



AHLSTROM  
MUNKSJÖ

**LABORATORY  
MICROFILTRATION  
CATALOG**



# Ahlstrom-Munksjö Microfiltration product lines

Ahlstrom-Munksjö is a premium manufacturer in Laboratory filtration. In addition to its popular filter paper and microfiber glass filter range, Ahlstrom-Munksjö is delighted to announce the renewal of its microfiltration offer.

Ahlstrom-Munksjö offers **two product lines** dedicated to microfiltration, in addition to its innovative solutions to make laboratory filtration easier and more reliable.

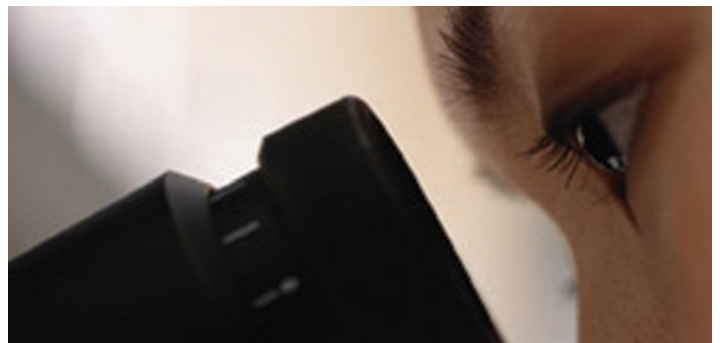
- **Ahlstrom-Munksjö's Relia™** branded items are well known as high-quality, extremely pure and reliable items for microfiltration. They are produced to meet the highest standards in analytical science and quality control. The range includes **ReliaDisc™** membrane filters and **ReliaPrep™** syringe filters. Both **ReliaDisc™** and **ReliaPrep™** family of products comprise a limited choice of premium products, the most important references for all demanding applications.
- **Ahlstrom-Munksjö** branded items offer an excellent quality/price ratio for the end-user. These filters are available at very attractive prices while maintaining a high level of quality for routine filtration needs. The most useful diameters and membrane types are available to allow reliable work in many applications.

In addition to these two ranges of products, Ahlstrom-Munksjö brings innovative solutions on the market for the most demanding applications, such as the High-Capacity **ReliaMAX™** syringe filters.

Membranes and Syringe filters from Ahlstrom-Munksjö find applications in all fields of science and industry where separation and sample preparation are critical. The large range of applications covered by Ahlstrom-Munksjö's microfiltration product lines covers areas from Life Science, Biology, Chemistry to Air Monitoring.

## TYPICAL APPLICATIONS INCLUDE

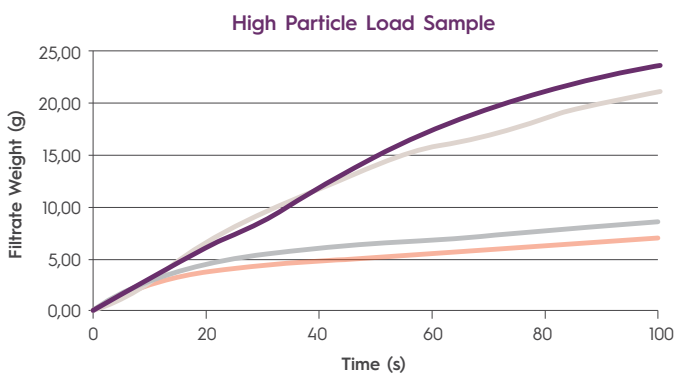
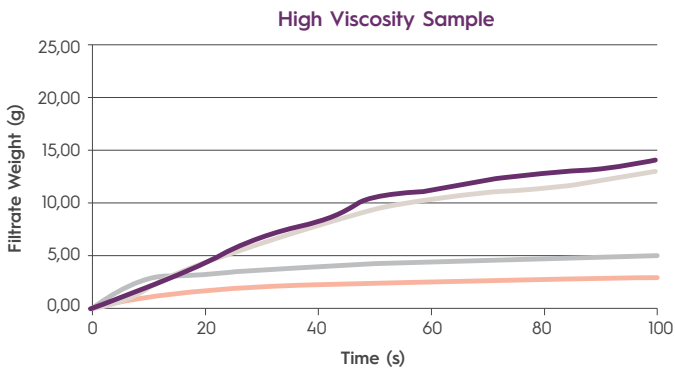
- Particle collection and retention
- Sterile and non-sterile filtration
- Microbiological analyses
- Solvent purification
- Sample preparation



# ReliaMAX™ High Capacity Syringe Filters

Ahlstrom-Munksjö's ReliaMAX™ syringe filters contain prefilters specifically developed to increase the efficiency of laboratory microfiltration applications by reducing the number of steps needed to process samples and solutions with either a high particle load or a high viscosity if standard syringe filters are used.

