



# Technical Cleanliness - particle inspection



*" A CLEANER PART IS A  
BETTER PART "*



## Nyli Metrology AB



Since our formation in 1970, we have been known to deliver products and services with top quality. Our carbide carbide slip gauge blocks are just one example. Our head office is located in Uddevalla where we offer a complete facility for measurement services with accredited testing in particle analysis for technical cleanliness, along with contract measurement of components and products in our laboratory. We also offer our customers accredited calibration via partners in most units, including Length (m), Torque (kp), Pressure (bar), Electricity (V, Amp, Ohm), Temp (C) etc.

In our show room, we display our product range, with everything from hand measuring devices, technical cleanliness to advanced measuring machines, measuring arms, vision systems and laser scanning together with easy to use software. Our internal fairs are popular events where new measurement technology is demonstrated by both our own staff and from our suppliers.

We also hold training for operators, measurement technicians, production technicians and designers, etc. who want increased competence in the field of measurement technology & cleanliness control

**With competence, we drive measurement technology forward to increase profitability for our customers**



Contact details +46 (0)522 - 646 646,

**We are happy to invite you to visit NYLI at our site or via webinar for a Presentation.**

**Welcome!**



# Technical cleanliness, a cost-effective investment for both manufacturers and product owners!

## Why?

Technical Cleanliness offers significant competitive advantages for both suppliers and customers. The process helps ensure that product functionality is not damaged by small particles, improving product longevity, reliability, and performance.

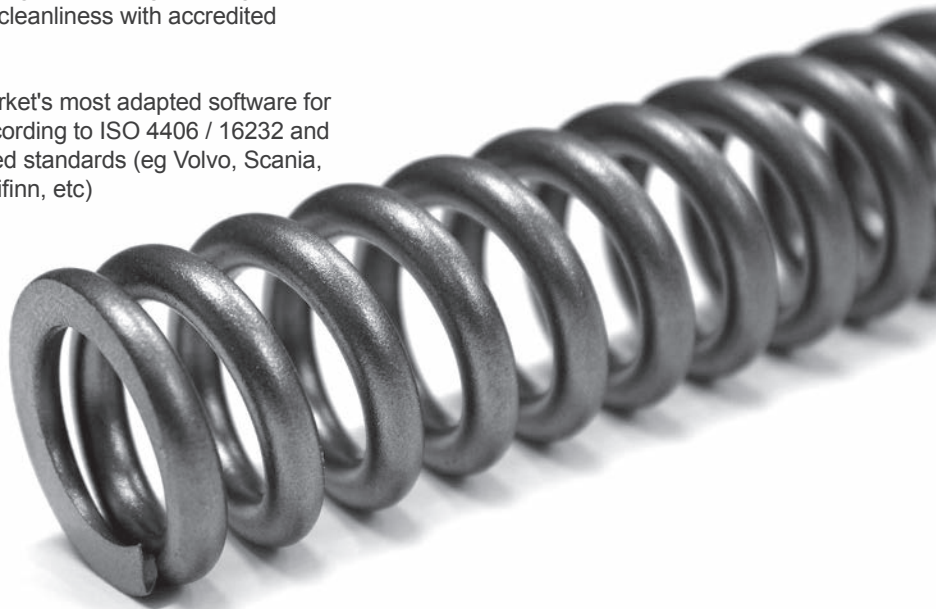
NYLI has developed a range of unique offerings to meet the industry needs for the best adapted within Technical cleanliness where we have the opportunity to offer the following options;

- » "Turnkey" laboratory fully equipped and on-site training
- » Rinse cabinet CCB G4, Extraction sink CCB-1006 & CCB-1409
- » Own professionally built software for Detection and analysis: Software ParticleView 4
- » Microscope: Semi- or Full-Automatic.
- » Cleanliness measurement in the Nordic region's leading and largest independent laboratory within Technical cleanliness with accredited testing for particle analysis of filters.
- » ParticleView 4 software is one of the market's most adapted software for analysing of particles and evaluation according to ISO 4406 / 16232 and VDA 19 (and more) as well as customized standards (eg Volvo, Scania, Bosch, Daimler, VAG, MAN, Parker Hanifinn, etc)



Akred. nr. 10087  
Provning  
ISO/IEC 17025

Accredited testing of particleanalyse.



## **Subcontractor Services «» Subcontractor Analysis «» Own Laboratory:**

One of our concepts provide the following advantages when purchasing only one extraction cabinet:

- ▼ More analysis for a lower cost. The customer can decide when to analyze, what they want to evaluate and in addition, choose the analysis and evaluations that the current situation requires.
- ▼ Shorter lead time. Ship your sample filters by post and NYLI can offer a response time as low as 24 hours from the moment the filter is received.
- ▼ No need to send entire components for analysis which also provide environmental benefits.
- ▼ The ability to make simple evaluations through visual inspection of filters.
- ▼ Lower initial investment. The customer can focus on their production and get the support they need for current measurements and skills development.

# Extraction



## Technical cleanliness

With more advanced technology, new emission requirements and more efficient processes, the need for Technical Cleanliness is constantly increasing. Requirements to meet cleanliness levels are today a reality in the manufacturing industry and the need to measure cleanliness is increasing rapidly.

### CCB - Rinse Cabinet G4

Our industry led Generation 4 design for part rinsing and cleaning. Developed for Technical Cleanliness with more than 15 years of experience.

### Particle analysis

Usually performed in two steps; a so-called extraction of particles and a weight or particle analysis. Rinsing, (particle extraction), is usually performed in a controlled equipment designed for the specific purpose with a validated method according to an established standard.

