Milling industry

Sefar leads the technical fabrics industry and sets standards worldwide as a solution provider with an absolute customer focus.

10th IAOM SEA 2019 in Jakarta
Cédric Anil Muller
„We sell precise holes”

Christoph Tobler, CEO of the Sefar Group Switzerland
1. Sefar at the Glance

Sefar Group at a glance

Leading manufacturer of precision fabrics for industrial applications

Worldwide operations: Subsidiaries and fabrication centers in 27 countries and on 6 continents

Weaving plants in Switzerland, Romania and Thailand

Manufacturer of monofilament yarn in Switzerland, Poland, Romania and Mexico

Privately held corporation with a solid financial basis
2. Sales / Fabrication Locations in SEA

PT. Leiter Indonesia
Carter Philippines
Vien Tienh Vietnam
Cannew Thailand

Fabrication Centre
1. Sefar at the Glance
2. Introduction Milling Industry

Over 189 Years of Innovation

«Day by day, we draw on over 189 years of innovative energy to offer our customers just the right solutions...»

It all started with bolting cloth for the milling industry.
2. Sefar Fabric Assortment
For Sifters

Approximately 60 – 100 m² of Screen Fabric are needed for a 100t / 24h flour mill.

The sieves are renewed approximately once a year to avoid oversifting = losing yield.
2.1 Sefar Fabric Assortment
For Sifters – Coarse Sieves

- **Coarse**
  - **Mesh Opening:** > 1200 – 900 µm
    - **Wire Mesh**

- **Medium**
  - **Mesh Opening:** > 1000 – 212 µm
    - **Polyamide Grit Gauze**

- **Fine**
  - **Mesh Opening:** > 300 - 90 µm
    - **Polyamide Flour Sieve**
2.1 Sefar Fabric Assortment
For Sifters – Coarse Sieves

Sefar NYTAL® Metal Mesh

Wire Mesh

Stainless Steel wire mesh is used for coarse or scalping sieves
2.1 Sefar Fabric Assortment
For Sifters – Coarse Sieves

- **Coarse**
  - Wire Mesh
    - Mesh Opening: > 1200 – 900 μm

- **Medium**
  - Polyamide Grit Gauze
    - Mesh Opening: > 1000 – 212 μm

- **Fine**
  - Polyamide Flour Sieve
    - Mesh Opening: > 300 - 90 μm
2.1 Sefar Fabric Offerings
For Sifters – Medium Sieves

Sefar NYTAL® PA-GG

Polyamide Grit Gauze
Polyamide grit gauze is used for the medium sieves for its:

- Good Abrasives resistant qualities
- Long Lifetime
- High Efficiency
2.1 Sefar Fabric Assortment
For Sifters – Coarse Sieves

- **Coarse Sieves**
  - Mesh Opening: > 300 – 90 mµ
  - Wire Mesh

- **Medium Sieves**
  - Mesh Opening: > 1200 – 900 mµ
  - Polyamide Grit Gauze

- **Fine Sieves**
  - Mesh Opening: > 300 - 90 mµ
  - Polyamide Flour Sieve
2.1 Sefar Fabric Assortment
For Sifters – Fine Sieves Overview

The **hardness** of the wheat and the constitution of the endosperm requires to choose the correct sieve fabrics.

The two crucial decision factors are **high sieving efficiency** or **long lifetime**.

- **PA-Milling XX/N**
  - Milling Quality

- **PA-MF**
  - Milling Forte

- **PA-XXX**
  - Heavy Duty
2.1 Sefar Fabric Assortment
For Sifters – Fine Sieves Overview

PA-Milling XX/N
Milling Quality

PA-MF
Milling Forte

PA-XXX
Heavy Duty

Long Lifetime
2.1 Sefar Fabric Assortment
For Sifters – Fine Sieves

Sefar NYTAL®
PA-Milling XX/N

Polyamide Flour Sieves
Polyamide grit gauze is used for soft wheat, biscuit and rye flour for its:

- Rough Surface
- High percentage of open area
- High sieving efficiency
2.1 Sefar Fabric Assortment
For Sifters – Fine Sieves Overview