ReliaMAX™ includes high quality nylon membranes available in 0.2 µm and 0.45 µm pore sizes for increased flexibility in sample filtration depending on final application.



— ReliaMAX™ — Competitor — Nylon w/single prefilter — Nylon w/o prefilter

## APPLICATIONS

- Clarification of solutions
- Removal of particles
- Sample preparation

## BENEFITS OF MULTI-LAYER PREFILTERS:

- High particle holding capacity – larger amount of particles can be captured prior to clogging the membrane
- Fast initial flow – the specific structure of ReliaMAX™ offers excellent flow with viscous samples
- Low resistance to pressure – fast and efficient filtration even with low pushing pressure

Internal testing shows that ReliaMAX™'s filter design performs better than syringe filters containing a membrane with a single layer prefilter and comparably with competitive syringe filters containing multi-layer prefilters when filtering standardized solutions.

| Membrane | Diameter<br>mm | Pore size<br>µm | Hold-up Volume<br>µl | Housing | Inlet/Outlet                      | Pack of 100 |
|----------|----------------|-----------------|----------------------|---------|-----------------------------------|-------------|
| Nylon    | 25             | 0.2             | <400 µl              | PP      | Female Luer Lock / Male Luer Slip | 7X7531      |
| Nylon    | 25             | 0.45            | <400 µl              | PP      | Female Luer Lock / Male Luer Slip | 7X7532      |
| PTFE     | 25             | 0.2             | <400 µl              | PP      | Female Luer Lock / Male Luer Slip | 7X7539      |
| PTFE     | 25             | 0.45            | <400 µl              | PP      | Female Luer Lock / Male Luer Slip | 7X7512      |

# ReliaPrep™ Syringe Filters

Ahlstrom-Munksjö's premium brands complete the portfolio in laboratory filtration.

Ahlstrom-Munksjö offers a premium variety of syringe filters for convenient sample preparation and fluid sterilization.

Ahlstrom-Munksjö ReliaPrep™ - Syringe Filters are offered in selected different membranes and sizes to accommodate a large range of sample matrices for demanding sample preparation.



## APPLICATIONS

- Sample clarification/particulate removal
- Filtration of solvents used for chromatography applications
- Filtration of biological samples, tissue cultures, proteins and nucleic acids
- Sterile filtration and venting

## Sterile

| Membrane          | Diameter mm | Pore size µm | Held-up Volume µl | Outlet inlet Female LL | Pack of 50 |
|-------------------|-------------|--------------|-------------------|------------------------|------------|
| Cellulose Acetate | 28          | 0.2          | 100               | Male Luer Lock         | 760502     |
|                   | 28          | 0.2          | 100               | Male Luer Slip         | 760516     |
|                   | 28          | 0.45         | 100               | Male Luer Lock         | 760506     |
|                   | 28          | 0.45         | 100               | Male Luer Slip         | 760517     |
|                   | 28          | 0.8          | 150               | Male Luer Lock         | 760508     |
|                   | 28          | 1.2          | 100               | Male Luer Lock         | 760513     |
|                   | 28          | 5            | 100               | Male Luer Lock         | 760514     |
| Nylon             | 25          | 0.2          | 150               | Male Luer Lock         | 760548     |
|                   | 25          | 0.45         | 150               | Male Luer Lock         | 760549     |
| PES               | 28          | 0.2          | 100               | Male Luer Lock         | 760501     |