## Interior laboratory (Mitsubishi)



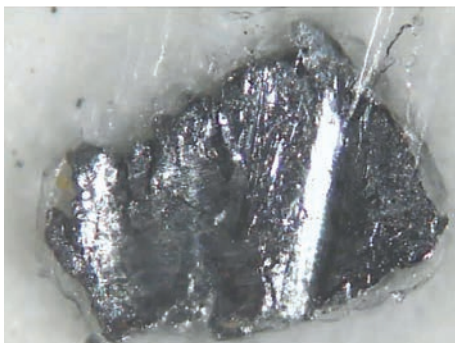
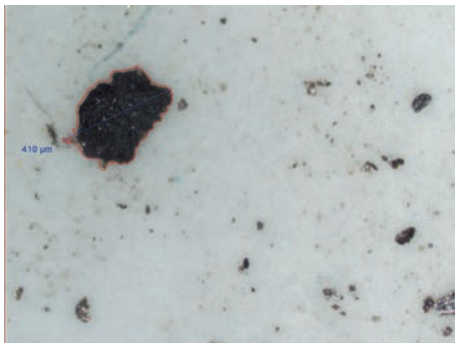
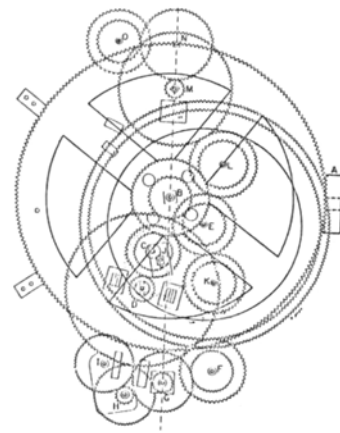
# Analyse

An advanced particle counting system with ergonomic user interface.

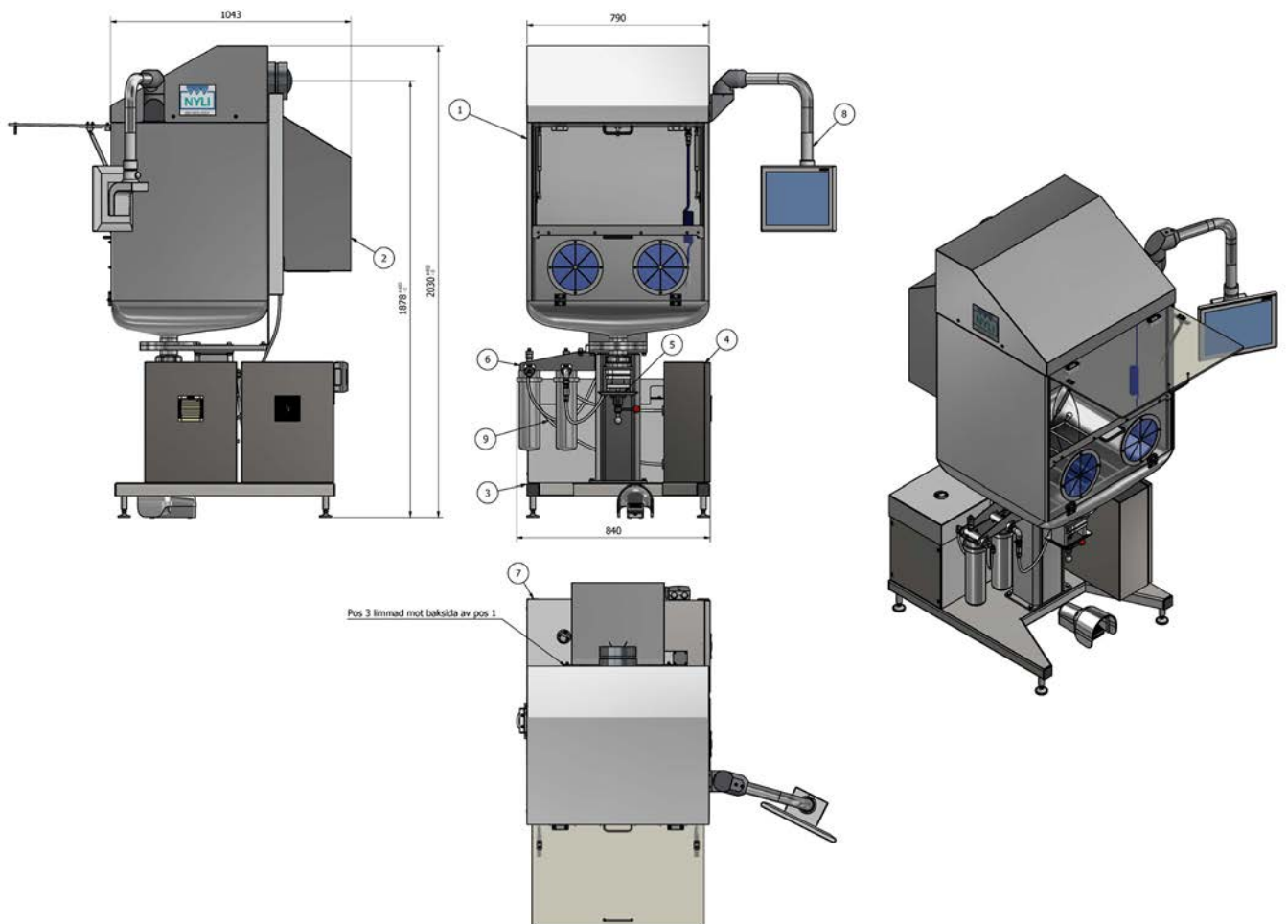
- ▼ "Flight-focus" to focus on every image with high accuracy and speed
- ▼ Designed for easy and fast sampling with analysis down to 5µm (can be adapted as needed)
- ▼ Customizable reports
- ▼ Analysis of filters up to 90mm
- ▼ Complies with ISO 4406, ISO 16232 & VDA 19 as well as customer-specific standards

Effective particle management interface with classification of particles.  
(non-reflective, reflective and fibrous)

We are continuously developing our software to incorporate latest standards and functions. Software development is customer and user led with frequent interaction to ensure we develop software that fulfils end user needs.







