

Filtration Products

Winemaker's Guide

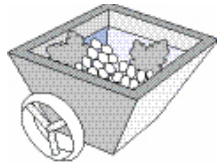
EATON

Powering Business Worldwide

Contemporary White Wine

Contemporary consumers enjoy variety. They seek lightness, elegance, freshness, and harmony when savoring their wine. Eaton brings the best selection of wine filtration and aids best suited for your needs to meet your customers' expectations.

Grape processing Grape mash processing



Young & Fresh Type

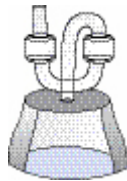
- Only fully ripen and 100% healthy grapes
- Harvest grapes cool and with as little bruising as possible
- Quick and reductive processing
- 0.08 – 0.17 lb/1,000 gal (1 – 2 g/100 kg) **SIHAZYM™ Extro** enzyme during mashing time
- Add 0.33 – 0.42 lb/1,000 gal SO₂ (40 – 50 mg/l)
- Use N₂ for overlaying mash

Must clarification Must treatment



- **TIP** Cool the must during the entire processing period!
- Strong pre-clarification of the must at 60 – 70 turbidity (NTU) residual sediment content
- 0.08 – 0.17 lb/1,000 gal (1 – 2 g/hl) **SIHAZYM Claro** enzyme
- 2.56 oz/1,000 gal (2 ml/hl) **SIHAZYM Flot** enzyme for flotation and 0.42 – 1.25 lb/1,000 gal (5 – 15 g/hl) **SIHA® Flotation Gelatine**
- Overlay with CO₂ or N₂
- If required: 0.83 – 3.34 lb/1,000 gal (10 – 40 g/hl) **SIHA GESIL** fining agent
- 8.35 lb – 12.52 lb/1,000 gal (100 – 150 g/hl) **SIHA PURANIT™** stabilizer

Fermentation control



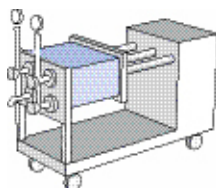
- Cold fermentation at ~59 °F (15 °C)
- Rehydration with 2.09 – 2.50 lb/1,000 gal (25 – 30 g/hl) of **SIHA SpeedFerm™** yeast nutrient
- 1.65 – 2.09 lb/1,000 gal (20 – 25 g/hl) **SIHA CRYAROME™** yeast plus 1.67 – 2.50 lb/1,000 gal (20 – 30 g/hl) **SIHA PROFERM™ Fit** yeast nutrient and 3.34 lb/1,000 gal (40 g/hl) **SIHA Fermentation Salt** fermentation aid (add in stages)
- Sauvignon blanc: **SIHA CRYAROME** yeast plus 3.34 lb/1,000 gal (40 g/hl) **SIHA PROFERM Fit** yeast nutrient
- **SIHA BACTIFERM™** bacteria nutrient for unfavorable conditions during malolactic fermentation
- To release polysaccharides add 0.33 – 0.50 lb/1,000 gal (4 – 6 g/hl) **SIHAZYM Fine™** enzyme

Young wine development



- “sur lie” treatment: 0.33 – 0.50 lb/1,000 gal (4 – 6 g/hl) **SIHAZYM Fine** enzyme
- Recommended sulfurization max. 0.58 lb/1,000 gal SO₂ (70 mg/l)
- 0.08 – 0.17 lb/1,000 gal (1 – 2 g/hl) **SIHA Isinglass** fining agent

Filtration



- Filtration with depth filter media **BECOPAD® 170** or **BECOPAD 220** in plate and frame filters **BECO COMPACT™ PLATE**
- Filtration with stacked disc cartridges **BECODISC® B173** or **BECODISC B223** in stacked disc cartridge housings **BECO INTEGRA® DISC**
- Filtration with depth filter cartridges **BECO PROTECT® PG** 0.8 µm in filter cartridge housings **BECO INTEGRA CART**
- Filtration with membrane filter cartridges **BECO MEMBRAN PSplus** 0.65 µm or 0.45 µm in filter cartridge housings **BECO INTEGRA CART**

TIP The filterability of the wine increases considerably by using SIHAZYM Extro, Claro, and Fine enzymes consistently. Selective wine filtration using BECOPAD depth filter media decreases the burden and at the same time increases the filtration performance. This enhances wine quality.