## Non Sterile

| Membrane              | Diameter mm | Pore size µm | Held-up Volume µl | Outlet inlet Female LL | Pack of 50 | Pack of 500 |
|-----------------------|-------------|--------------|-------------------|------------------------|------------|-------------|
| Cellulose Acetate     | 28          | 0.2          | 100               | Male Luer Lock         | -          | 760503      |
|                       | 28          | 0.45         | 100               | Male Luer Lock         | -          | 760507      |
|                       | 28          | 5            | 100               | Male Luer Lock         | -          | 760514      |
| Regenerated Cellulose | 15          | 0.2          | 10                | Male Luer Slip         | 760519     | 760520      |
|                       | 15          | 0.45         | 10                | Male Luer Slip         | -          | 760522      |
|                       | 25          | 0.2          | 100               | Male Luer Slip         | 760523     | 760524      |
|                       | 25          | 0.45         | 100               | Male Luer Slip         | 760525     | 760526      |
|                       | 25          | 0.2          | 150               | Male Luer Lock         | 760548     | 760548      |
| Nylon                 | 15          | 0.2          | 10                | Male Luer Slip         | 760540     | 760541      |
|                       | 15          | 0.45         | 10                | Male Luer Slip         | 760542     | 760543      |
|                       | 25          | 0.2          | 150               | Male Luer Lock         | 760548     | 760548      |
| PES                   | 25          | 0.45         | 150               | Male Luer Lock         | 760549     | 760549      |
|                       | 28          | 0.2          | 100               | Male Luer Lock         | -          | 760534      |
|                       | 28          | 0.2          | 100               | Male Luer Lock         | -          | 760504      |
| PTFE                  | 15          | 0.2          | 10                | Male Luer Slip         | 760535     | 760536      |
|                       | 15          | 0.45         | 10                | Male Luer Slip         | 760537     | 760510      |
|                       | 25          | 0.2          | 100               | Male Luer Slip         | 760538     | 760539      |
|                       | 25          | 0.45         | 100               | Male Luer Slip         | 760511     | 760512      |

## BENEFITS AND CHARACTERISTICS

- Selected variety of membranes and pore sizes available
- High lot-to-lot reliability and reproducibility for consistent filtration quality
- Ultra-pure production facility in Germany according to the highest quality control standards
- Various filter diameters for different sample volumes and pack sizes available on demand
- Available in sterile, single packed or non-sterile packaging
- Transparent syringe filter housing for full visual control
- High quality housing construction and welding to prevent leaking

# ReliaDisc™ Membrane Filters

Ahlstrom-Munksjö's premium brands complete the portfolio in laboratory filtration.

Ahlstrom-Munksjö supplies a selected range of premium plain white non-sterile microfiltration membranes used to remove particles and microorganisms from various organic solvents and aqueous solutions. ReliaDisc™ portfolio offers also gridded sterile membranes packed individually specifically designed to save time when performing colony counting and microbiological quality control. These cellulose nitrate membranes are available in a 47 and 50 mm ready-to-use standard size and support optimum colony growth.



## ReliaDisc™ Sterile Gridded Microbiological Membranes

| Membrane Type       | Grid                    | Pore Size $\mu\text{m}$ | Membrane diameter mm | Pack of 100/1000 | Pack of 3x100 for Auto Dispenser |
|---------------------|-------------------------|-------------------------|----------------------|------------------|----------------------------------|
| Cellulose Nitrate   | White / Black Grid      | 0.45                    | 47                   | 760216 / 760217  | 760219                           |
| Cellulose Nitrate   | White / Black Grid      | 0.45                    | 50                   | 760242 / 760218  | 760220                           |
| Cellulose Nitrate*  | White / Black Grid      | 0.45                    | 50                   | -                | 760223                           |
| Cellulose Nitrate   | White / Black Grid      | 0.2                     | 47                   | 760221 / 760241  | -                                |
| Cellulose Nitrate   | Grey / White Grid       | 0.45                    | 47                   | 760243 / 760224  | -                                |
| Cellulose Nitrate   | Grey / White Grid       | 0.45                    | 50                   | 760225 / 760226  | 760239                           |
| Cellulose Nitrate   | Green / Dark Green Grid | 0.45                    | 50                   | 760228 / 760229  | 760231                           |
| Cellulose Nitrate   | White / Green Grid      | 0.45                    | 47                   | 760245 / 760232  | -                                |
| Cellulose Nitrate** | Green / Dark Green Grid | 0.45                    | 50                   | 760246 / 760230  | -                                |

\*High flow. \*\*Nonsterile.