# Rinse Cabinet CCB G4

Functional and user-friendly, designed with emphasis on,

- extraction
- ergonomics
- value



## 1. Touch screen

control all functions for the flushing cabinet, rinsing pressure, evacuation pressure, fluid temperature, height adjustment, etc.

(temperature control only for water cabinets)

Information about the hardware operating time can be shown on the screen to assist with maintenance.

## 2. Flushing pen

for use in the extraction of particles on product / component surfaces.

The rinsing pen has a quick coupling to easily change the nozzle to a larger or smaller model.

## 3. Hand access

Opening for handling parts and components during extraction process

## 4. Cascade filter

Cassette enables filtering on two different filters or filter sizes (D47 and D90)

## 5. Foot pedal

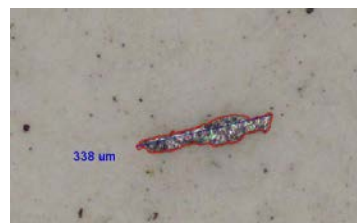
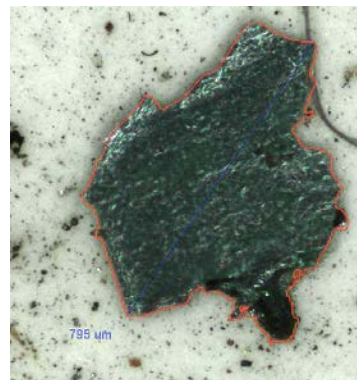
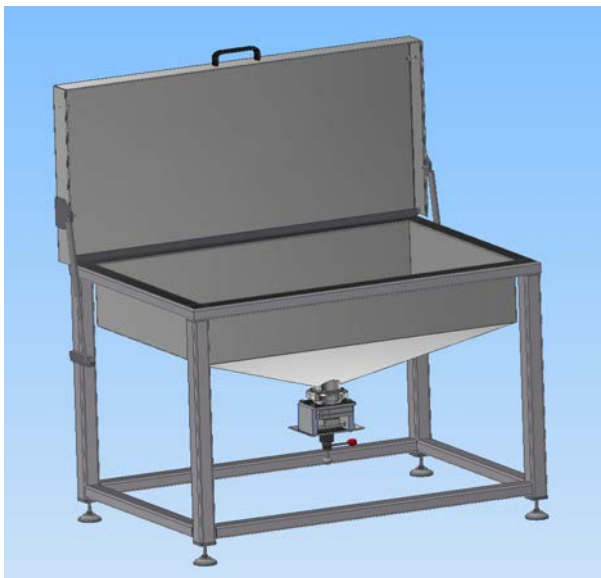
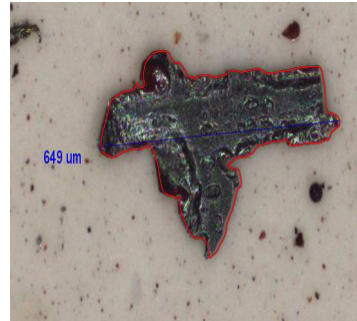
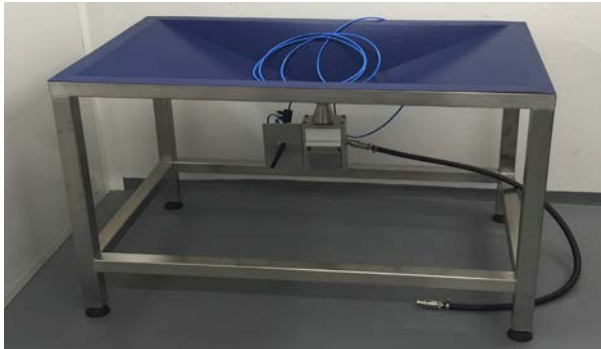
The foot pedal allows operators to flush without use of a hand, enabling easier use during the extraction process

## Sink CCB. G4

Model 1006 : 1100 x 700mm (exterior dim.)

Model 1409 : 1500 x 1000mm (exterior dim.)

Designed to be: • Customizable • User-friendly • Ergonomic



### Advantages:

- **Time saving**
  - in blank tests
  - by extraction
- **Ergonomic**
  - easy to move
  - availability in the sink
- **Cascade filter**
  - cassettes for filters D47 and D90

### Optional PLC:

#### Features

- User-friendly touch screen
- Menu selection, bar or Ipm
- Controlled flushing pressure
- Preselection of liquid volume with shut-off
- Service interval reminder (set according to utilization rate)
- Adapted for solvents or water-based liquid



## Sink CCB,

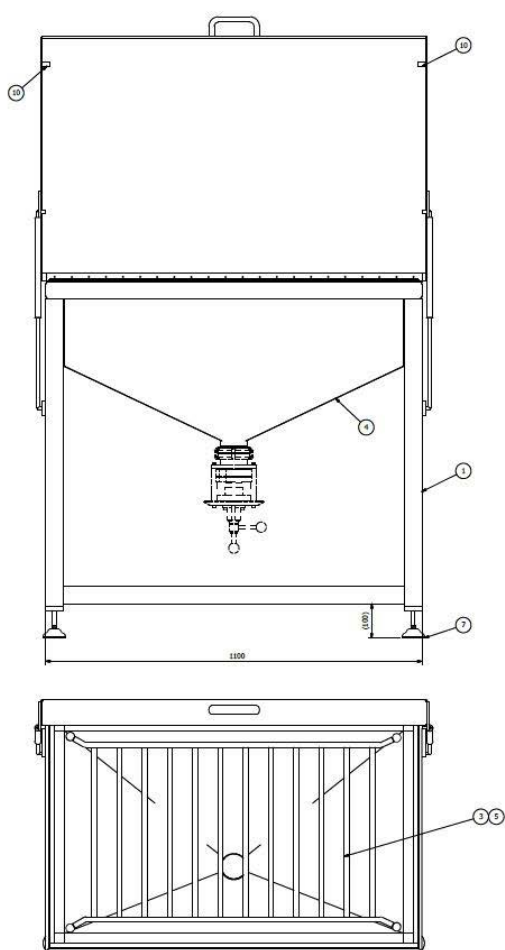
Designed for particle extraction at component, liquid and system level.