PA-Milling
Milling Quality

PA-MF
Milling Forte

PA-XXX
Heavy Duty

Long Lifetime
2.1 Sefar Fabric Assortment
For Sifters – Fine Sieves

Sefar NYTAL®
PA-Milling Forte

Polyamide Flour Sieves
PA-Milling Forte is used on metal sifter frames, where it is replacing the PA-XX/N quality for its:

Best possible durability
Combined with high sieving efficiency
2.1 Sefar Fabric Assortment
For Sifters – Fine Sieves Overview

- **PA-Milling**: Milling Quality
- **PA-MF**: Milling Forte
- **PA-XXX**: Heavy Duty

Efficiency

Long Lifetime
2.1 Sefar Fabric Assortment
For Sifters – Fine Sieves

Sefar NYTAL®
PA-XXX

Polyamide Flour Sieves
PA-XXX heavy duty fabrics are used for harder types of wheat and Durum for their:

- Long lifetime
- Good abrasion resistant qualities
## 2.1 Sefar Fabric Assortment
For Sifters – Fine Sieves Overview

### Comparison of the fine sieve fabric families

<table>
<thead>
<tr>
<th></th>
<th>Milling quality</th>
<th>Milling Forte</th>
<th>Heavy Duty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specification</td>
<td>PA-Milling</td>
<td>PA-MF</td>
<td>PA-XXX</td>
</tr>
<tr>
<td>Mesh opening</td>
<td>132</td>
<td>132</td>
<td>132</td>
</tr>
<tr>
<td>Thread diameter</td>
<td>60-2x50-60</td>
<td>70</td>
<td>80</td>
</tr>
<tr>
<td>Open Area</td>
<td>~43%</td>
<td>~41%</td>
<td>~39%</td>
</tr>
</tbody>
</table>
2.1 Sefar Fabric Assortment
Worldwide original flour Mesh opening approved by all the Millers and all the Milling School around the world

<table>
<thead>
<tr>
<th>Mesh opening [μm]</th>
<th>Yarn diameter [μm]</th>
<th>Thread count [n/cm]</th>
<th>Thread count [n/inch]</th>
<th>Open area [%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>300</td>
<td>100+2·60</td>
<td>24</td>
<td>61</td>
<td>54</td>
</tr>
<tr>
<td>280</td>
<td>100+2·60</td>
<td>25.5</td>
<td>65</td>
<td>57</td>
</tr>
<tr>
<td>250</td>
<td>100+2·60</td>
<td>27.5</td>
<td>70</td>
<td>49</td>
</tr>
<tr>
<td>212</td>
<td>90+2·60</td>
<td>32</td>
<td>81</td>
<td>49</td>
</tr>
<tr>
<td>200</td>
<td>80+2·60</td>
<td>33.5</td>
<td>85</td>
<td>48</td>
</tr>
<tr>
<td>180</td>
<td>80+2·60</td>
<td>35.7</td>
<td>91</td>
<td>46</td>
</tr>
<tr>
<td>160</td>
<td>70+2·60</td>
<td>37.5</td>
<td>102</td>
<td>44</td>
</tr>
<tr>
<td>150</td>
<td>70+2·60</td>
<td>39.5</td>
<td>108</td>
<td>44</td>
</tr>
<tr>
<td>140</td>
<td>60+2·60</td>
<td>40</td>
<td>109</td>
<td>43</td>
</tr>
<tr>
<td>132</td>
<td>60+2·60</td>
<td>42.5</td>
<td>119</td>
<td>44</td>
</tr>
<tr>
<td>125</td>
<td>60+2·60</td>
<td>45</td>
<td>123</td>
<td>40</td>
</tr>
<tr>
<td>118</td>
<td>60+2·60</td>
<td>48.5</td>
<td>128</td>
<td>42</td>
</tr>
<tr>
<td>112</td>
<td>60+2·50</td>
<td>51.5</td>
<td>131</td>
<td>40</td>
</tr>
<tr>
<td>106</td>
<td>60+2·50</td>
<td>54.5</td>
<td>142</td>
<td>38</td>
</tr>
<tr>
<td>100</td>
<td>60+2·50</td>
<td>57</td>
<td>145</td>
<td>38</td>
</tr>
</tbody>
</table>
2.1.1 Sefar Fabric Assortment
Humidity influence on Polyamide fabrics