## ReliaDisc™ Non-sterile Membrane Filtration Media

| Membrane Type         | Membrane diameter mm | Pore Size $\mu\text{m}$ | Flow Rate for water mL/min* | Pack of 100              |
|-----------------------|----------------------|-------------------------|-----------------------------|--------------------------|
| Cellulose Acetate     | 47                   | 0.2 / 0.45              | 24 / 65                     | 760107 / 760104          |
| Cellulose Acetate     | 50                   | 0.45                    | 65                          | 760105                   |
| Cellulose Acetate     | 90                   | 0.45                    | 69                          | 760106                   |
| Cellulose Nitrate     | 25                   | 0.45                    | 70                          | 760209                   |
| Cellulose Nitrate     | 47                   | 0.45 / 0.65 / 0.8       | 70 / 130 / 200              | 760210 / 760208 / 760206 |
| Cellulose Nitrate     | 47                   | 1.2 / 5 / 8             | 320 / 570 / 750             | 760204 / 760212 / 760202 |
| Cellulose Nitrate     | 50                   | 0.45                    | 70                          | 760211                   |
| Regenerated Cellulose | 47                   | 0.45                    | 30                          | 760171                   |
| Nylon                 | 47                   | 0.45                    | >35                         | 760181                   |

\*According to DIN 58355 (average values per  $\text{cm}^2$  at 1 bar pressure).

\*\* With isopropanol per  $\text{cm}^2$   $\Delta p = 1$  bar/-15 psi. Other polymers, pore sizes, diameters are available for special order.

## APPLICATIONS

- Particle retention and collection
- Sterile filtration of solutions
- Microbiological applications for cell growth and colony counting
- Particulate analysis
- Air monitoring applications
- Microbiological analysis of potable and waste waters

## BENEFITS AND CHARACTERISTICS

- Selected variety of polymers and pore sizes available
- High lot-to-lot reliability and reproducibility for consistent filtration quality
- Ultra-pure production facility in Germany according to the highest quality control standards
- Available in sterile or non-sterile packaging
- Gridded Membrane filters available for easy colony counting



# Ahlstrom-Munksjö's branded microfiltration range

Ahlstrom-Munksjö's second range offers a great value for routine applications.

In addition to its premium Relia® microfiltration range, Ahlstrom-Munksjö has developed a value offer for microfiltration.

Syringe filters and membrane filters of this range are the perfect items for general filtration, particle removal, liquid filtration and many more applications.

## APPLICATIONS

- Large selection of membrane and filter types and diameter
- Hydrophilic and Hydrophobic filtration layers
- Filtration layers with different protein binding capacity

## Syringe Filters

Ahlstrom-Munksjö offers branded syringe filters for routine filtration applications and for customers looking for excellent quality/price ratio.

This range includes the most useful diameters and membrane types to allow reliable work in many applications. The standard offer includes almost all combinations among the following choices:

| Membrane Type |      |    |     |     |      |
|---------------|------|----|-----|-----|------|
| NYL           | PTFE | CA | MCE | PES | PVDF |

| Retention $\mu\text{m}$ |      |
|-------------------------|------|
| 0.2                     | 0.45 |

| Diameter mm |    |    |
|-------------|----|----|
| 13          | 25 | 33 |

For assistance on the membrane selection, please consult the Materials section of this brochure

Ahlstrom-Munksjö also offers specific items on request, minimum order quantity may apply.



Syringe filters are often used to remove particles from a sample. They can also purify a solvent or a sample prior to analysis by HPLC or other techniques involving expensive instruments.

Ahlstrom-Munksjö's syringe filter being affordable, they can be used instead of paper filter where small volumes are involved and the absorption of a standard filter paper is a source of significant loss.

## Membrane Filters

Ahlstrom-Munksjö offers its Ahlstrom-Munksjö branded membrane filters for routine filtration applications and for customers looking for excellent quality/price ratio.

This range includes the most useful diameters and membrane types to allow reliable work in many applications. The standard offer includes almost all combinations among the following choices:

| Retention $\mu\text{m}$ | Diameter mm | Membrane Type |      |    |     |     |
|-------------------------|-------------|---------------|------|----|-----|-----|
|                         |             | NYL           | PTFE | CA | MCE | PES |
| 0.2                     | 25          | X             | X    | X  | X   | X   |
|                         | 47          | X             | X    | X  | X   | X   |
| 0.45                    | 25          | X             | X    | X  | X   | X   |
|                         | 47          | X             | X    | X  | X*  | X   |
| 0.65                    | 25          |               |      |    | X   |     |
|                         | 47          |               |      |    | X   |     |
| 0.8                     | 25          |               |      |    | X   |     |
|                         | 47 / 50     |               |      |    | X   |     |
| 1.0 / 1.2               | 47          |               | X    |    | X   |     |
| 3                       | 47          |               |      |    | X   |     |
| 5                       | 25          |               | X    |    |     |     |
|                         | 47          |               | X    |    | X   |     |
| 8                       | 47          |               |      |    | X   |     |