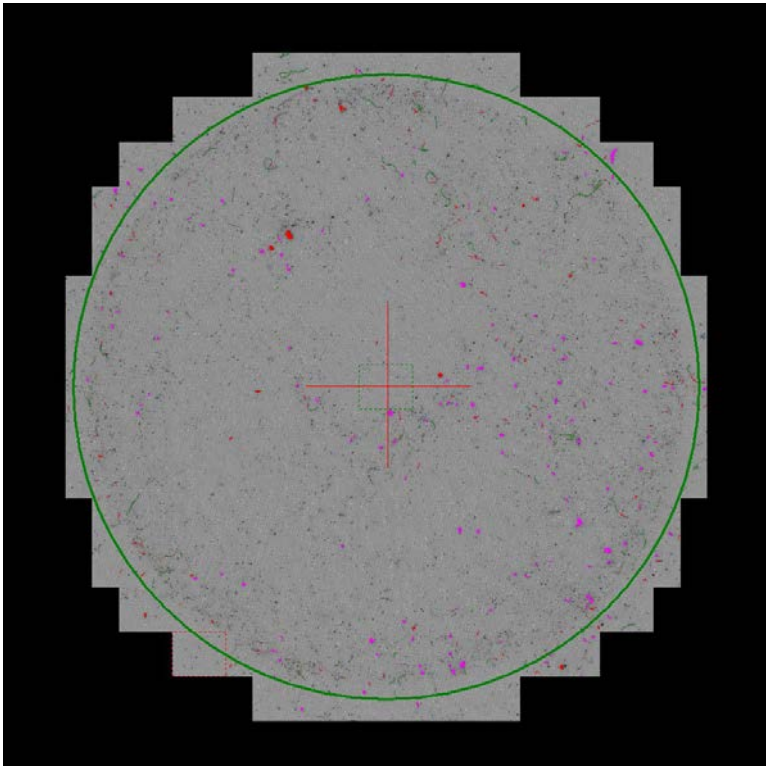
Developed with more than 50 years of experience in measurement technology and 20+ years of experience in Technical Cleanliness.

Manufactured by experts with high competence in stainless steel and surface finish.

Why choose NYLI?

- Experience in advanced engineering industries such as automotive, aerospace
- Development and assembly all conducted in-house
- Range of customization options
- User-friendly PLC platform
- Installation, service, training and support available by expert engineers at NYLI
- CE and RoHS compliant





