



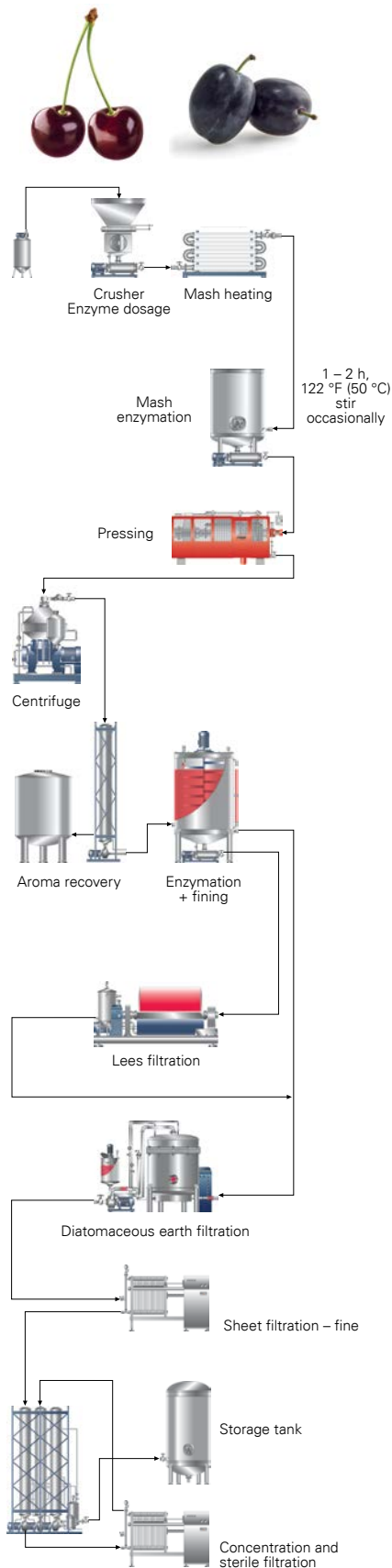
Fruit Juice & Fruit Wine Guide



Powering Business Worldwide

Fruit Juice Processing from Stone Fruit

Process steps



Production of concentrate from sour cherries (clear juice)

Raw ingredients:

Ripe and sound, fresh or frozen fruit
 Thawing of frozen fruit
 Mash heating to 140 – 158 °F (60 – 70 °C)
 Mechanical stone removal (if required)

Mash enzyme dosage:

Low pectin content eliminates mash enzymation and prevents instability of juices.

No mash maceration time.

Continuously fill the press in order to prevent stones from settling in the mash tank.

Juice extraction

using a press or decanter (only mash from fruit without stones). For belt presses increase thickness of non-destoned mash.

Pectin degradation: approx. 1 – 2 h at 122 – 131 °F (50 – 55 °C)
 Panzym® Pro Color enzyme: 0.61 – 1.53 fl oz/short ton (20 – 50 ml/t) or
 Panzym BE XXL enzyme: 0.46 – 0.92 fl oz/short ton (15 – 30 ml/t)

For increased filterability:

Panzym Flux enzyme: 0.31 – 0.92 fl oz/shortton (10 – 30 ml/t)

Check via alcohol test

Fining: 2 – 4 h at 122 – 131 °F (50 – 55 °C)

SIHA® PURANIT™/SIHA PURANIT UF fining agent:

15.34 – 30.68 oz/short ton (500 – 1,000 g/t)

BEVASIL® 30 silica sol fining agent:

15.34 – 30.68 fl oz/short ton (500 – 1,000 ml/t)

Gelatine Fine Granules fining agent: 1.53 – 3.07 oz/short ton (50 – 100 g/t)

Plant proteins – as an alternative to gelatine:

SIHA Pea Protein fining agent: 1.53 – 3.07 oz/short ton (50 – 100 g/t)

SIHA Potato Protein fining agent: 0.76 – 1.53 oz/short ton (25 – 50 g/t)

Lees filtration with

BECOLITE™ 5000 perlite

Dosage: 102.24 – 143.42 lb/100 ft² (5 – 7 kg/m²)

Diatomaceous earth filtration with

BECOGUR™ 200 diatomaceous earth (approx. 10%)

BECOGUR 3500 diatomaceous earth (approx. 90%)

Dosage: approx. 30.68 – 36.82 oz/short ton (1 – 1.2 kg/t)

Sheet filtration – fine with

BECO® KD 10 or BECOPAD® 350 depth filter sheets

Flow: 0.41 gpm/ft² (1,000 l/m²/h)

Concentration with

simultaneous sterile and polishing filtration of

semi-concentrate (35 – 40 Brix) at 158 – 176 °F (70 – 80 °C) with

BECO SD 30 or BECOPAD 270 depth filter sheets

Flow: 0.20 gpm/ft² (500 l/m²/h)

Production of concentrate from plums (clear juice)

Raw ingredients:

Ripe and sound, fresh or frozen fruit
Thawing of frozen fruit
Mash heating to 122 – 131 °F (50 – 55 °C)
Mechanical stone removal (if required)

Mash enzyme dosage:

Panzym Pro Color enzyme: 3.07 – 4.60 fl oz/short ton (100 – 150 ml/t) or
Panzym BE XXL enzyme: 2.54 – 3.68 fl oz/short ton (80 – 120 ml/t)

Mash enzymation:

1 – 2 h at 122 – 131 °F (50 – 55 °C)
stir occasionally

Juice extraction

using a press or decanter (only mash from fruit without stones). For belt presses increase thickness of non-destoned mash.

Pectin degradation:

approx. 1 – 2 h at 122 – 131 °F (50 – 55 °C)
Panzym Pro Color enzyme: 1.53 – 2.54 fl oz/short ton (50 – 80 ml/t) or
Panzym BE XXL enzyme: 0.92 – 1.84 fl oz/short ton (30 – 60 ml/t)

For increased filterability:

Panzym Flux enzyme: 0.31 – 0.92 fl oz/short ton (10 – 30 ml/t)

Check via alcohol test

Fining:

2 – 4 h at 122 – 131 °F (50 – 55 °C)
SIHA PURANIT/SIHA PURANIT UF fining agent:

15.34 oz/short ton (500 g/t)

BEVASIL® 30 silica sol fining agent:

15.34 – 30.68 fl oz/short ton (500 – 1,000 ml/t)

Gelatine Fine Granules fining agent: 1.53 – 3.07 oz/short ton (50 – 100 g/t)

Plant proteins – as an alternative to gelatine:

SIHA Pea Protein fining agent: 1.53 – 3.07 oz/short ton (50 – 100 g/t)

SIHA Potato Protein fining agent: 0.76 – 1.53 oz/short ton (25 – 50 g/t)

Lees filtration with

BECOLITE 5000 perlite

Dosage: 102.24 – 143.42 lb/100 ft² (5 – 7 kg/m²)

Diatomaceous earth filtration with

BECOGUR 200 diatomaceous earth (approx. 10%)