\* 37 mm available

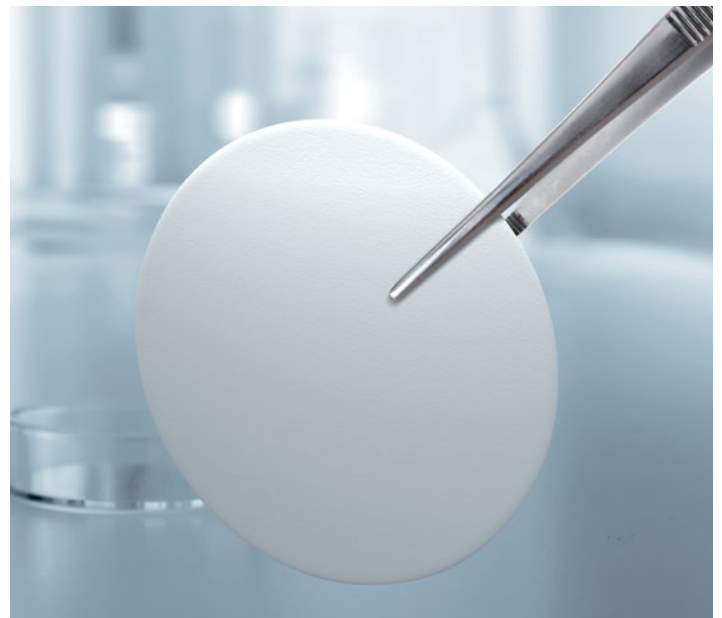
For assistance on the membrane selection, please consult the Materials section of this brochure.

Ahlstrom-Munksjö also offers specific items on request, minimum order quantity may apply.

## PM 2.5 PTFE membrane

Ahlstrom-Munksjö offers the highest quality filters ideal for air pollution control. In addition to a very high quality range of glass and quartz microfibre filters used to collect particles and aerosols, Ahlstrom-Munksjö offers pure PTFE membrane supported by a polypropylene ring.

|   |  |
|---|--|
| Diameter                                | 46.2 mm $\pm$ 0.2 mm                   |
| Pore size                               | 2 $\mu\text{m}$                        |
| Aerosol collection (0.3 $\mu\text{m}$ ) | > 99.7%                                |
| Membrane thickness                      | 40 $\mu\text{m}$ $\pm$ 5 $\mu\text{m}$ |
| Support ring thickness                  | 0.4 mm $\pm$ 0.02 mm                   |



Membrane filters have a wide range of application from sample purification to microbiology.

They offer the advantages of a well defined pore size combined with a practical format which can be used in many filtration or purification set-up.

Some membrane can be sterilized, giving access to even more biological or sterilization applications.

- **Conforms to US EPA PM2.5 method (40 CFR, part 50 Appendix L)**
- **Manufactured under clean room condition class 100 000**
- **Tested for Alkalinity (section 2.12 EPA/600/R-94/038b): <25 $\mu\text{eq/g}$  of filter**
- **Tested for Drop Test weight stability (section 2.12 EPA/600/R-94/038b): <20 $\mu\text{g}$**
- **Tested for Temperature weight stability (section 2.12 EPA/600/R-94/038b): <20 $\mu\text{g}$**
- **Tested for Hygroscopic stability (section 2.12 EPA/600/R-94/038b): <10 $\mu\text{g}$**
- **High lot-to-lot stability and well defined filter dimensions**
- **Chemically resistant**

# Guide for microfiltration applications

## Material selection

### **NYL - Nylon (Polyamide):**

Hydrophilic and widely used in both aqueous and organic solvent filtration applications. Well suited for clarification of buffers and nutrient media with a low level of extractibles.

### **PTFE - Polytetrafluoroethylene:**

Permanently hydrophobic filter material, very suitable for air and gas particulate filtration. Extremely resistant to aggressive solvents and acids (pH 1-14). Must be pre-wetted with ethanol before the filtration of aqueous media.

### **CA - Cellulose Acetate:**

Low protein-binding, well suited for sterile filtration and clarification of aqueous solutions, nutrient media, buffers, and sera. Also compatible with alcohol and oil. These hydrophilic membranes offer high and consistent flow rates.

### **MCE - Mixed Cellulose Esters (Cellulose Nitrate):**

Set standard in both analytical and microbiological filtration. Available in a wide range of pore size and is well suited for microbial analysis in water, food and beverage application.

### **PES - Polyether Sulfone:**

Uniform pore structure with high mechanical stability and chemical resistance. Offers excellent flow rate for critical filtration situations where high throughput is required with the lowest protein adsorption. First choice for the filtration of biological and pharmaceutical specimens.