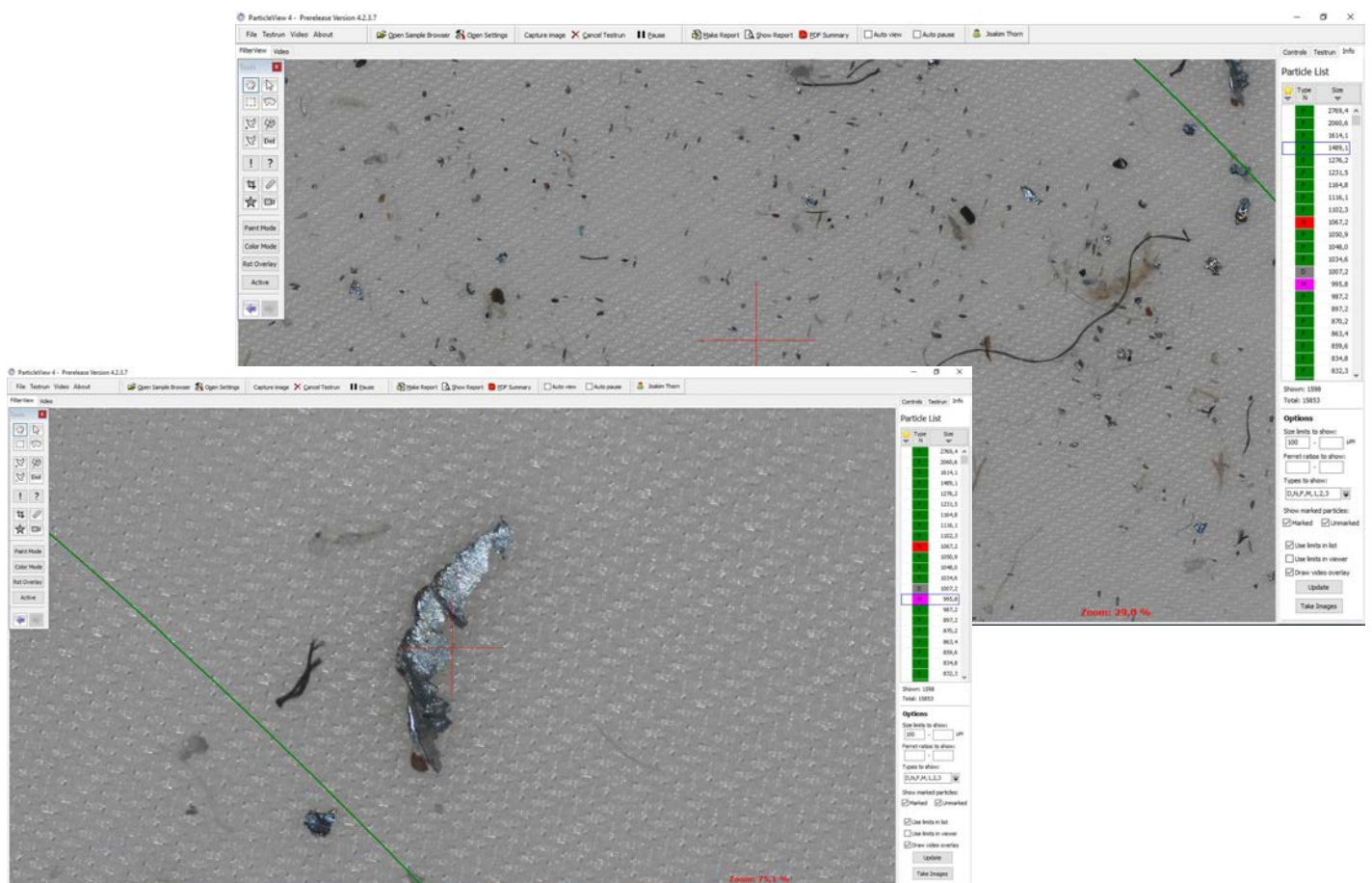
## Fully Automatic Microscope

Microscope focus set automatically (z-axis), image taken automatically over the entire filter.

The microscope is equipped with polarization to switch between reflective and non-reflective particles and fibers when analyzing particle filters.

Capable of analyzing particles 5µm and larger.

Analysis system: ParticleView



## Semi-automatic (semi-controlled) Microscope

- Manual focus (z-axis), automated XY stage to acquire images over the entire filter. The microscope is equipped with polarization to switch between reflective and non-reflective particles and fibers when analyzing particle filters.

Capable of analyzing particles 20µm and larger.

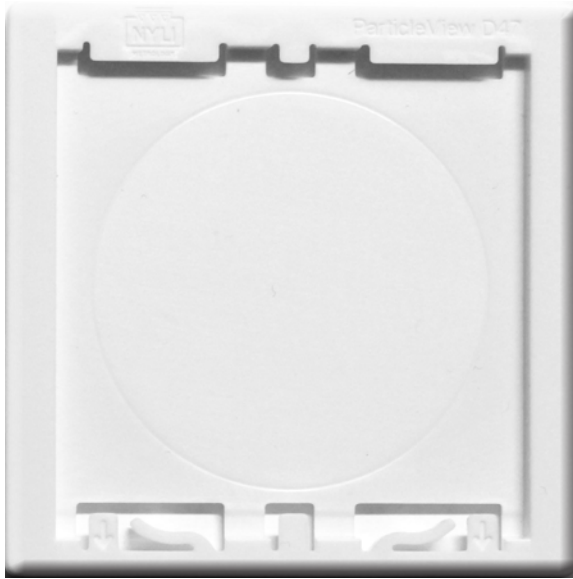
Analysis system: ParticleView



# ParticleView D47

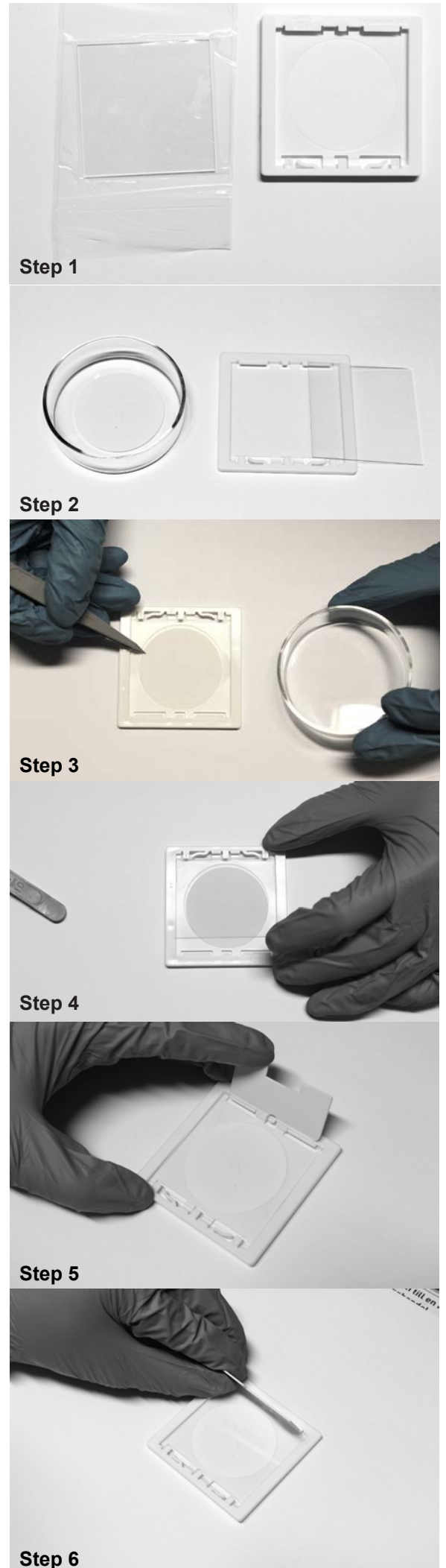
## - filter frame for filter D47

Part number: PV-FD47.Set  
(Contents: 100pcs Frames, 100pcs Glass,  
2pcs mounting tool)



## Instruction,

- with a few simple steps, the filter is encapsulated under a glass.
- (glass is delivered ultrasonically washed)
- The glass is mounted using a supplied tool.



