

## **TURBISCAN** **RANGE**

SHELF-LIFE & DISPERSIBILITY ANALYZERS

**THE WORLD REFERENCE STABILITY ANALYZER  
BY STATIC MULTIPLE LIGHT SCATTERING**





## 1974

MICROTRAC launches the first commercial laser diffraction analyzer, MICROTRAC Model 7991.

## 1987

Rollout of the high-precision gas adsorption instrument **BELSORP 28** by MicrotracBEL.

## 1998

Retsch Technology develops the **CAMSIZER** and its patented dual camera system.

## 2003

Premiere of the catalysis investigation system **BELCAT** by MicrotracBEL.

## 2007

Debut of MICROTRAC's **BLUEWAVE** laser diffractor that uses real blue lasers for highest resolution and sensitivity.

## 2011

Introduction of **CAMSIZER XT** with optional modules for wet and dry measurement.

## 2013

MicrotracBEL introduces the multi-sample **BET** surface area measurement system, **BELSORP MR6**.

## 2018

Launch of the MICROTRAC **SYNC**: laser diffraction and dynamic image analysis combined in one instrument.

## 2020

Merging of Retsch Technology, MICROTRAC & MicrotracBEL into MICROTRAC under the umbrella of Verder Scientific.

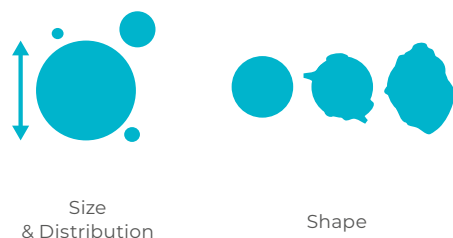
## 2023

Formulation, a recognized innovator in the field of Stability & Dispersibility analysis, is integrated into MICROTRAC.

# Three Centers of Excellence

## MICROTRAC: A SINGLE-SOURCE SOLUTION PROVIDER FOR PARTICLE CHARACTERIZATION

### PARTICLE SIZE & SHAPE FOR PARTICLE ANALYSIS



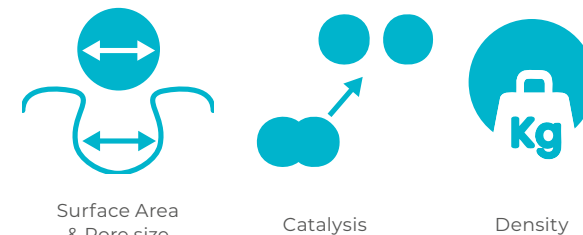
Our expertise in particle size distribution and shape analysis ensures optimal product quality control and supports advanced research efforts. At the core of our technology are **Dynamic Image Analysis (DIA) used on the Camsizer** and a combination of **Laser Diffraction (LD) and Dynamic Image Analysis used on the SYNC** systems. These two technologies cover all your needs for particle size analysis, ranging from 10 nm to 135 mm, whether for dry or wet samples. Our unique size & shape analysis technology utilizes advanced light scattering, state-of-the-art cameras, and sophisticated computational software to deliver outstanding accuracy and repeatability.

### COLLOIDS AND FORMULATIONS CHARACTERIZATION



When working with colloids or formulations, the three main parameters to consider are **particle size, zeta potential and stability/shelf-life**. At MICROTRAC, we address all these needs with our comprehensive technology platforms: **NANOTRAC, STABINO, and TURBISCAN**. Our solutions analyze these critical factors to ensure rapid R&D and quality control for the highest product quality. Utilizing **Dynamic Light Scattering (DLS), Static Multiple Light Scattering (SMLS), and Zeta Potential (ZP)**, our systems offer unique features such as non-dilution, high accuracy, and fast measurement—enabling you to make fast decisions based on reliable data.

### GAS ADSORPTION FOR MATERIALS CHARACTERIZATION



We offer advanced solutions for measuring surface area, porosity, and catalytic properties of materials. The MICROTRAC analyzers, celebrated for their precision in **gas and vapor adsorption measurements**, determine BET surface area and pore size distribution for both porous and non-porous materials. These analyzers employ cutting-edge gas adsorption technology and are widely used in various sectors, including Research and Development, Quality Control, and Quality Assurance. These tools are trusted worldwide, reflecting the renowned craftsmanship and quality of Japanese engineering, with comprehensive support provided by our competence centers in Japan (Osaka), Germany (Haan), USA (Newtown, PA) and France (Toulouse). The **BELSORP** and **BELPORE** analyzers are essential for achieving accurate gas and vapor adsorption analysis.