BECOGUR 3500 diatomaceous earth (approx. 90%)

Dosage: approx. 30.68 – 36.82 oz/short ton (1 – 1.2 kg/t)

Sheet filtration – fine with

BECO KD 10 or BECOPAD 350 depth filter sheets

Flow: 0.41 gpm/ft² (1,000 l/m²/h)

Concentration with

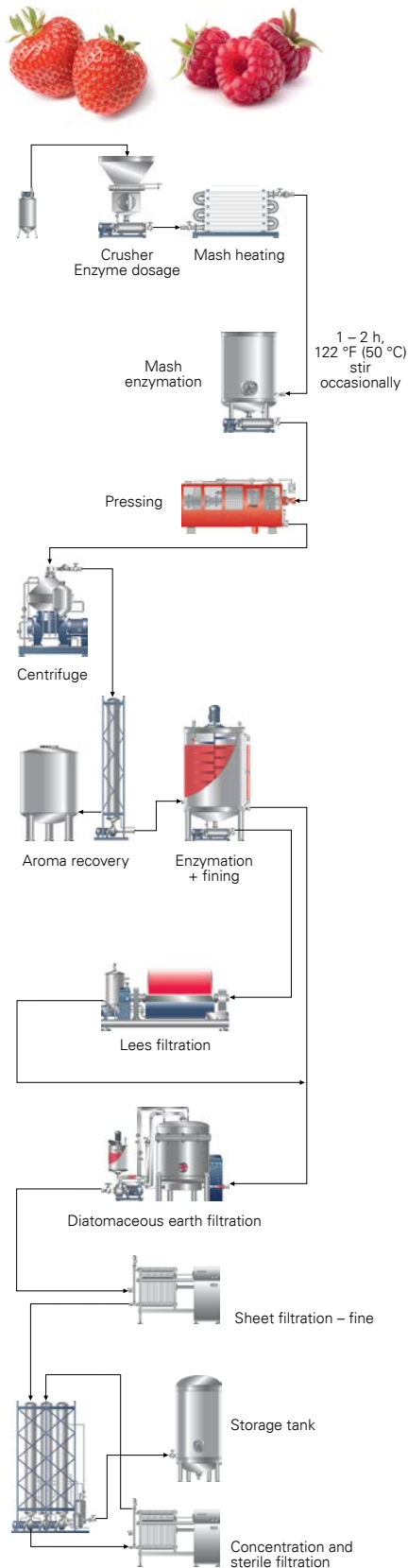
simultaneous sterile and polishing filtration of semi-concentrate (35 – 40 Brix) at 158 – 176 °F (70 – 80 °C) with BECO SD 30 or BECOPAD 270 depth filter sheets

Flow: 0.20 gpm/ft² (500 l/m²/h)



Fruit Juice Processing from Soft Fruit

Process steps



Production of concentrate from strawberries (clear juice)

Raw ingredients:

Ripe and sound, fresh or frozen fruit
 Thawing of frozen fruit
 Mash heating to 120 – 131 °F (50 – 55 °C) or
 cold enzyming at approx. 68 °F (20 °C) to protect the color

Mash enzyme dosage:

Panzym Pro Color enzyme: 1.53 – 2.54 fl oz/short ton (50 – 80 ml/t) or
 Panzym BE XXL enzyme: 0.92 – 1.53 fl oz/short ton (30 – 50 ml/t)
 For frozen fruit, the dosages may have to be increased significantly.
 For cold enzyming, the dosages should be doubled.

Mash enzymation:

1 – 2 h at 122 – 131 °F (50 – 55 °C) or
 2 – 4 h at 68 °F (20 °C)
 stir occasionally

Juice extraction

using a press or decanter

Pectin degradation:

approx. 1 – 2 h at 122 – 131 °F (50 – 55 °C)
 Panzym Pro Color enzyme: 0.61 – 1.53 fl oz/short ton (20 – 50 ml/t) or
 Panzym BE XXL enzyme: 0.46 – 0.92 fl oz/short ton (15 – 30 ml/t)
 For increased filterability:
 Panzym Flux enzyme: 0.31 – 0.92 fl oz/short ton (10 – 30 ml/t)
 Check via alcohol test

Fining:

2 – 4 h at 122 – 131 °F (50 – 55 °C)
 SIHA PURANIT/SIHA PURANIT UF fining agent:
 15.34 oz/short ton (500 g/t)
 BEVASIL® 30 silica sol fining agent:
 15.34 – 30.68 fl oz/short ton (500 – 1,000 ml/t)
 Gelatine Fine Granules fining agent: 1.53 – 3.07 oz/short ton (50 – 100 g/t)
 Plant proteins – as an alternative to gelatine:
 SIHA Pea Protein fining agent: 1.53 – 3.07 oz/short ton (50 – 100 g/t)
 SIHA Potato Protein fining agent: 0.76 – 1.53 oz/short ton (25 – 50 g/t)

Lees filtration with

BECOLITE 5000 perlite
 Dosage: 102.24 – 143.42 lb/100 ft² (5 – 7 kg/m²)

Diatomaceous earth filtration with

BECOGUR 200 diatomaceous earth (approx. 10%)
 BECOGUR 3500 diatomaceous earth (approx. 90%)
 Dosage: approx. 30.68 – 36.82 oz/short ton (1 – 1.2 kg/t)

Sheet filtration – fine with

BECO KD 10 or BECOPAD 350 depth filter sheets
 Flow: 0.41 gpm/ft² (1,000 l/m²/h)

Concentration with

simultaneous sterile and polishing filtration of
 semi-concentrate (35 – 40 Brix) at 158 – 176 °F (70 – 80 °C) with
 BECO SD 30 or BECOPAD 270 depth filter sheets
 Flow: 0.20 gpm/ft² (500 l/m²/h)

Production of concentrate from raspberries (clear juice)

Raw ingredients:

Ripe and sound, fresh or frozen fruit
Thawing of frozen fruit
Mash heating to 122 – 131 °F (50 – 55 °C)

Mash enzyme dosage:

Panzym Pro Color enzyme: 1.84 – 3.68 fl oz/short ton (60 – 120 ml/t) or
Panzym BE XXL enzyme: 1.53 – 3.07 fl oz/short ton (50 – 100 ml/t)
For frozen fruit, the dosages may have to be increased significantly.