## ParticleView D90

### - filter frame for filter D90

Part number: PV-FD90.Set

(Contents: 50pcs Frames, 50pcs Glass, 2pcs mounting tools)



### Available accessories for cleaning control !

- Filter
- Filter Frames
- Liquid
- Personal protective equipment
- Supplies
- Fixture holder for filter frame for microscope \*)

\*) Art.no. PV-FF90.Kit

New fixture for both filter frame D47 & D90

### We can also supply a fully bespoke system to meet your needs,

- Analysis System
- Rinsing Cabinet
- Turnkey laboratory
- Training & Workshop



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Provning

ISO/IEC 17025

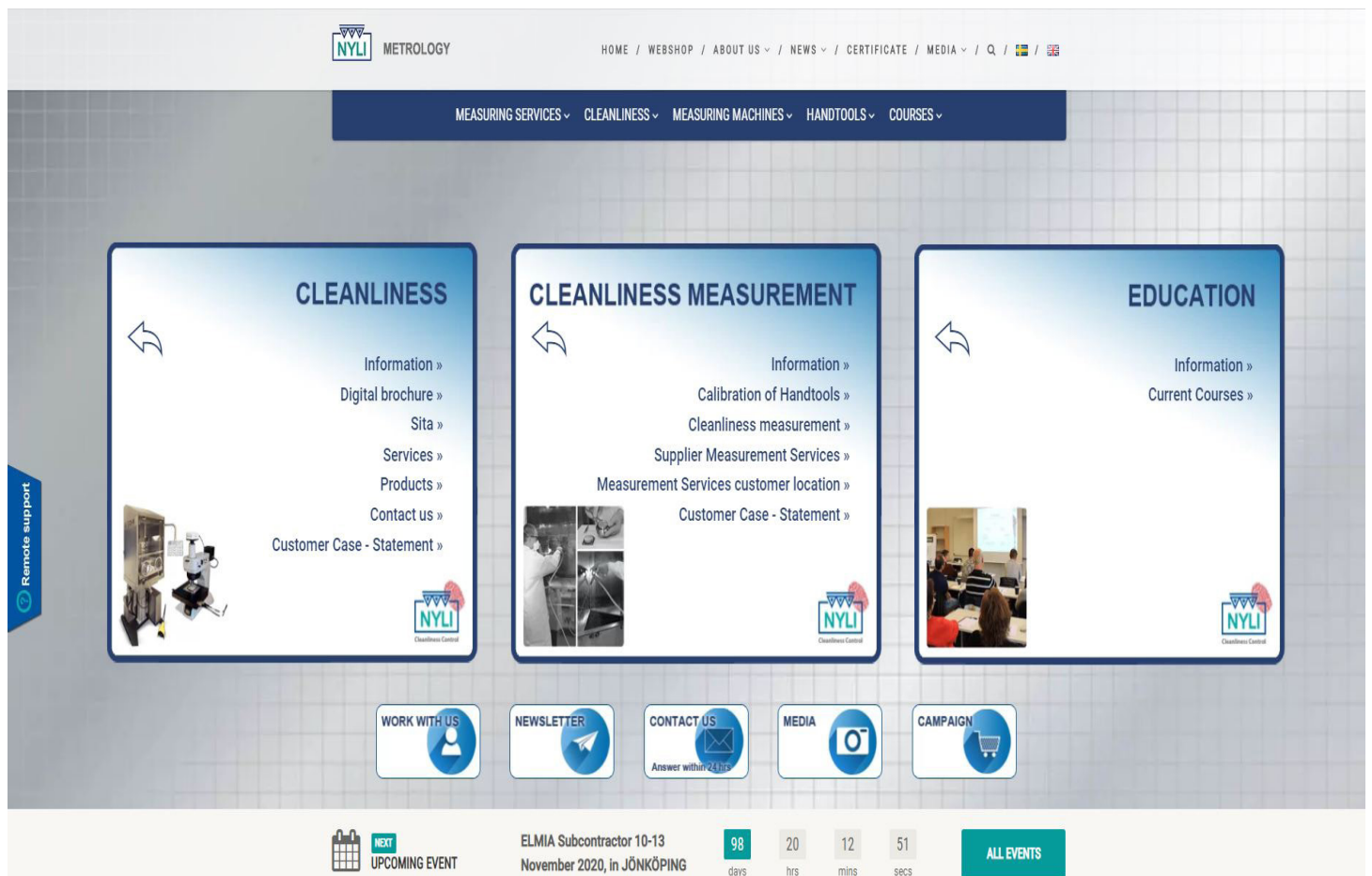
Accredited testing of particleanalyse.

**Contact by mail:  
info@nyli.se**

**In stock - visit our WebShop!**

# Website

nyli.se



## Our website contains a library of useful material on:

**Technical Cleanliness «» Cleanliness measurement «» Education**

Online you can find:

- Information about our products and services
- Customer testimonials and case studies
- Educational information
- And more





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## TECHNICAL CLEANLINESS



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- Consumable material (46)

## We also offer a webshop for your convenience

**Easy purchase of consumable material and others  
Order materials for your purity measurement, products, and protective clothing for lab staff.**

Most items are kept in stock for quick delivery times, including:

- filters
  - filter frames
  - deionized water
  - disposable gloves
  - goblets
  - analysis weight instrument
- and much much more...

\*)

# CleanoSpector

Measuring instruments for cleanliness measurement on surfaces via UV light,



▼ WELDING ▼ HARDENING ▼ SURFACE TREATMENT ▼ PAINTING ▼ GLUING

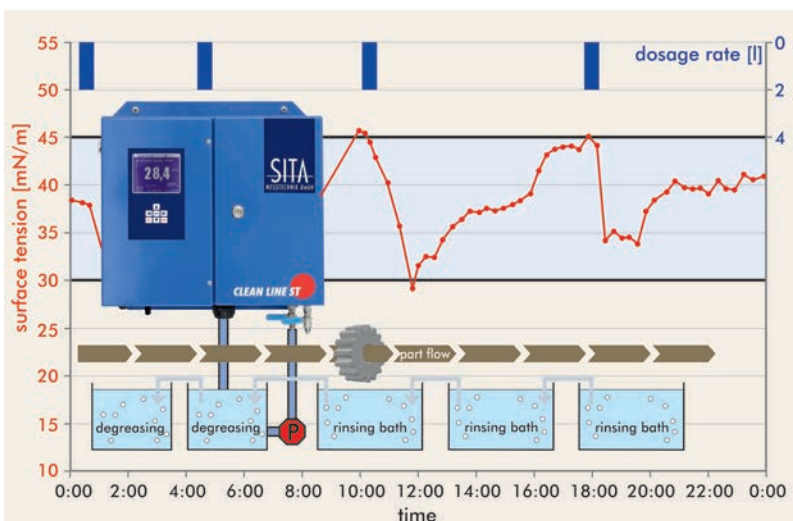


- ▼ Extremely fast measurement
- ▼ Fully portable, gives the user flexibility
- ▼ Calibration against the included reference
- ▼ Measurement of:
  - Cleanliness of surfaces
  - Corrosion protection
- ▼ Manual measurement alternative process measurement