Mouthfeel Type

- Only fully ripen and 100% healthy grapes
 - Process quickly
 - Destem and mash
 - 2 – 3 hour mash contact time with 0.25 – 0.33 lb/1,000 gal (3 – 4 g/100 kg) **SIHAZYM Extro** enzyme
 - Pressing pressure < 100 kPa, 1 bar
 - Δ pH \leq 0.2 in comparison to first pressings
-
- Strong pre-clarification of the must at 40 – 50 turbidity (NTU)
 - 0.08 – 0.17 lb/1,000 gal (1 – 2 g/hl) **SIHAZYM Claro** enzyme
 - If required: 0.83 – 3.34 lb/1,000 gal (10 – 40 g/hl) **SIHA GESIL** fining agent
 - 8.35 – 16.69 lb/1,000 gal (100 – 200 g/hl) **SIHA PURANIT** stabilizer
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- Control fermentation at 59 – 64 °F (15 – 18 °C)
 - Rehydration with 2.09 – 2.50 lb/1,000 gal (25 – 30 g/hl) of **SIHA SpeedFerm** yeast nutrient
 - 1.25 – 1.67 lb/1,000 gal (15 – 20 g/hl) **SIHA Active Yeast 7 (Riesling Yeast)** or **SIHAFERM Element** yeast, 0.01 lb/1,000 gal (0.6 g/1,000 l) **SIHA Vitamin B**, fermentation aid and 4.17 lb/1,000 gal (50 g/hl) **SIHA Fermentation Salt** fermentation aid (add in stages)
 - Malolactic fermentation: sequential inoculation with **SIHALACT™ Oeno** malolactic bacteria
 - Addition of **SIHA BACTIFERM** bacteria nutrient for unfavorable conditions during malolactic fermentation
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- Approx. 4 – 6 week yeast contact (bâtonnage)
 - Diacetyl degradation
 - Sulphuring max. 0.42 lb/1,000 gal SO₂ (50 mg/l)
 - Mature for 2 – 3 months in tanks or casks
 - 0.08 – 0.17 lb/1,000 gal (1 – 2 g/hl) **SIHA Isinglass** fining agent
-
- Filtration with depth filter media **BECOPAD 220** or **BECOPAD 270** in plate and frame filters **BECO COMPACT PLATE**
 - Filtration with stacked disc cartridges **BECODISC B223** or **BECODISC B273** in stacked disc cartridge housings **BECO INTEGRA DISC**
 - Filtration with depth filter cartridges **BECO PROTECT PG** 0.8 μ m in filter cartridge housings **BECO INTEGRA CART**
 - Filtration with membrane filter cartridges **BECO MEMBRAN PSplus** 0.8 μ m or 0.65 μ m in filter cartridge housings **BECO INTEGRA CART**



Red Wine Vinification

Top red wine grapes already grow in the vineyard. The terroir is decisive. Selecting the right oenological actions in the wine cellar can maximize the results.

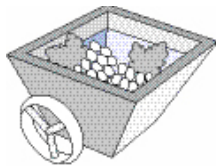
Recommended kinds of vine



Burgundy Type

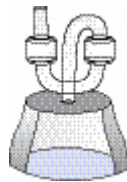
- Pinot Noir, Schwarzriesling, Portugieser, Pinotage

Mash processing



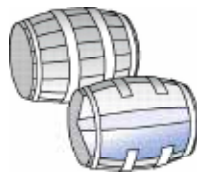
- Only fully ripen and 100% healthy grapes with fully developed color
- Harvest and process grapes cool and healthy
- Destem, space between drums not too close
- 0.17 – 0.33 lb/1,000 gal (2 – 4 g/100 kg) **SIHAZYM Extro** enzyme
- Add 0.25 lb/1,000 gal SO₂ (30 mg/l)