Mash enzymation:

1 – 2 h at 122 – 131 °F (50 – 55 °C)
stir occasionally

Juice extraction

using a press or decanter

Pectin degradation: approx. 1 – 2 h at 122 – 131 °F (50 – 55 °C)

Panzym Pro Color enzyme: 0.61 – 1.53 fl oz/short ton (20 – 50 ml/t) or
Panzym BE XXL enzyme: 0.46 – 0.92 fl oz/short ton (15 – 30 ml/t)

For increased filterability:

Panzym Flux enzyme: 0.31 – 0.92 fl oz/short ton (10 – 30 ml/t)

Check via alcohol test

Fining: 2 – 4 h at 122 – 131 °F (50 – 55 °C)

SIHA PURANIT/ SIHA PURANIT UF fining agent:

15.34 oz/short ton (500 g/t)

BEVASIL® 30 silica sol fining agent:

15.34 – 30.68 fl oz/short ton (500 – 1,000 ml/t)

Gelatine Fine Granules fining agent: 1.53 – 3.07 oz/short ton (50 – 100 g/t)

Plant proteins – as an alternative to gelatine:

SIHA Pea Protein fining agent: 1.53 – 3.07 oz/short ton (50 – 100 g/t)

SIHA Potato Protein fining agent: 0.76 – 1.53 oz/short ton (25 – 50 g/t)

Lees filtration with

BECOLITE 5000 perlite

Dosage: 102.24 – 143.42 lb/100 ft² (5 – 7 kg/m²)

Diatomaceous earth filtration with

BECOGUR 200 diatomaceous earth (approx. 10%)

BECOGUR 3500 diatomaceous earth (approx. 90%)

Dosage: approx. 30.68 – 36.82 oz/short ton (1 – 1.2 kg/t)

Sheet filtration – fine with

BECO KD 10 or BECOPAD 350 depth filter sheets

Flow: 0.41 gpm/ft² (1,000 l/m²/h)

Concentration with

simultaneous sterile and polishing filtration of

semi-concentrate (35 – 40 Brix) at 158 – 176 °F (70 – 80 °C) with

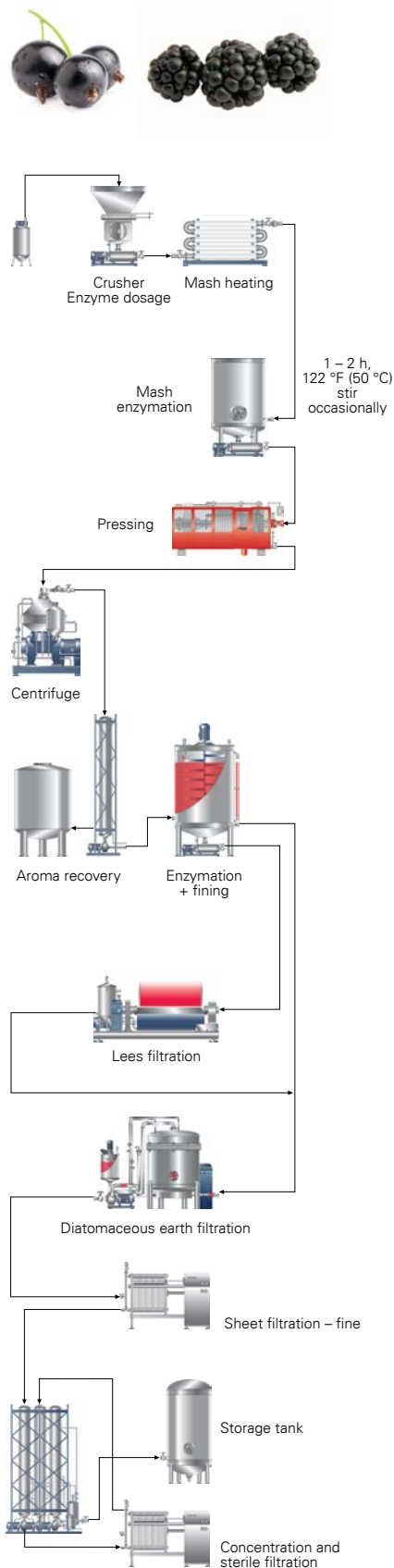
BECO SD 30 or BECOPAD 270 depth filter sheets

Flow: 0.20 gpm/ft² (500 l/m²/h)



Fruit Juice Processing from Soft Fruit

Process steps



Production of concentrate from blackcurrants

Raw ingredients:

Ripe and sound, fresh or frozen fruit

Thawing of frozen fruit

Mash heating to 113 – 122 °F (45 – 50 °C)

Mash enzyme dosage:

Panzym Pro Color enzyme: 3.07 – 6.14 fl oz/short ton (100 – 200 ml/t) or

Panzym BE XXL enzyme: 2.45 – 4.91 fl oz/short ton (80 – 160 ml/t)

For frozen fruit, the dosages may have to be increased significantly.

Mash enzymation:

1 – 2 h at 113 – 122 °F (45 – 50 °C)

stir occasionally

Juice extraction

using a press or decanter

Pectin degradation: approx. 1 – 2 h at 122 – 131 °F (50 – 55 °C)

Panzym Pro Color enzyme: 0.92 – 1.84 fl oz/short ton (30 – 60 ml/t) or

Panzym BE XXL enzyme: 0.61 – 1.23 fl oz/short ton (20 – 40 ml/t)

For increased filterability:

Panzym Flux enzyme: 0.31 – 0.92 fl oz/short ton (10 – 30 ml/t)

Check via alcohol test

Fining: 2 – 4 h at 122 – 131 °F (50 – 55 °C)

SIHA PURANIT/SIHA PURANIT UF fining agent:

15.34 – 30.68 fl oz/short ton (500 – 1,000 ml/t)

BEVASIL® 30 silica sol fining agent:

15.34 – 30.68 fl oz/short ton (500 – 1,000 ml/t)

Gelatine Fine Granules fining agent: 3.07 – 6.14 oz/short ton (100 – 200 g/t)

Plant proteins – as an alternative to gelatine:

SIHA Pea Protein fining agent: 3.07 – 6.14 oz/short ton (100 – 200 g/t)

SIHA Potato Protein fining agent: 1.53 – 3.07 oz/short ton (50 – 100 g/t)

Lees filtration with

BECOLITE 5000 perlite

Dosage: 102.24 – 143.42 lb/100 ft² (5 – 7 kg/m²)

Diatomaceous earth filtration with

BECOGUR 200 diatomaceous earth (approx. 10%)

BECOGUR 3500 diatomaceous earth (approx. 90%)

Dosage: approx. 30.68 – 36.82 oz/short ton (1 – 1.2 kg/t)

Sheet filtration – fine with

BECO KD 10 or BECOPAD 350 depth filter sheets

Flow: 0.41 gpm/ft² (1,000 l/m²/h)

Concentration with

simultaneous sterile and polishing filtration of

semi-concentrate (35 – 40 Brix) at 158 – 176 °F (70 – 80 °C) with

BECO SD 30 or BECOPAD 270 depth filter sheets

Flow: 0.20 gpm/ft² (500 l/m²/h)

Production of concentrate from blackberries (clear juice)

Raw ingredients:

Ripe and sound, fresh or frozen fruit
Thawing of frozen fruit
Mash heating to 122 – 131 °F (50 – 55 °C)

Mash enzyme dosage:

Panzym Pro Color enzyme: 2.45 – 4.91 fl oz/short ton (80 – 160 ml/t) or
Panzym BE XXL enzyme: 1.84 – 3.68 fl oz/short ton (60 – 120 ml/t)
For frozen fruit, the dosages may have to be increased significantly.