# SITA Clean Line, -ST, -CI, -BC, -CD, -CC

System for automatic measurement of: ▼ Wash Bath ▼ Surfaces ▼

▼ SURFACE TENSION ▼ CONCENTRATION ▼ CONTAMINATION ▼



\*) SITA products available in following countries by NYLI: Sweden, Norway, Denmark, Finland, Estland, Lettland, Litauen, Poland

\*)

## DynoTester +

Measuring instruments for checking Tensid concentration in washing bath via bubble test,

▼ TENSIDES ▼ SURFACE TENSION ▼ OPTIMIZATION ▼



- ▼ Fast measurement
- ▼ Fully portable, gives the user flexibility
- ▼ Calibration against known concentration
- ▼ Measurement of the condition of the liquid bath
- ▼ Manual measurement alternative process measurement

## ConSpector

Measuring instruments for cleanliness measurement in wash baths via UV light,

▼ SATURATION ▼ OPTIMIZATION ▼



- ▼ Fast measurement
- ▼ Fully portable, gives the user flexibility
- ▼ Easy calibration in clean liquid
- ▼ Measurement of the saturation of the liquid bath

\*) SITA products available in following countries by NYLI: Sweden, Norway, Denmark, Finland, Estland, Lettland, Litauen, Poland



\*)

# FoamTester

- Automatic foam measurement



- ▼ Automated evaluation of characteristic parameters
- ▼ Fully-automated foam analysis
- ▼ Analysing foam structure
- ▼ Automated cleaning
- ▼ Control of surfactant
- ▼ Measuring foam and liquid volume
- ▼ Foam decay

## Technical data

### Foaming of the sample

Recommended sample volume	200 ... 500 ml
Usable measuring vessel volume	1,500 ml (incl. foam)
Capacity of storage vessel	2,000 ml
Sample tempering of measuring and storage vessel	0 ... 60°C optional thermostat
Stirring speed	0 ... 2,000 U/min (bidirectional)
Adjustable stirring programs	Speed, duration, direction, acceleration

### Analysis of foam structure

Evaluation area	height 130 mm width 50 mm
Resolution	3,200 dpi
Results	bubble number and size distribution, other characteristic values
in standard measuring vessel with SITA-FoamLab Expert	
<b>Measurement of foam volume</b>	
Foam volume	0 ... 1,500 ml; resolution 1 ml
Liquid volume & drainage	0 ... 500 ml; resolution 1 ml

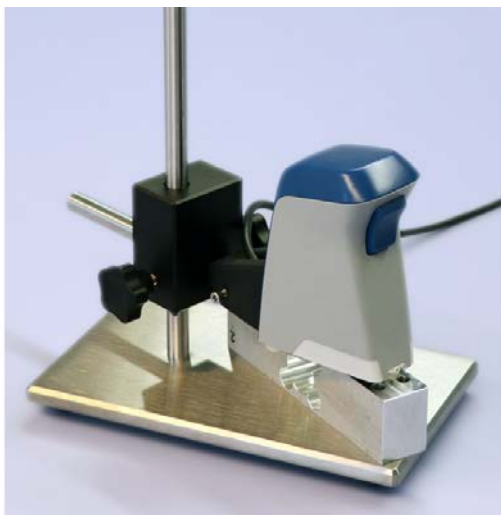
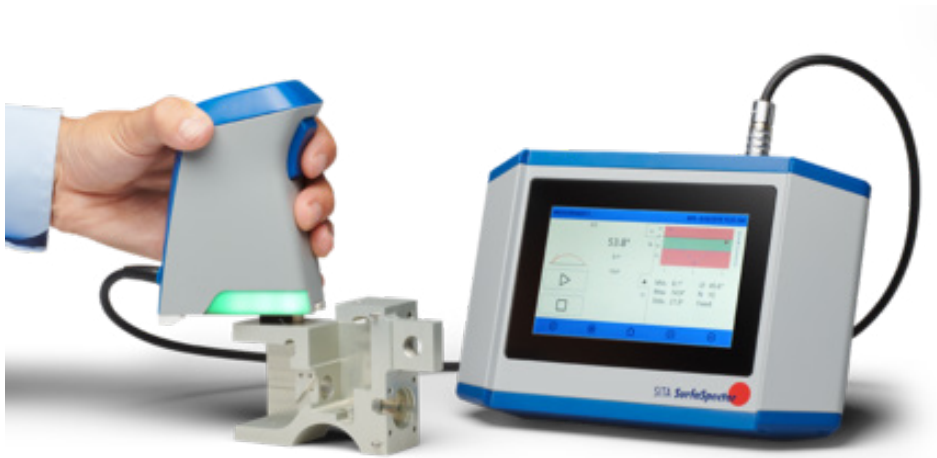
### General data

Rinse connection	3/4" 2 ... 6 bar
Power supply	100 ... 240 V / 50 ... 60 Hz, 300 W
Dimensions (HxWxD)	770 x 450 x 305 mm
Weight	ca. 35 kg

\*)

# SurfaSpector

- **Fast evaluation of surface wettability in manufacturing processes**



- ▼ **Automated measuring procedure including drop placement, drop detection and direct determination of the contact angle**
- ▼ **Handy sensor head for measuring at various parts geometries**
- ▼ **Simple operation via touchscreen**
- ▼ **Mobile use without PC directly at the plant or in the process**
- ▼ **Limit value monitoring in measuring profiles usable for various applications**
- ▼ **Optional PC software SITA-SurfaceLog for advanced measurement data visualization and export**

\*) SITA products available in following countries by NYLI: Sweden, Norway, Denmark, Finland, Estland, Lettland, Litauen, Poland

# Training - Seminar - Webinar



”All that glimmers is not gold...”