Fact about Polyamide

• Polyamide absorbs up to 3.5 - 4.4% humidity

Opposing

• What can be done to counteractive?
2.1.1 Sefar Fabric Assortment
Humidity influence on Polyamide fabrics

Humidify the mesh either by:

- Store the rolls or cut panels in a room or cupboard with high humidity (+60%)
- Leave the cut panel in bucket or cold water for ½ hour
- Take it out and leave it hanging for ½ - 1h
- Then continue to stretch the mesh with the stretcher PN2
2.1.1 Sefar Fabric Assortment
Humidity influence on Polyamide fabrics

**Well stretched:**
- DRY: 10.6 N/cm (right after stretching)
- DRY: 6.6 N/cm (48h after stretching)
- WET: 9.4 N/cm (right after stretching)
- WET: 11.4 N/cm (48h after stretching)

**Poorly stretched:**
- DRY: 6.6 N/cm (right after stretching)
- DRY: 3.8 N/cm (48h after stretching)
- WET: 7.8 N/cm (right after stretching)
- WET: 9.8 N/cm (48h after stretching)
2.2 Sefar Fabrics Assortment
For Purifiers

NYTAL PET GG fabrics are used in Purifiers:

- Where high yield of white flour is achieved
- Or where Semolina is produced
- Or if high starch damage is achieved with coarse Semolina
2.2 Sefar Fabric Assortment
For Purifiers

Sefar NYTAL® PET-GG

PET Grit gauze

- hardly affected by humidity
- resistant to temperature changes
- keeps constant tension
- The rough fabric surface makes the product remain longer on the sieve

This leads to: Better separation
2.3 Sefar Fabric Assortment
For Centrifugal Sifters

Vibro / Turbo sifters are used:

to sift the products from the filters and bran

They are highly efficient

but they need frequent controls

Sefar
2.3 Sefar Fabric Assortment
For Centrifugal Sifters - Manufacturing

Highly sensitive operation

Our AR-3 triple seam solution guarantees a continuous operation

This technology is used for Turbo- and Vibrosifters
2.3 Sefar Fabric Assortment
For Centrifugal Sifters

Sefar NYTAL®
PA-HD (ASTM)

Polyamide Flour Sieves
PA-HD heavy duty fabrics are used:
- for harder types of wheat and Durum
- for their long lifetime
- good abrasion resistant qualities
## 2.4 Sefar Fabric Assortment

### Summary of Sifting Fabrics

<table>
<thead>
<tr>
<th>Sifting fabric properties</th>
<th>PA-Polyamide</th>
<th>PET-Polyester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abrasion resistance</td>
<td>very good</td>
<td>approx. 2/3 of PA</td>
</tr>
<tr>
<td>Water absorption</td>
<td>4.4%</td>
<td>0.4%</td>
</tr>
<tr>
<td>Benefit of the fabric</td>
<td>long lifetime</td>
<td>less influence in humidity changes</td>
</tr>
<tr>
<td>Hydrolysis resistance</td>
<td>good</td>
<td>limited</td>
</tr>
<tr>
<td>Fabric surface structure</td>
<td>standard</td>
<td>slightly rougher</td>
</tr>
<tr>
<td>Stability to light</td>
<td>limited</td>
<td>limited</td>
</tr>
<tr>
<td>Fabric range</td>
<td>5 different fabric ranges for your sifter (PA-GG, PA-Milling, PA-MF, PA-XXX, PA-HD)</td>
<td>one complete PET-GG range for your purifier</td>
</tr>
</tbody>
</table>
## 2.4 Sefar Fabric Assortment