Mash enzymation:

1 – 2 h at 122 – 131 °F (50 – 55 °C)
stir occasionally

Juice extraction

using a press or decanter

Pectin degradation:

approx. 1 – 2 h at 122 – 131 °F (50 – 55 °C)
Panzym Pro Color enzyme: 0.61 – 1.53 fl oz/short ton (20 – 50 ml/t) or
Panzym BE XXL enzyme: 0.46 – 0.92 fl oz/short ton (15 – 30 ml/t)
For increased filterability:
Panzym Flux enzyme: 0.31 – 0.92 fl oz/short ton (10 – 30 ml/t)
Check via alcohol test

Fining:

2 – 4 h at 122 – 131 °F (50 – 55 °C)
SIHA PURANIT/SIHA PURANIT UF fining agent:
15.34 – 30.68 fl oz/short ton (500 – 1,000 ml/t)
BEVASIL® 30 silica sol fining agent:
15.34 – 30.68 fl oz/short ton (500 – 1,000 ml/t)
Gelatine Fine Granules fining agent: 3.07 – 6.14 oz/short ton (100 – 200 g/t)
Plant proteins – as an alternative to gelatine:
SIHA Pea Protein fining agent: 3.07 – 6.14 oz/short ton (100 – 200 g/t)
SIHA Potato Protein fining agent: 1.53 – 3.07 oz/short ton (50 – 100 g/t)

Lees filtration with

BECOLITE 5000 perlite
Dosage: 102.24 – 143.42 lb/100 ft² (5 – 7 kg/m²)

Diatomaceous earth filtration with

BECOGUR 200 diatomaceous earth (approx. 10%)
BECOGUR 3500 diatomaceous earth (approx. 90%)
Dosage: approx. 30.68 – 36.82 oz/short ton (1 – 1.2 kg/t)

Sheet filtration – fine with

BECO KD 10 or BECOPAD 350 depth filter sheets
Flow: 0.41 gpm/ft² (1,000 l/m²/h)

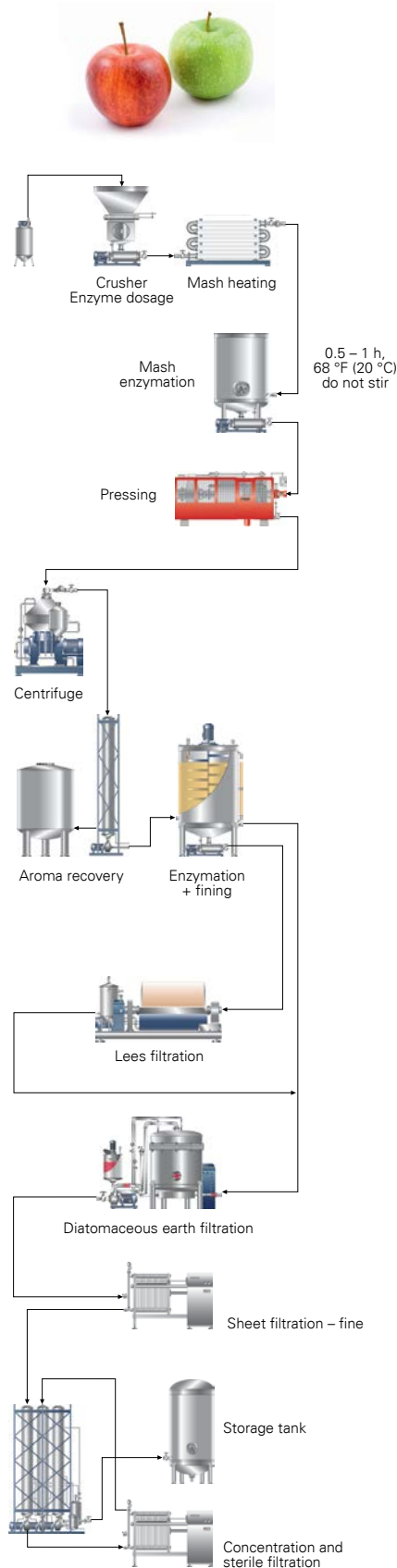
Concentration with

simultaneous sterile and polishing filtration of
semi-concentrate (35 – 40 Brix) at 158 – 176 °F (70 – 80 °C) with
BECO SD 30 or BECOPAD 270 depth filter sheets
Flow: 0.20 gpm/ft² (500 l/m²/h)



AJC and Fruit Juice Processing from Pomaceous Fruit

Process steps



Production of AJC with hot clarification + sterile filtration

Raw ingredients:

Ripe, sound, washed

Mash enzyme dosage:

Panzym First Yield enzyme: 2.15 – 3.07 fl oz/short ton (70 – 100 ml/t) or
Panzym YieldMASH XXL enzyme: 1.53 – 2.15 fl oz/short ton (50 – 70 ml/t)

Mash enzymation:

at approx. 68 °F (20 °C) without stirring
Bucher press: 0.5 – 1 h
Belt press: 1 h
Decanter: 1 h

Juice extraction

with possible secondary extraction
pomace/water ratio = 1:0.5 – 1

Starch degradation:

approx. 1 h at 122 – 131 °F (50 – 55 °C)
Panzym HT 300 enzyme: 0.61 – 1.84 fl oz/short ton (20 – 60 ml/t) or
Panzym AG XXL enzyme: 0.31 – 0.92 fl oz/short ton (10 – 30 ml/t)
Check via iodine test

Pectin degradation:

approx. 1 h at 122 – 131 °F (50 – 55 °C)
Panzym Pro Clear enzyme: 0.31 – 0.92 fl oz/short ton (10 – 30 ml/t) or
Panzym XXL enzyme: 0.31 – 0.92 fl oz/short ton (10 – 30 ml/t)
For increased filterability:

Panzym Flux enzyme: 0.31 – 0.92 fl oz/short ton (10 – 30 ml/t)

Check via alcohol test

Fining:

2 – 4 h at 122 – 131 °F (50 – 55 °C)

SIHA PURANIT/SIHA PURANIT UF fining agent:

30.68 oz/short ton (1,000 g/t)

BEVASIL® 30 silica sol fining agent:

15.34 – 30.68 fl oz/short ton (500 – 1,000 ml/t)

Gelatine Fine Granules fining agent: 3.07 – 6.14 oz/short ton (100 – 200 g/t)

Plant proteins – as an alternative to gelatine:

SIHA Pea Protein fining agent: 3.07 – 6.14 oz/short ton (100 – 200 g/t)

SIHA Potato Protein fining agent: 1.53 – 3.07 oz/short ton (50 – 100 g/t)

Lees filtration with

BECOLITE 5000 perlite

Dosage: 102.24 – 143.42 lb/100 ft² (5 – 7 kg/m²)

Diatomaceous earth filtration with

BECOGUR 200 diatomaceous earth (approx. 10%)

BECOGUR 3500 diatomaceous earth (approx. 90%)