What does a particle consist of ?



When is the particle created?



How harmful is a particle?



# TRAINING WORKSHOP



## Company Specific

- planned with one or more companies
- location NYLI Metrology AB,  
Alternatively available online

## Course in Technical Cleanliness

- The course is aimed at production managers, production technicians, designers, operators, quality managers as well as environmental managers who want to improve their knowledge in technical cleanliness and part rinsing.
- The aim of the course is to give the participants a clear picture of what is going on to achieve with different techniques. experience from other companies is described.  
What is clean enough?  
Specified purity regarding components surfaces according to carefully specified requirements are becoming more common.
- How is this cleanliness achieved in the most cost-effective way?
- Different methods for industrial cleaning
- Review of standards and different types of requirements within cleanliness.
- Technical purity - background and introduction to the subject.  
Why are there requirements for cleanliness and what is the reason?  
How should the requirements be handled?  
Are they reasonable?  
Are they achievable?
- Requirements and standards in technical cleanliness.
- Cleanliness measurement in practice, part rinsing and particle analysis.



When is the particle created?

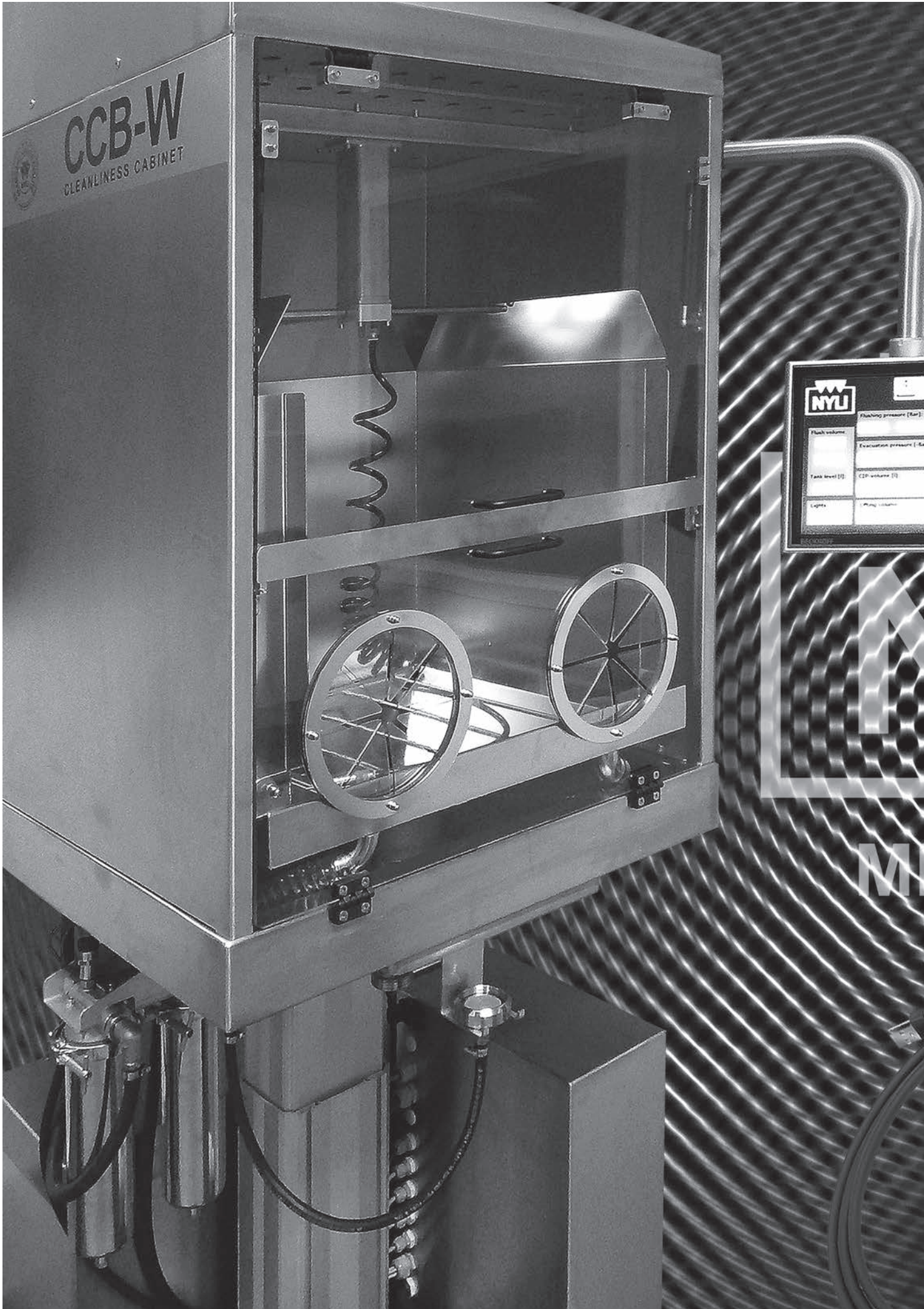
What does a particle consist of?

How harmful is a particle?

“All that glimmers is not gold ...”







**CCB-W**  
CLEANLINESS CABINET

<b>NYU</b>	
Flushing pressure [bar]	
Evacuation pressure [bar]	
Tank level [%]	C2D-volume [l]
Lights	Plung volume





[ ]	
[ ]	
Supply pressure [bar]:	[ ]
Main pressure [bar]:	Ventilation Supply:
[ ]	Ventilation Exhaust:
Humidity [%]:	[ ]
Lighting:	Flushing Valve:



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