### **PVDF - Polyvinylidene fluoride:**

Resistant to solvents, good heat resistance properties and low protein binding. Applications include the preparation of HPLC samples and sterilization applications. PVDF has the advantage of being less brittle than MCE and can be used in similar applications despite a higher protein binding capacity.





# Frequently Asked Questions

## What is the best membrane?

There is not a single best membrane for all applications. You want a filter that works for your specific filtration conditions (pH, solvent type, flow, volume,...) and offer the right properties (level of extractibles, protein binding capacity,...).

## I use CA membranes, so MCE won't work for me?

CA (Cellulose Acetate) contains both cellulose nitrate and cellulose acetate, a MCE membrane just contains a higher % of CN. Aqueous filters are typically interchangeable (CA, MCE, CN, PES, PVDF) , It is often an issue of protein binding.

## Your competitor has 0,22 µm retention and you offer 0,2 µm, is it compatible?

0,2 and 0,22 µm are the same, even though membranes have a very well defined pore size, most filters still present a narrow distribution of pore diameters.

## Do I need the largest diameter available?

You need the best diameter for your application.

This is defined by the sample volume, the load of particles to remove, the time you can allow for the filtration, etc. Larger diameter means more sample loss as well.

## My filtration is too slow, or my filter clogs rapidly, what can I do?

For the filtration of heavily loaded solutions, there are two strategies. If sample volume loss is not a concern, you can increase the diameter of your membrane / syringe filter. If you are working with a limited volume of sample, a high-capacity syringe filter with prefiltration layers (ReliaMAX™) is needed.



# Discover more in our portfolio



## Qualitative Filter Paper

Ahlstrom-Munksjö's qualitative grades of filter paper are recommended for use in analytical methods which determine or identify particulate constituents of a mixture irrespective of the amount present. Qualitative filter papers are often used in routine separation work that still requires high purity and consistent performance.



## Acid Washed Quantitative Filter Paper

Our series of extremely high purity, acid washed filter papers are designed for use in analytical and gravimetric analysis. Our selection of quantitative filter paper includes grades suitable for capturing fine-grained precipitates through grades intended for retaining coarse and voluminous precipitates.



## Seed Testing Paper

Ahlstrom-Munksjö offers non-toxic papers for use in the seed industry and agricultural research laboratories.

Seed testing papers are made of cotton linters and/or pure cellulose; they do not contain any substances which could influence the growth of seeding. Papers comply with ISTA (International Seed Testing Association) and AOSA (Association for official seed analysis) requirements.



### Glass and Quartz microfiber filters

Ahlstrom-Munksjö offers the highest quality glass and quartz filters ideal for many applications such as air pollution control or water monitoring. Our wide range of glass microfiber filters can be used to collect particles and aerosols or to determine total suspended solids in water, while our high purity quartz microfiber filters are suitable for PM10 monitoring, chemical analysis, heavy metals monitoring and emission control at high temperature.



### Micro-glass Fiber Paper

Our micro-glass fiber filters are developed for automated air monitoring equipment. Ahlstrom-Munksjö MG 10 is designed for reel-to-reel applications where the highest tensile properties are needed from a hydrophobic micro-glass material, such as smoke spot number counting, in addition to being suitable for PM10 monitoring. Its higher basis weight and thickness significantly contributes to its increased resistance.



### Surface Protection Paper

Ahlstrom-Munksjö LabSorb coated paper is a double-layered surface protection that protects benches and working areas from spilled chemicals, corrosive materials, as well as toxic, infectious or radioactive substances. Spills are quickly absorbed into the surface layer of cellulose material and prevented from penetrating to the surface of the work bench by a thin coating of polyethylene that serves as a carrier for the absorbent layer.

Ahlstrom-Munksjö is a global leader in fiber-based materials, supplying innovative and sustainable solutions to its customers. Our mission is to expand the role of fiber-based solutions for sustainable everyday life. Our offering include filter materials, release liners, food and beverage processing materials, decor papers, abrasive and tape backings, electrotechnical paper, glass fiber materials, medical fiber materials and solutions for diagnostics as well as a range of specialty papers for industrial and consumer end-uses. Our annual net sales are about EUR 3 billion and we employ some 8,000 people. The Ahlstrom-Munksjö share is listed on the Nasdaq Helsinki and Stockholm.

## CONTACT AHLSTROM-MUNKSJÖ SALES

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