Dosage: approx. 30.68 – 36.82 oz/short ton (1 – 1.2 kg/t)

Sheet filtration – fine with

BECO KDS 12 or BECOPAD 350 depth filter sheets

Flow: 0.41 gpm/ft² (1,000 l/m²/h)

Concentration with

simultaneous sterile and polishing filtration of

semi-concentrate (35 – 40 Brix) at 158 – 176 °F (70 – 80 °C) with

BECO SD 30 or BECOPAD 270 depth filter sheets

Flow: 0.20 gpm/ft² (500 l/m²/h)

Production of clear apple juice with cold clarification

Raw ingredients:

Ripe, sound, washed

Mash enzyme dosage:

Panzym FirstYield enzyme: 2.15 – 3.07 fl oz/short ton (70 – 100 ml/t) or
Panzym YieldMASH XXL enzyme: 1.53 – 2.15 fl oz/short ton (50 – 70 ml/t)

Mash enzymation:

at approx. 68 °F (20 °C) without stirring
Bucher press: 0.5 – 1 h
Belt press: 1 h
Decanter: 1 h

Juice extraction

with possible secondary extraction
pomace/water ratio = 1:0.5 – 1

Without previous aroma recovery

Starch degradation: approx. 4 h at approx. 68 °F (20 °C)
Panzym F2 enzyme: 1.53 – 4.60 fl oz/short ton (50 – 150 ml/t)
Check via iodine test

Pectin degradation: approx. 4 h at approx. 68 °F (20 °C)
Panzym Pro Clear enzyme: 0.31 – 0.92 fl oz/short ton (10 – 30 ml/t) or
Panzym XXL enzyme: 0.31 – 0.92 fl oz/short ton (10 – 30 ml/t)
For increased filterability:
Panzym Flux enzyme: 0.31 – 0.92 fl oz/short ton (10 – 30 ml/t)
Check via alcohol test

Fining: 2 – 4 h at 122 – 131 °F (50 – 55 °C)
SIHA PURANIT/SIHA PURANIT UF fining agent:
15.34 – 30.68 fl oz/short ton (500 – 1,000 ml/t)
BEVASIL® 30 silica sol fining agent:
15.34 – 30.68 fl oz/short ton (500 – 1,000 ml/t)
Gelatine Fine Granules fining agent: 3.07 – 6.14 oz/short ton (100 – 200 g/t)
Plant proteins – as an alternative to gelatine:
SIHA Pea Protein fining agent: 3.07 – 6.14 oz/short ton (100 – 200 g/t)
SIHA Potato Protein fining agent: 1.53 – 3.07 oz/short ton (50 – 100 g/t)

Lees filtration with

BECOLITE 5000 perlite
Dosage: 102.24 – 143.42 lb/100 ft² (5 – 7 kg/m²)

Diatomaceous earth filtration with

BECOGUR 200 diatomaceous earth (approx. 10%)
BECOGUR 3500 diatomaceous earth (approx. 90%)
Dosage: approx. 30.68 – 36.82 oz/short ton (1 – 1.2 kg/t)

Sheet filtration – fine with

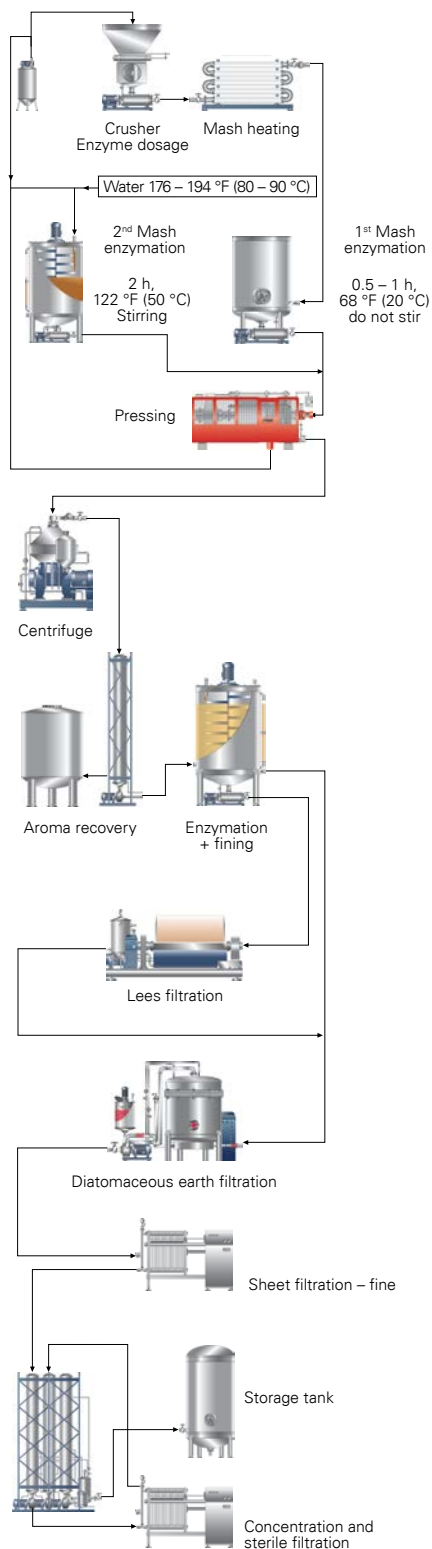
BECO KDS 12 or BECOPAD 350 depth filter sheets
Flow: 0.41 gpm/ft² (1,000 l/m²/h)

Storage or bottling



2nd Mash Enzymation and Fruit Juice Processing from Pomaceous Fruit

Process steps



Yield increase through 2nd mash enzymation

Raw ingredients:

1 part pomace from 1st pressing
+ 0.6 – 1 part (depending on first yield from 60 – 80%)
demineralized water at 176 – 194 °F (80 – 90 °C)

Mash enzyme dosage, depending on first yield:

Panzym Second Yield enzyme
a) 80% yield: 7.67 – 15.34 fl oz/short ton (250 – 500 ml/t) pomace
b) 70% yield: 4.91 – 11.66 fl oz/short ton (160 – 380 ml/t) pomace
c) 60% yield: 3.68 – 7.36 fl oz/short ton (120 – 240 ml/t) pomace

2. mash enzymation tenure:

122 – 131 °F (50 – 55 °C)
with vigorous stirring

Juice extraction

using a press or decanter
possibly followed by blending of 1st juice and 2nd juice

Starch degradation:

approx. 1 h at 122 – 131 °F (50 – 55 °C)
Panzym HT 300 enzyme: 0.61 – 1.84 fl oz/short ton (20 – 60 ml/t) or
Panzym AG XXL enzyme: 0.31 – 0.92 fl oz/short ton (10 – 30 ml/t)
Check via iodine test

Pectin degradation:

approx. 1 h at 122 – 131 °F (50 – 55 °C)
Panzym Pro Clear enzyme: 0.31 – 0.92 fl oz/short ton (10 – 30 ml/t) or
Panzym XXL enzyme: 0.31 – 0.92 fl oz/short ton (10 – 30 ml/t)
For increased filterability:

Panzym Flux enzyme: 0.31 – 0.92 fl oz/short ton (10 – 30 ml/t)

Check via alcohol test

Fining: 2 – 4 h at 122 – 131 °F (50 – 55 °C)

SIHA PURANIT/SIHA PURANIT UF fining agent: 30.68 oz/short ton (1,000 g/t)

BEVASIL® 30 silica sol fining agent:

15.34 – 30.68 fl oz/short ton (500 – 1,000 ml/t)

Gelatine Fine Granules fining agent: 3.07 – 6.14 oz/short ton (100 – 200 g/t)

Plant proteins – as an alternative to gelatine:

SIHA Pea Protein fining agent: 3.07 – 6.14 oz/short ton (100 – 200 g/t)

SIHA Potato Protein fining agent: 1.53 – 3.07 oz/short ton (50 – 100 g/t)

Lees filtration with

BECOLITE 5000 perlite

Dosage: 102.24 – 143.42 lb/100 ft² (5 – 7 kg/m²)

Diatomaceous earth filtration with

BECOGUR 200 diatomaceous earth (approx. 10%)

BECOGUR 3500 diatomaceous earth (approx. 90%)

Dosage: approx. 30.68 – 36.82 oz/short ton (1 – 1.2 kg/t)

Sheet filtration – fine with

BECO KDS 12 or BECOPAD 350 depth filter sheets

Flow: 0.41 gpm/ft² (1,000 l/m²/h)

Concentration with

simultaneous sterile and polishing filtration of
semi-concentrate (35 – 40 Brix) at 158 – 176 °F (70 – 80 °C) with
BECO SD 30 or BECOPAD 270 depth filter sheets

Flow: 0.20 gpm/ft² (500 l/m²/h)

Production of naturally cloudy apple juice

Raw ingredients:

Fully ripe (low starch content), sound and washed

Mash enzyme dosage:

Panzym YieldMASH XXL enzyme: 0.92 – 1.53 fl oz/short ton (30 – 50 ml/t)

Panzym First Yield enzyme: 1.23 – 1.84 fl oz/short ton (40 – 60 ml/t)

Mash enzymation:

0.5 – 1 h at approx. 68 °F (20 °C)

without stirring

Juice extraction

using a press or decanter

Vitamin C dosage: 6.14 – 12.27 oz/short ton (200 – 400 g/t) *
directly into the buffer tank

Removal of instable solids via centrifuge

Early pasteurization without long intermediate storage to prevent
solid loss of stability through enzymatic activity and fermentation.

Storage or filling:

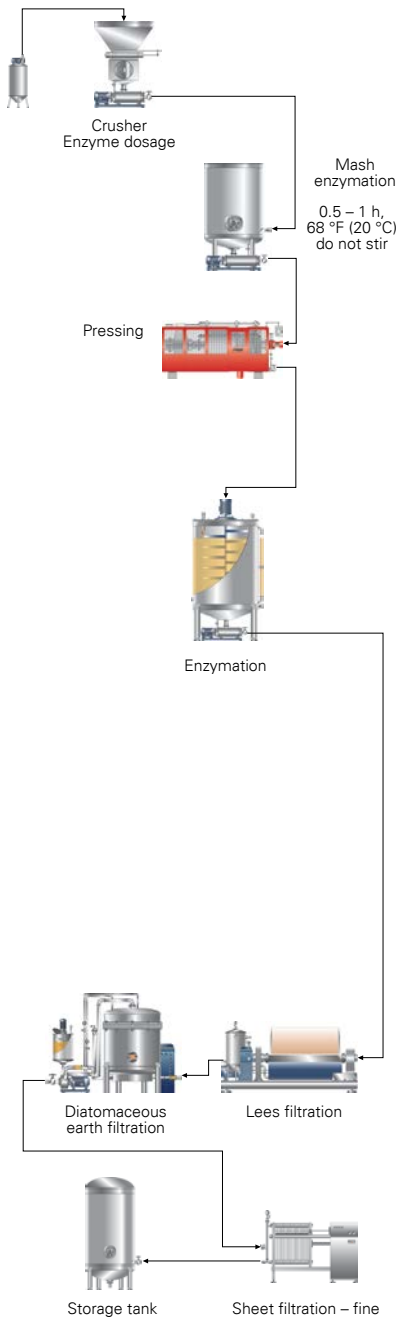
If no centrifuge was used for the removal of instable solids, the juice
should be drawn off the coarse unfiltered sediment in the storage
tank prior to bottling.



Fruit Juice Processing from Pomaceous, Pitted and Soft Fruit

Small-scale fruit processors and fruit distilleries: Recommendations for processing of clear juices

Process steps



Pomaceous fruit (clear juice)

Raw ingredients:

Pomaceous fruit: apple, pear, quince
Ripe, sound, washed and grinded fruits

Mash enzymation:

Approx. 1 h at 68 °F (20 °C), without stirring
Panzym Univers enzyme: 12.80 oz/1,000 gal (10 ml/hl)
Pay attention to an even distribution of enzyme in the mash

Juice extraction:

Pressing

Oxidation protection (as required):

Ascorbic acid stabilizer: 1.67 – 3.34 lb/1,000 gal (20 – 40 g/hl)

Juice enzymation:

2 – 4 h at 68 °F (20 °C):

Starch degradation:

Panzym F2 enzyme: 0.64 – 2.56 oz/1,000 gal (0.5 – 2 ml/hl)

Pectin degradation:

Panzym Univers enzyme: 1.28 – 2.56 oz/1,000 gal (1 – 2 ml/hl)

Fining:

6 – 8 h at 68 °F (20 °C):

SIHA Active Bentonite G fining agent: approx. 8.35 lb/1,000 gal (100 g/hl)

(at pH < 3.5 and 68 °F (20 °C) SIHA Ca-Bentonite G fining agent:

approx. 8.35 lb/1,000 gal (100 g/hl))

BEVASIL 30 silica sol fining agent: 6.4 – 12.8 oz/1,000 gal (50 – 100 ml/hl)

(higher dosing required for fruit rich in tannin)

Gelatine Fine Granules fining agent: 0.83 – 2.5 lb/1,000 gal (10 – 30 g/hl)

Plant proteins – as an alternative to gelatine:

SIHA Pea Protein fining agent: 0.83 – 2.5 lb/100 gal (10 – 30 g/hl)

SIHA Potato Protein fining agent: 0.42 – xxx lb/100 gal (5 – 15 g/hl)

Coarse filtration:

BECOGUR 200 diatomaceous earth:

approx. 10% at 0.84 – 1.67 lb/100 gal (100 – 200 g/hl)

BECOGUR 3500 diatomaceous earth:

approx. 90% at 0.84 – 1.67 lb/100 gal (100 – 200 g/hl)

or BECOPAD 580 depth filter sheet

Fine filtration:

BECOPAD 350 depth filter sheet

Lees filtration with

BECOLITE 5000 perlite: 102.24 – 143.42 lb/100 ft² (5 – 7 kg/m²)

Bottling at approx. 176 °F (80 °C), depending on germ load and heat holding time

Pitted fruit/soft fruit (clear juice)

Raw ingredients:

Pitted fruit: cherry, plum, mirabelle plum
Soft fruit: blackcurrant, strawberry, blackberry
Ripe, sound, washed and grinded fruits

Mash enzymation:

1 – 2 h at 113 – 131 °F (45 – 55 °C), occasional stirring
Colored fruits: Panzym Univers enzyme: 0.83 – 2.5 lb/1,000 gal (10 – 30 g/hl)

For cherry processing:

Alternatively hot pressing at 140 – 158 °F (60 – 70 °C) without using enzymes

Juice extraction:

Pressing

Juice enzymation:

2 – 4 h at 122 – 131 °F (50 – 55 °C) or
8 – 12 h at 68 °F (20 °C):
Panzym Univers enzyme: 2.56 – 10.24 lb/1,000 gal (2 – 8 ml/hl)

Fining:

1 – 2 h at 122 – 131 °F (50 – 55 °C) or
4 – 8 h at 68 – 86 °F (20 – 30 °C)
SIHA Active Bentonite G fining agent: 2.09 – 4.17 lb/1,000 gal (25 – 50 g/hl)
(at pH < 3.5 and 68 °F (20 °C) SIHA Ca-Bentonite G fining agent:
approx. 2.09 – 4.17 lb/1,000 gal (25 – 50 g/hl))
BEVASIL 30 silica sol fining agent: 6.4 – 25.6 oz/100 gal (50 – 200 ml/hl)
Gelatine Fine Granules fining agent: 0.42 – 1.67 lb/1,000 gal (5 – 20 g/hl)
Plant proteins – as an alternative to gelatine:
SIHA Pea Protein fining agent: 0.42 – 1.67 lb/100 gal (5 – 20 g/hl)
SIHA Potato Protein fining agent: xxx – 0.83 lb/100 gal (2.5 – 10 g/hl)

Coarse filtration:

BECOGUR 200 diatomaceous earth:
approx. 10% at 0.84 – 1.67 lb/100 gal (100 – 200 g/hl)
BECOGUR 3500 diatomaceous earth:
approx. 90% at 0.84 – 1.67 lb/100 gal (100 – 200 g/hl)
or BECOPAD 580 depth filter sheet

Fine filtration:

BECOPAD 350 depth filter sheet
Colored juices: BECOPAD 450 depth filter sheet

Lees filtration with

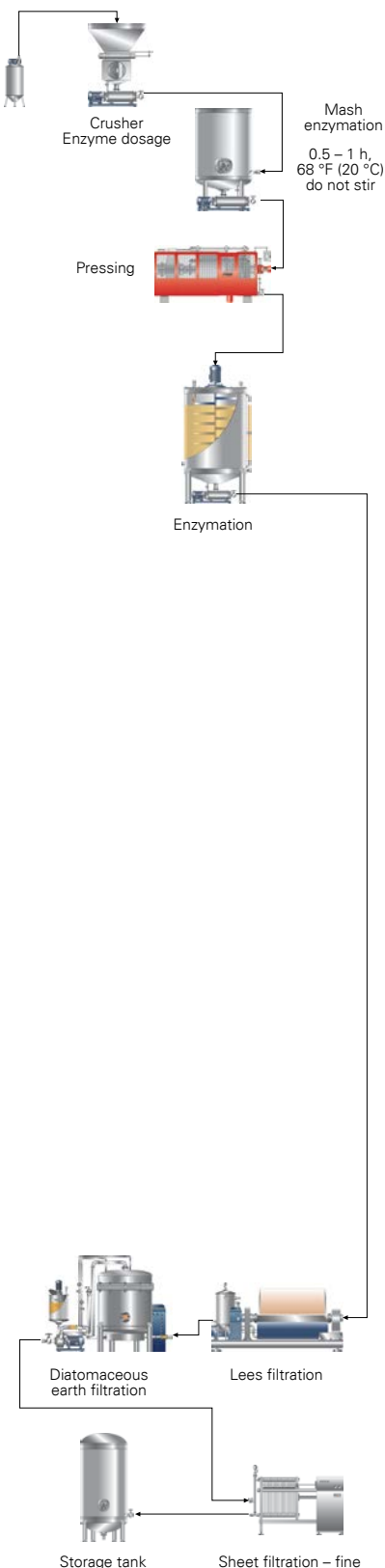
BECOLITE 5000 perlite: 102.24 – 143.42 lb/100 ft² (5 – 7 kg/m²)

Bottling at approx. 176 °F (80 °C), depending on germ load and heat holding time



Fruit Wine Processing from Pomaceous, Pitted and Soft Fruit

Process steps



Fruit wine

Raw ingredients:

Pomaceous fruit: apple, pear quince – pitted fruit: cherry, plum, mirabelle plum – soft fruit: blackcurrant, strawberry, blackberry
Ripe, sound, washed and grinded fruit

Mash enzymation:

Pomaceous fruit: approx. 1 h at 68 °F (20 °C) without stirring,
Panzym Unifers enzyme: 12.80 oz/1,000 gal (10 ml/hl)
Pitted/soft fruit: 1 – 2 h at 113 – 131 °F (45 – 55 °C), occasional stirring
Rich-colored fruit: Panzym Unifers enzyme: 12.80 – 38.4 oz/1,000 gal (10 – 30 ml/hl)

Juice extraction:

Pressing

Juice stabilization:

Addition of sulfur: SIHA Potassium Pyrosulphite stabilizer: 0.5 – 0.83 lb/1,000 gal (6 – 10 g/hl)
Addition should follow the microbiological burden of incoming fruit

Juice enzymation:

Starch degradation (pomaceous fruit):

Panzym F2 enzyme: 0.64 – 2.56 oz/1,000 gal (0.5 – 2 ml/hl)

Pectin degradation: Panzym Unifers enzyme: 0.64 – 2.56 oz/1,000 gal (0.5 – 2 ml/hl)

No holding time: Starch and pectin degradation occur during fermentation

Chaptalization (as required)

Acification:

Lactic Acid 80% stabilizer: max. 3.13 lb/100 gal (3.75 g/l)* (optional for fruits low in acid)

Fermentation (make sure to only use cleaned fermentation vessels with fermentation air locks):

SIHA Active Yeast 3: 1.67 lb/1,000 gal (20 g/hl)

SIHA Active Yeast 8 (Burgundy Yeast): 1.67 lb/1,000 gal (20 g/hl)

Rehydration of active dry yeast in juice water mixture (50:50) with

SIHA® SpeedFerm™ yeast nutrient

Yeast nutrient:

Fermentation Salt yeast nutrient: max. 2.5 lb/1,000 gal (30 g/hl),

step-wise addition until mid of fermentation

Fermentation temperature: 60.8 – 64.4 °F (16 – 18 °C)