### Summary of Sifting Fabrics

<table>
<thead>
<tr>
<th>Fabric</th>
<th>Sifters</th>
<th>Centrifugal Sifters</th>
<th>Purifiers</th>
<th>Area of use</th>
<th>Main benefit</th>
<th>Standard use for</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA-GG</td>
<td>X</td>
<td>X</td>
<td></td>
<td>coarse sifter covers</td>
<td>anti abrasive qualities</td>
<td>coarse sieves</td>
</tr>
<tr>
<td>PA-Milling</td>
<td>X</td>
<td></td>
<td></td>
<td>soft wheat, biscuit and rye flour</td>
<td>high efficiency</td>
<td></td>
</tr>
<tr>
<td>PA-Milling Forte</td>
<td>X</td>
<td></td>
<td></td>
<td>medium hard</td>
<td>good lifetime and efficiency</td>
<td>Flour sieves</td>
</tr>
<tr>
<td>PA-XXX</td>
<td>X</td>
<td>X</td>
<td></td>
<td>Durum and hard wheat flour</td>
<td>long lifetime</td>
<td></td>
</tr>
<tr>
<td>PA-HD (ASTM &amp; XXX)</td>
<td></td>
<td>X</td>
<td></td>
<td>filter and bran duster products</td>
<td>strongest fabric</td>
<td>Centrifugal Sifter</td>
</tr>
<tr>
<td>PET-GG</td>
<td></td>
<td>X</td>
<td></td>
<td>purifier covers</td>
<td>Constant tension</td>
<td>Purifier</td>
</tr>
</tbody>
</table>

### Machines

- **Centrifugal Sifter**
- **Purifier**
- **PA**
- **Milling**
- **Forte**
- **XXX**
- **HD**
- **X**
- **Filter and bran duster products**
- **PET**
- **GG**
- **PA-GG**
- **PA-Milling**
- **PA-Milling Forte**
- **PA-XXX**
- **PA-HD (ASTM & XXX)**
- **PET-GG**
- **Flour sieves**
- **Coarse sieves**
- **Sifters**
- **Centrifugal Sifters**
- **Purifiers**
- **Area of use**
- **Main benefit**
- **Standard use for**
3. Sefar Stretching Systems
Overview
Sefar Stretching Systems
Handling Video Setup and preparation
SEFAR Stretching Systems
Handling Video Preparation and Gluing
3.1.4 Sefar Stretching Systems
Frame Management – Accessories

**Pneumapp-2 stretching table**
with wheels, aluminum table top

- **Size 1250 x 1250mm**
  - Item 6225

- **Size 1480 x 1480mm**
  - Item 6230

- **Cover for Stretching table**
  - 1250 x 1250mm
  - Item 6231
3.1.4 Sefar Stretching Systems
Frame Management – Accessories

Our frame supports allow you, to switch from wooden to metal frames within seconds.

- Frame support for aluminium frames, Item No. 6209 / 6212
- Frame support for wooden frames, Item No. 6214 / 6215 / 6216
- Spacer for purifier frames, Item No. 8083
- Frame support for stainless steel frames, Item No. 8082
3.1.4 Sefar Stretching Systems
Frame Management – Accessories

- Stretching aids for fabrics
  Item No. 6219 / 6220 / 6222

- Frame spacer/support for all frame types
  Item No. 8082

- Steel weight 1 Kg
  Item No. 8083
3.3.2 Sefar Stretching Systems
Tensocheck

- Can be used for: Synthetic fabrics such as Wire mesh
- Measurement precision:
  - Over 30 N/cm = in steps of 0.5 N/cm
  - Below 30 N/cm = in steps of 0.2 N/cm
- Wide measurement range: 3 to 50 N/cm
- Zero adjustment: The meter comes with a zero setting plate
### 3.3.2 Sefar Stretching Systems