## TURBISCAN RANGE

# THE WORLD LEADER IN SHELF-LIFE AND STABILITY ANALYSIS

### | SAVE TIME

Up to 1,000 times faster compared to a conventional visual stability test

### | DETECT & QUANTIFY

Sedimentation, phase separation, aggregation, coalescence, coagulation, creaming...

All destabilizations are detected and quantified

### | OBJECTIVE & RELIABLE

Instrumental method, no dilution, no external stress, measure the sample as is – analysis you can trust

### | WIDE RANGE OF APPLICATIONS

Suspensions, emulsions, foams, from low to high concentrations ( $10^{-4}$  - 95% v/v), opaque, clear, coloured samples, from nano to macro (10 nm to 1 mm).



## STATIC MULTIPLE LIGHT SCATTERING (SMLS)

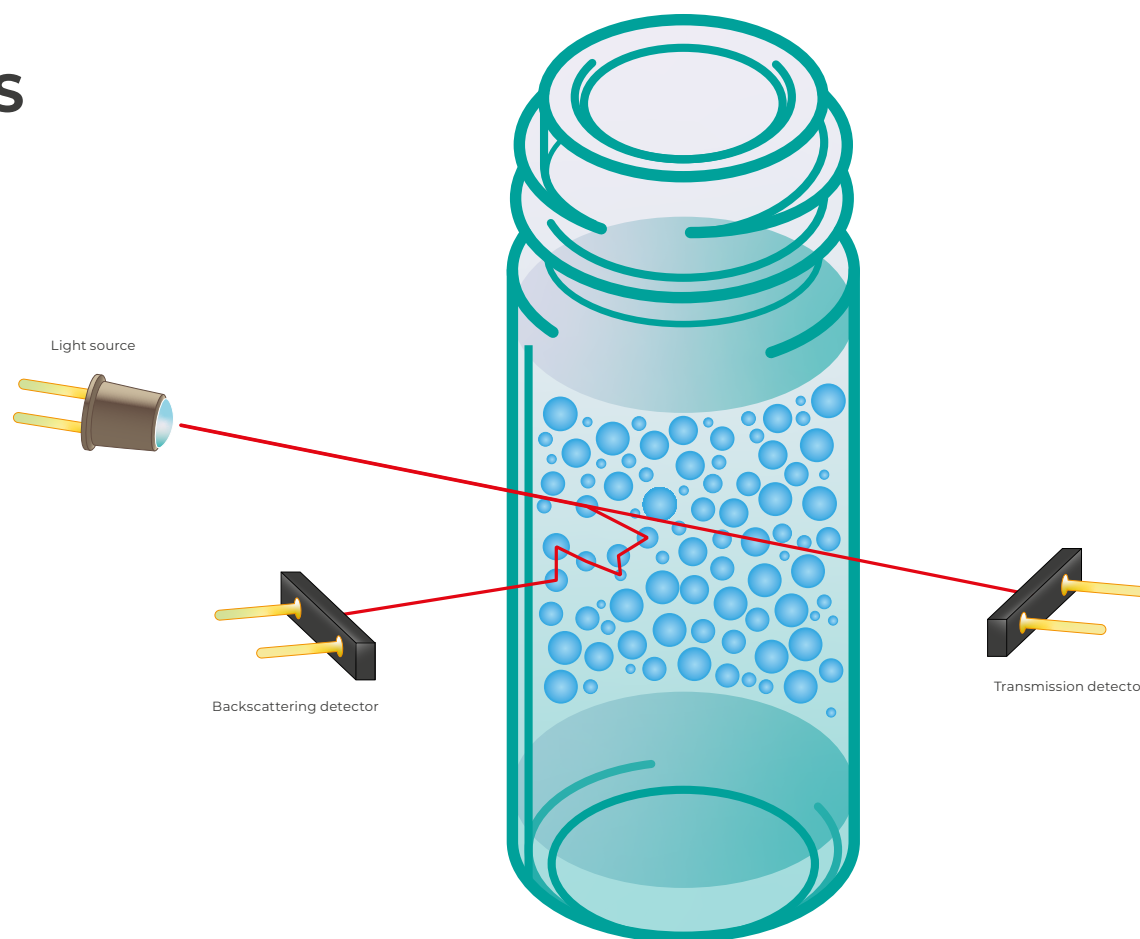
# CUTTING-EDGE STABILITY AND DISPERSIBILITY TECHNOLOGY COUPLED WITH SMART DATA ANALYSIS

Turbiscan is based on the **Static Multiple Light Scattering (SMLS)** technology, the most suitable method to characterize liquid dispersions, directly, in their native state.