After fermentation: Racking followed by sulfurization with

1 – 1.34 lb/1,000 gal (12 – 16 g/hl) SIHA Potassium Pyrosulphite stabilizer

Fining:

SIHA Active Bentonite G fining agent: approx. 2.09 – 8.35 lb/1,000 gal (25 – 100 g/hl)

(at pH < 3.5 SIHA Ca-Bentonite G fining agent: approx. 8.35 lb/1,000 gal (100 g/hl))

BEVASIL 30 silica sol fining agent: 6.4 – 25.6 oz/1,000 gal (50 – 200 ml/hl)

(higher dosing required for fruit rich in tannin)

Gelatine Fine Granules fining agent: 0.83 – 1.67 lb/1,000 gal (5 – 20 g/hl)

Plant proteins – as an alternative to gelatine:

SIHA Pea Protein fining agent: 0.42 – 1.67 lb/100 gal (5 – 20 g/hl)

SIHA Potato Protein fining agent: 0.02 – 0.83 lb/100 gal (2.5 – 10 g/hl)

Stabilization:

SIHA Potassium Pyrosulphite stabilizer: target value, free SO₂: 0.05 – 0.07 oz/1,000 gal (35 – 50 mg/l)

Potassium Sorbate stabilizer: max. 2.24 lb/1,000 gal (26.8 g/hl) (for wines with residual sugar)

Coarse filtration:

BECOGUR 200 diatomaceous earth: approx. 10% at 0.84 – 1.67 lb/100 gal (100 – 200 g/hl)

BECOGUR 3500 diatomaceous earth: approx. 90% at 0.84 – 1.67 lb/100 gal (100 – 200 g/hl)
or BECOPAD 580 depth filter sheet

Fine filtration: BECOPAD 350 depth filter sheet

Sterile filtration: BECOPAD 220 depth filter sheet

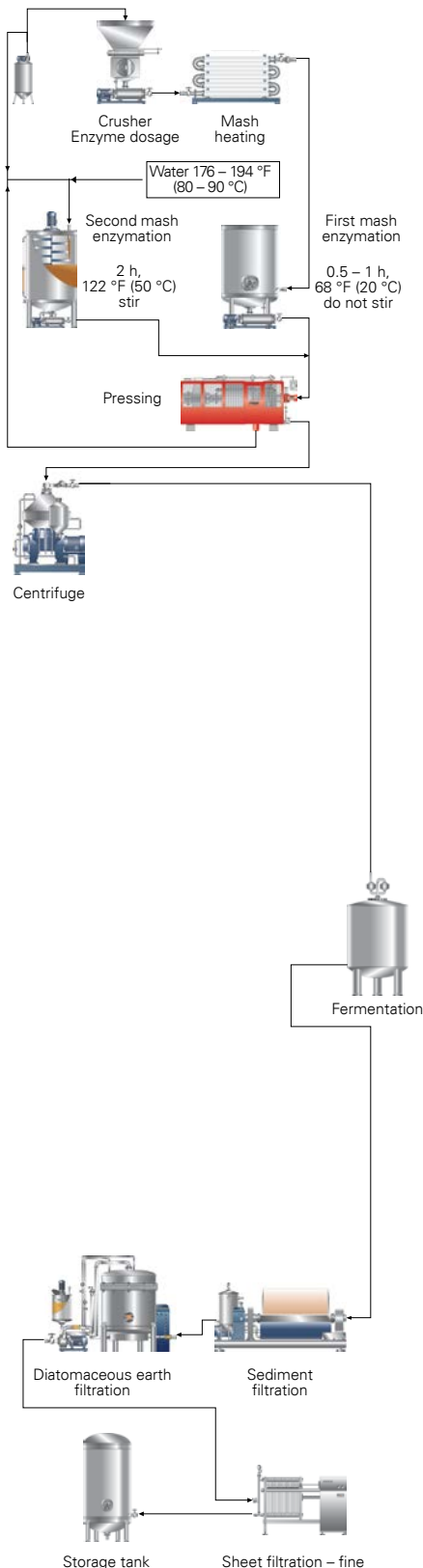
Lees filtration with BECOLITE 5000 perlite: 102.24 – 143.42 lb/100 ft² (5 – 7 kg/m²)

* Guidelines from March 1, 2003

BEVASIL® is a registered trademark of Akzo Nobel GmbH

Fruit Wine Processing from Apples and Pears (Cider)

Process steps



Cider

Raw ingredients:

Ripe, sound and washed fruit

First mash dosage:

Panzym First Yield enzyme: 2.15 – 3.07 fl oz/short ton (70 – 100 ml/t)

First mash enzymation:

At approx. 68 °F (20 °C), without stirring

Possible process step: juice extraction with secondary extraction (second mash enzymation):

Maximum yield, Panzym Second Yield enzyme:

3.07 – 6.14 fl oz/short ton (100 – 200 ml/t) pomaceous fruit

1.5 – 2 h at 122 – 131 °F (50 – 55 °C), with vigorous stirring

Juice extraction:

Possibly blending of first and second juice

Alcoholic fermentation:

SIHA Active Yeast 3 or SIHA Active Yeast 8 (Burgundy Yeast): 1.67 lb/100 gal (20 g/hl)

Rehydration of active dry yeast in juice water mixture (50:50) at 95 °F (35 °C)

Fermentation temperature: 63 – 72 °F (17 – 22 °C)

Enzymation/alcoholic fermentation:

Panzym Flux enzyme: 0.31 – 0.92 fl oz/short ton (10 – 30 ml/t) for pectin degradation and improved sedimentation

Higher alcohol yield with Panzym HT 300 enzyme:

0.61 – 0.92 fl oz/short ton (20 – 30 ml/t)

Rehydration of active dry yeast:

SIHA SpeedFerm yeast nutrient: 1.67 lb/100 gal (20 g/hl)

Yeast nutrients:

Fermentation Salt yeast nutrient: max. 0.84 lb/100 gal (100 g/hl), step-wise addition until mid of alcoholic fermentation

SIHA Vitamin B₁ yeast nutrient: max. 0.005 lb/1,000 gal (0.6 g/1000 l)

SIHA PROFERM H⁺ combined yeast nutrient: max. 3.3 lb/1,000 gal (40 g/hl)

Optional: malolactic fermentation (MLF):

SIHALACT™ Oeno lactic acid bacteria (citrate-positive) after alcoholic fermentation

Diatomaceous earth filtration:

BECOGUR 200 diatomaceous earth: approx. 10% at 0.84 – 1.67 lb/100 gal (100 – 200 g/hl)

BECOGUR 3500 diatomaceous earth: approx. 90% at 0.84 – 1.67 lb/100 gal (100 – 200 g/hl)

Stabilization:

Cold stabilization: BECO Steril 40 or BECO KDS 15 depth filter sheets

Room temperature: BECOPAD 220, BECO KD 10 or BECO Steril 40 depth filter sheets



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