**Tensocheck – Sifter covers tension chart**

<table>
<thead>
<tr>
<th>Polyamide (PA) &amp; Polyester (PET) mesh</th>
<th>Wooden frames</th>
<th>Metal &amp; aluminum frames</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tension before gluing [N/cm]</td>
<td>Min. tension after 1 day [N/cm]</td>
</tr>
<tr>
<td>&gt; 630</td>
<td>15 (+/- 1)</td>
<td>8</td>
</tr>
<tr>
<td>600 - 465</td>
<td>14 (+/- 1)</td>
<td>7</td>
</tr>
<tr>
<td>450 - 315</td>
<td>13 (+/- 1)</td>
<td>7</td>
</tr>
<tr>
<td>300 - 212</td>
<td>12 (+/- 1)</td>
<td>6</td>
</tr>
<tr>
<td>200 - 112</td>
<td>11 (+/- 1)</td>
<td>6</td>
</tr>
<tr>
<td>&lt; 100</td>
<td>10 (+/- 1)</td>
<td>5</td>
</tr>
</tbody>
</table>

**Polyester PET**

+ 2-3 N/cm

**Metal mesh**

+ 3-6 N/cm

*Max. tension depends much on the condition of the frame*

* Testing conditions: 18-21°C / 50-60% relative humidity
3.3 Sefar Stretching Systems

Quicktal

Sefar Quicktal is a single-component cyanoacrylate adhesives with separate accelerator.

Glue drying time:
- Appx. 15 - 20 minutes without Quicktal accelerator.
- Appx. 1 - 2 minutes with Quicktal accelerator.
3.3 Sefar Stretching Systems

Quicktal

- **5600:** Quicktal adhesives, low viscosity
  - 50/100/500 gr bottles

- **5602:** Quicktal D-Bonder
  - 500 ml bottle

- **5603:** Quicktal 77, high viscosity
  - 50 gr bottle

- **5604:** Quicktal Metal
  - 100/500 gr bottle

- **5602:** Quicktal accelerator spray
  - 200 ml Spray
3.3 Sefar Stretching Systems

Lable / Quicktal Expiry Date

Please read the enclosed safety instructions

Each bottle is marked with the expiry date (month/year)

Please use existing stock first

Store in cool, dry place, protected from sun and moisture; preferably in a refrigerator
4. Accessories Sefar Nytal® Blue Cleaner

Why our blue cleaner is better than the others?

Product features: Knobs and brushes

- 21 knobs or brushes for effective cleaning
- Raised protectors on the tips, guarding the knobs or brushes for extreme wear
- Knob-style version for coarse mesh (<250 microns) incl. metal mesh
- Brush-style version with PA brushes for fine cloths (>250 microns).
  - Bristles slightly larger in diameter for longer life expectancy
  - Translates into more intensive cleaning
4. Accessories Sefar Nytal® Blue Cleaner

Product features: Shape

- Unique star shape combines maximum durability with highly efficient cleaning properties for most frames without back wire
- Added tongue ensures thorough cleaning—even under the cross-bars
- Center hub on bottom side allows the cleaners to tilt and turn freely
- Tray pan is simultaneously scraped through the effective combination of the pivoting hub, tongue and two additional corner elements
- Required distance between mesh and pan: 28.5 – 30.0 mm (1.12-1.18”)
4. Accessories Sefar Nytal® Blue Cleaner

Product features: Summary

- Effective, patented star shape design
- Blue colouring of cleaners improves optical detection
- Specific weight chosen to be the best in class
- 21 knobs or brushes for effective cleaning
- More durable brushes
- Raised protectors on the tips
- Pivoting hub, tongue and corner elements ensure effective tray pan cleaning
- Slightly lower shore hardness reduces wear on frames
- Food safety compliant (EU & FDA)
4. Accessories Sefar Nytal® Blue Cleaner
4. Accessories Sefar Nytal ® Blue Cleaner
4. Accessories

- 1020 / 1023
- 1021 / 1022
- 1024 / 1034
- 1031 / 1032
- 1033

- 1036 / 1039 / 1042
- 1037 / 1040 / 1043
- 1095 / 1096 / 1097
- 1098
4. Accessories

- 1080
- 1081
- 1082
- 1083
- 1084
- 1087
- 1088
4. Accessories

- 5035 / 8073 / 8079
- 6051 / 6052
- 6059 / 6090
- 6061
- 8076 / 8077
- 3205
- 8078
- 8090
- 3F00-0000-140
4. Accessories

5038 / 5039

0060

0061
Thank you for your kind attention!

For further information please consult the Sefar Milling Brochure and visit us online www.sefar.com