Fermentation control



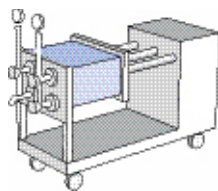
- Control mash fermentation at 64 – 71 °F (18 – 22 °C)
- 1.25 – 1.67 lb/1,000 gal (15 – 20 g/hl) **SIHA Active Yeast 8 (Burgundy Yeast)**
- 1.67 – 2.50 lb/1,000 gal (20 – 30 g/hl) **SIHA PROFERM Plus** combined yeast nutrient or 1.67 – 2.50 lb/1,000 gal (20 – 30 g/hl) **SIHA PROFERM H+²** combined yeast nutrient
- 0.5 – 0.67 lb/1,000 gal (6 – 8 g/hl) **SIHA Tannin FC** fining agent
- Press after complete fermentation

Ageing



- Store in a mixed set of 1 – 3 year old barriques
- Malolactic fermentation with **SIHALACT Oeno** malolactic bacteria
- Diacetyl degradation
- **SIHA BACTIFERM** bacteria nutrient for unfavorable conditions during malolactic fermentation
- Late sulphuring with maximum 0.67 lb/1,000 gal SO₂ (80 mg/l)
- 0.17 lb/1,000 gal (2 g/hl) **SIHA Isinglass** fining agent

Filtration



- Filtration with depth filter media **BECOPAD 270** or **BECOPAD 350** in plate and frame filters **BECO COMPACT PLATE**
- Filtration with stacked disc cartridges **BECODISC B273** or **BECODISC B353** in stacked disc cartridge housings **BECO INTEGRA DISC**
- Filtration with depth filter cartridges **BECO PROTECTTS TWINStream** 0.8 µm in filter cartridge housings **BECO INTEGRA CART**
- Filtration with membrane filter cartridges **BECO MEMBRAN PSplus** 0.65 µm or 0.45 µm in filter cartridge housings **BECO INTEGRA CART**

Bordeaux Type

- St. Laurent, Cabernet Sauvignon, Cabernet Franc, Merlot, Syrah

- Only fully ripen and 100% healthy grapes
- Process quickly
- Destem and mash
- 0.33 – 0.50 lb/1,000 gal (4 – 6 g/100 kg) **SIHAZYM Extro** enzyme
- Add 10 – 20% non-destemed grapes

- Control mash fermentation at 71 – 82 °F (22 – 28 °C)
- 1.25 – 1.67 lb/1,000 gal (15 – 20 g/hl) **SIHA Active Yeast 10 (Red Roman)** or **SIHA Rubino Cru** yeast
- 1.67 – 2.50 lb/1,000 gal (20 – 30 g/hl) **SIHA PROFERM Plus** combined yeast nutrient
- 0.5 – 0.67 lb/1,000 gal (6 – 8 g/hl) **SIHA Tannin FC** fining agent
- **SIHAZYM Lyso¹** enzyme – lysozyme inhibiting spontaneous malolactic fermentation during mash fermentation (action time 4 – 6 weeks)
- Micro-oxidation with **SIHA Tannin MOX** fining agent
- Add 0.33 – 0.50 lb/1,000 gal (4 – 6 g/hl) **SIHAZYM Fine** enzyme to liberate the polysaccharides, mannoproteins
- Press after complete fermentation

- Store in barriques for 6 – 12 months
- Malolactic fermentation with **SIHALACT Oeno** malolactic bacteria
- Diacetyl degradation
- **SIHA BACTIFERM** bacteria nutrient for unfavorable conditions during malolactic fermentation
- Late sulphuring with maximum 0.67 lb/1,000 gal SO₂ (80 mg/l)
- 0.17 lb/1,000 gal (2 g/hl) **SIHA Isinglass** fining agent

- Filtration with depth filter media **BECOPAD 350** or **BECOPAD 450** in plate and frame filters **BECO COMPACT PLATE**
- Filtration with stacked disc cartridges **BECODISC B353** or **BECODISC B453** in stacked disc cartridge housings **BECO INTEGRA DISC**
- Filtration with depth filter cartridges **BECO PROTECT TSTWINStream** 0.8 µm in filter cartridge housings **BECO INTEGRA CART**
- Filtration with membrane filter cartridges **BECO MEMBRAN PSplus** 0.8 µm or 0.65 µm in filter cartridge housings **BECO INTEGRA CART**

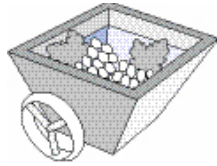
¹ From June 30, 2012 the use of milk (casein) and chicken (egg protein) products in wine production will be subject to labelling requirements. Please refer to EU and national law.



