfers
- Lees and solids produced as waste if not recovered/re-used

**Water Events:**
- Product loss through water cut out at transfers
- Barrel washing after maturation/fermentation
- Barrel storage solution preparation
- Area cleans

**Best Practice:**
- Lees recovery from barrel washing
- Automated barrel washing to minimise water use
- Using inert gas or pigging on wine transfers
**Earth Filtration**

- **Process Events:**
  - Fine solids separated
  - Production of clarified wine

- **Water Events:**
  - Filter prime with citric water
  - Lines cleaned
  - Product transfer
  - Filter cleaning post batch

- **Waste Events:**
  - Spent Earth to marc bay
  - Wash water to drain
  - Product transfer cut-out to drain

- **Best Practice:**
  - Turbidity reading (NTU) based earth particle size selection for filter efficiency
  - Spent earth sent to distillation recovery

**Cross Flow Filtration**

- **Process Events:**
  - Wine clarification
  - Retentate discharge

- **Water Events:**
  - High pH clean
  - Citric rinse
  - Water wash

- **Waste Events:**
  - Retentate discharge
  - Water wash/rinse cycles
  - High pH cleans
  - Citric solution rinses

- **Best Practice:**
  - N₂ gas for all wine transfers
  - Retentate recovered via RDV or distillation
Cartridge Style Filter

*Process Events:*  
- Wine is clarified through filter membranes

*Waste Events:*  
- Citric solution discarded to drain
- Filter washdown
- Discarded filter at end of filtration process

*Water Events:*  
- Citric priming of cartridge pre filtration
- Product loss through water cut out at transfers

*Best Practice:*  
- Using inert gas on wine transfers
- Batch scheduling to maximise filter use
Reverse Osmosis

Process Events:
- Blended wine filtered for Ethanol reduction

Waste Events:
- Citric acid solution to drain
- Rinse waters to drain
- High pH cleaner to drain
- Product loss through water cut out at transfers

Water Events:
- DI water production for blend filtration
- Citric acid washing to clean membranes
- High pH cleaning to decolourise membranes
- Water washing to flush membranes
- Product transfer to/from RO filter unit

Best Practice:
- Minimising product transfer cut out volumes to drain
- Smart scheduling to maximise unit efficiency
**Blending & Stabilisation**

**Process Events:**
- Wines are heat and cold stabilised
- Wines are fined and blended
- Process includes clarification of wines after stabilising and blending
- Process may include oak maturation of some blends
- Lees produced from fining and stabilisation processes
- Process frequently involves use of multiple filtration options

**Waste Events:**
- Cleaning chemicals to drain
- Wash down water to drain
- Product loss through water cut out at transfers
- Lees and solids produced as waste if not recovered/re-used

**Water Events:**
- Water loss through cut out at transfers
- Area cleans
- Water use for filter, tank and line cleaning
- Chemical use for filter, tank and line cleaning

**Best Practice:**
- Tartrate lees recovery and re-use
- Spill containment plan
- Minimising product transfer cut out volumes to drain
- Other lees recovery is maximised
- Using inert gas or pigging on wine transfers