Ice Wine and Dessert Wine

Ice wines and dessert wines are regaining popularity. Take advantage of this variety of taste. Less is frequently more and small selective actions maximize the results.

Grape processing Mash processing



German Type – “Ice Wine”

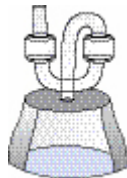
- Grapes with at least 120 °Oe, pure botrytis
- Remove any grapes with white, pink, and blue mold
- Harvest temperature of -50 °F (-10 °C)
- Pressing: pH ≤ 0.3 in comparison to first pressings

Must clarification Must treatment



- Heat the juice to 50 °F (10 °C)
- Strong pre-clarification of the must
0.08 – 0.17 lb/1,000 gal (1 – 2 g/hl) **SIHAZYM Claro** enzyme
- 6.68 – 8.35 lb/1,000 gal (80 – 100 g/hl) **SIHA Actiliq GE** fining agent
- 0.83 – 2.50 lb/1,000 gal (10 – 30 g/hl) **SIHA Gelatine Fine Granules** fining agent
- 12.52 – 16.69 lb/1,000 gal (150 – 200 g/hl) **SIHA Active Bentonite G** stabilizer

Fermentation control



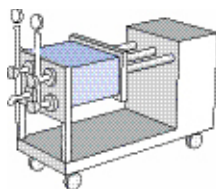
- Fermentation at 64 – 71 °F (18 – 22 °C)
- Rehydration with 2.09 – 2.50 lb/1,000 gal (25 – 30 g/hl) of **SIHA SpeedFerm** yeast nutrient
- 2.50 – 4.17 lb/1,000 gal (30 – 50 g/hl) **SIHA Active Yeast 7 (Riesling Yeast)** plus 1.67 – 2.50 lb/1,000 gal (20 – 30 g/hl) **SIHA PROFERM Plus** combined yeast nutrient and
0.01 lb/1,000 gal (0.6 g/1,000 l) **SIHA Vitamin B₁** fermentation aid
- Ferment up to residual sugar concentration of
1.168 – 1.251 lb/1,000 gal (140 – 150 g/l)
- Stop fermentation by cooling at temperatures < 39 °F (4 °C)

Ageing



- Fast racking of yeast
- Sulphuring with at least 1.17 lb/1,000 gal SO₂ (140 mg/l)
- Harmonize the wine as required with **SIHA OPTISIL** combined fining agent
- Correct faults with **SIHA Gelatine Fine Granules** or **SIHA Actiliq GE** fining agent
- Add bentonite as required
- 0.25 – 0.33 lb/1,000 gal (3 – 4 g/hl) **SIHAZYM Fine** enzyme to improve sensory profile and the filtration

Filtration



- Filtration with depth filter media **BECOPAD 220** or **BECOPAD 270** in plate and frame filters **BECO COMPACT PLATE**
- Filtration with stacked disc cartridges **BECODISC B223** or **BECODISC B273** in stacked disc cartridge housings **BECO INTEGRA DISC**
- Filtration with depth filter cartridges **BECO PROTECTTS TWINStream** 0.8 µm in filter cartridge housings **BECO INTEGRA CART**
- Filtration with membrane filter cartridges **BECO MEMBRAN PSplus** 0.45 µm in filter cartridge housings **BECO INTEGRA CART**

Sauternes Type

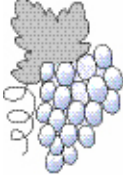
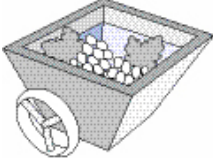


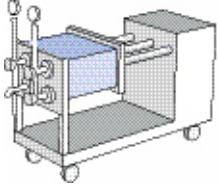

- Grapes with at least 140 °Oe, pure botrytis
 - Remove any grapes with white, pink, and blue mold
 - Press slowly
 - Control sugar and pH during pressing; pH 3.5
 - pH ≤ 0.3 in comparison to first pressings
-
- Strong pre-clarification of the must
0.17 - 0.33 lb/1,000 gal (2 - 4 g/hl) **SIHAZYM Claro** enzyme
 - If required: 0.83 - 3.34 lb/1,000 gal (10 - 40 g/hl) **SIHA GESIL** fining agent
 - 8.35 - 16.69 lb/1,000 gal (100 - 200 g/hl) **SIHA Ca-Bentonite G** stabilizer
-
- Fermentation at 59 - 64 °F (15 - 18 °C) in new barriques
 - Rehydration with 2.09 - 2.50 lb/1,000 gal (25 - 30 g/hl) of **SIHA SpeedFerm** yeast nutrient
 - 2.50 - 4.17 lb/1,000 gal (30 - 50 g/hl) **SIHA CRYAROME** yeast or **SIHA VARIOFERM™** yeast plus 1.67 - 2.50 lb/1,000 gal (20 - 30 g/hl) **SIHA PROFERM Plus** combined yeast nutrient and 2.50 lb/1,000 gal (30 g/hl) **SIHA Fermentation Salt** fermentation aid (add in stages)
 - 0.01 lb/1,000 gal (0.6 g/1000 l) **SIHA Vitamin B₁** fermentation aid
 - If possible, stop fermentation by cooling at < 39 °F (4 °C)
 - Residual sugar concentration should be approx. 12.52 lb/1,000 gal (150 g/l)
-
- According to the quality of the yeast depot stabilize after first racking
 - Prolong SO₂ addition
 - Dosage approx. 20.03 oz/1,000 gal SO₂ (150 mg/l)
 - Store in barriques for 6 months
 - Fining with 0.17 lb/1,000 gal (2 g/hl) **SIHA Isinglass** fining agent
 - Add bentonit as required
 - **SIHAZYM Lyso¹** enzyme - lysozyme inhibiting spontaneous malolactic fermentation [max. 4.17 lb/1,000 gal (50 g/hl)]
-
- Filtration with depth filter media **BECOPAD 220** or **BECOPAD 270** in plate and frame filters **BECO COMPACT PLATE**
 - Filtration with stacked disc cartridges **BECODISC B223** or **BECODISC B273** in stacked disc cartridge housings **BECO INTEGRA DISC**
 - Filtration with depth filter cartridges **BECO PROTECT TSTWINStream** 0.8 µm in filter cartridge housings **BECO INTEGRA CART**
 - Filtration with membrane filter cartridges **BECO MEMBRAN PSplus** 0.45 µm in filter cartridge housings **BECO INTEGRA CART**

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Sparkling Wine Bottle Fermentation

Many consumers have discovered that sparkling wine is not only pearly, but has the essence of wine as well. This presents an opportunity to produce many notable sparkling wines.

		Sparkling Wine Type
Recommended types of vine		<ul style="list-style-type: none"> Riesling, Müller-Thurgau, Pinot Blanc, Kerner, Aromatic vine varieties (Gewürztraminer, Muscat ...)
Grape processing Mash processing		<ul style="list-style-type: none"> Harvest at max. 80 – 85 °Oe Total acidity 0.8 – 1% (8 – 10 g/l) Gentle grape transportation Must clarification, minimization of polyphenols If required 0.83 – 3.34 lb/1,000 gal (10 – 40 g/hl) SIHA GESIL fining agent
Fermentation control Base wine		<ul style="list-style-type: none"> Control fermentation at 59 – 64 °F (15 – 18 °C) 1.25 – 1.67 lb/1,000 gal (15 – 20 g/hl) SIHA Active Yeast 7 (Riesling Yeast) or SIHA CRYAROME yeast plus 2.50 – 4.17 lb/1,000 gal (30 – 50 g/hl) SIHA Fermentation Salt fermentation aid (add in stages)
Base wine stabilization		<ul style="list-style-type: none"> No malolactic fermentation, at deacidification with SIHA Potassium Bicarbonate Minimum dosage of SO₂: 0.25 lb/1,000 gal total SO₂ (30 mg/l) Clarification and tartrate stabilization Cuveé the wine
Filtration		<ul style="list-style-type: none"> Filtration with depth filter media BECOPAD 270 or BECOPAD 350 in plate and frame filters BECO COMPACT PLATE Filtration with stacked disc cartridges BECODISC B273 or BECODISC B353 in stacked disc cartridge housings BECO INTEGRA DISC Filtration with depth filter cartridges BECO PROTECT TS TWINStream 0.8 µm in filter cartridge housings BECO INTEGRA CART Filtration with membrane filter cartridges BECO MEMBRAN PSplus 0.65 µm in filter cartridge housings BECO INTEGRA CART
Sparkling wine making		<ul style="list-style-type: none"> Second fermentation: Rehydration with 2.09 – 2.50 lb/1,000 gal (25 – 30 g/hl) SIHA SpeedFerm yeast nutrient Fermentation with 1.67 – 2.50 lb/1,000 gal (20 – 30 g/hl) SIHA Active Yeast 4 Tirage 183 – 200 lb/1,000 gal (22 – 24 g/l) saccharose Max. 2.50 lb/1,000 gal (30 g/hl) SIHA Fermentation Salt fermentation aid 76.80 oz/1,000 gal (60 ml/hl) SIHA Brillant liquid riddling aid and 76.80 oz/1,000 gal (60 ml/hl) SIHA Tannin liquid riddling aid Yeast storage at least for 9 months Set liqueur to 100 – 200 lb/1,000 gal (12 – 24 g/l) residual sugar concentration

Champagne Type

- Chardonnay, Pinot Blanc, Pinot Gris, Auxerrois, Pinot Noir

- Harvest at max. 80 – 85 °Oe
- Total acidity approx. 1% (10 g/l)
- A tartaric acid for optimal malolactic fermentation content of approx. 0,5% (5 g/l)
- High clarified must should be running of the press
- Δ pH < 0.2 in comparison to free run juice

- Control fermentation at 59 – 64 °F (15 – 18 °C)
- 1.25 – 1.67 lb/1,000 gal (15 – 20 g/hl) **SIHA WhiteArome** yeast or **SIHAFERM Element** yeast
- Co-inoculation by adding **SIHALACT Oeno** malolactic bacteria to the grape juice
- 2.50 – 4.17 lb/1,000 gal (30 – 50 g/hl) **SIHA Fermentation Salt** fermentation aid (add in stages)

- Diacetyl breakdown
- Minimum dosage of SO₂: 0.25 lb/1,000 gal total SO₂ (30 mg/l)
- Clarification and tartrate stabilization
- Cuveé the wine

- Filtration with depth filter media **BECOPAD 270** or **BECOPAD 350** in plate and frame filters **BECO COMPACT PLATE**
- Filtration with stacked disc cartridges **BECODISC B273** or **BECODISC B353** in stacked disc cartridge housings **BECO INTEGRA DISC**
- Filtration with depth filter cartridges **BECO PROTECT TSTWINStream** 0.8 µm in filter cartridge housings **BECO INTEGRA CART**
- Filtration with membrane filter cartridges **BECO MEMBRAN PSplus** 0.65 µm in filter cartridge housings **BECO INTEGRA CART**

- Second fermentation: Rehydration with 2.09 – 2.50 lb/1,000 gal (25 – 30 g/hl) **SIHA SpeedFerm** yeast nutrient if necessary
- Fermentation with 1.67 – 2.50 lb/1,000 gal (20 – 30 g/hl) **SIHA Active Yeast 4**
- Tirage 183 – 200 lb/1,000 gal (22 – 24 g/l) saccharose
- Max. 2.50 lb/1,000 gal (30 g/hl) **SIHA Fermentation Salt** fermentation aid
- 76.80 oz/1,000 gal (60 ml /hl) **SIHA Brillant liquid** riddling aid and 76.80 oz/1,000 gal (60 ml /hl) **SIHA Tannin liquid** riddling aid
- Yeast storage at least for 18 months
- Set liqueur to 66 lb/1,000 gal (8 g/l) residual sugar concentration



The World Wants New Wines

Globalization is a key word in trade and industrial economies. Oenologists around the world are increasingly aware of this development. New processes and trends in winemaking are the results of their ingenuity and innovation.

Eaton's Winemaker's Guide represents a selection of new and traditional types of wines to inspire the winemaker. These are only suggestions and provide a basis for enologists to experiment with variety.

Eaton is available as a partner to provide assistance with your winemaking needs.







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