In most emulsions, suspensions and formulations the concentrations are too high to be analyzed “as is” with light scattering and their characterization requires dilution or mechanical stress, altering their state and structure. SMLS offers the ability to investigate the **dispersion state** and its **evolution over time, without any dilution**, even on highly concentrated samples.

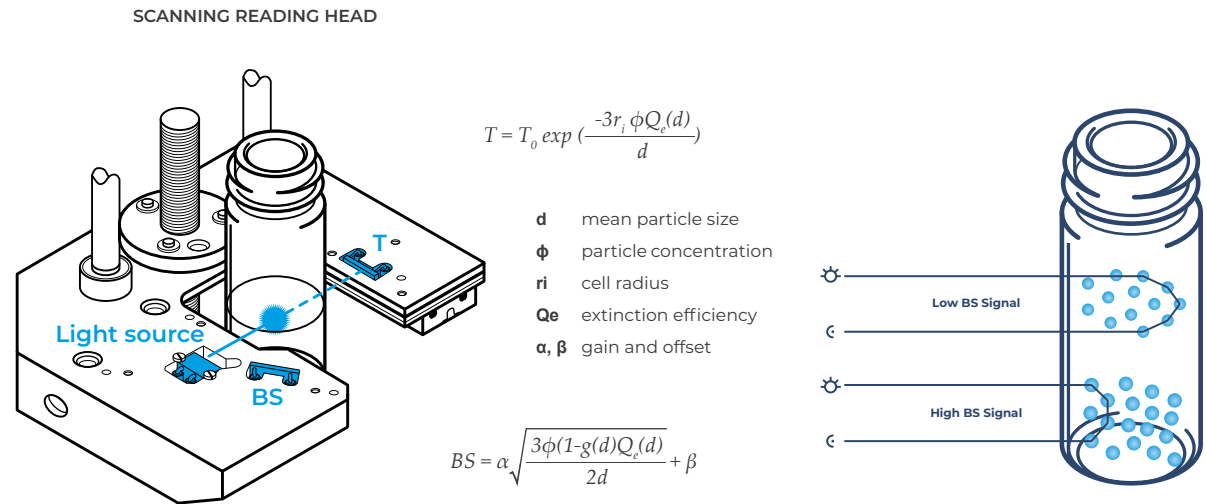
SMLS offers extraordinary resolution to detect **size and concentration** variation occurring in complex formulations and in a very wide range of applications and industries. As a direct optical method that does not require sample preparation (such as dilution), SMLS is in perfect agreement with ISO norms regarding shelf-life and stability measurements (ISO/TR 13097:2013, ISO/TR 18811:2018).

Standards: ISO/TS 21357:2022 for particle size, and ISO 13317 for particle size distribution



## TURBISCAN RANGE

# HOW DOES IT WORK



### STATIC MULTIPLE LIGHT SCATTERING (SMLS)

SMLS consists of sending photons (NIR light source, 880nm) into the sample.

These photons, after being scattered many times by the particles (or droplets) in the dispersion, emerge from the sample and are detected by two synchronous detectors:

- Backscattering is measured at 135° for **opaque samples**
- Transmission at 0° from the light source for **transparent samples**.

### HIGH RESOLUTION TO THE SMALLEST VARIATION OF PARTICLE SIZE VARIATION AND MIGRATION

Backscattering (BS) and Transmission (T) intensities are directly related to particle size (d) and particle concentration ( $\phi$ ) and are extremely sensitive to the smallest variation.

### SCANNING MODE

Backscattering (BS) and Transmission (T) are acquired every 20 microns along the sample height. Scans are repeated to detect any variation of the concentration (migration) or particle size variation (aggregation, flocculation) in function of time.

## ADVANTAGES

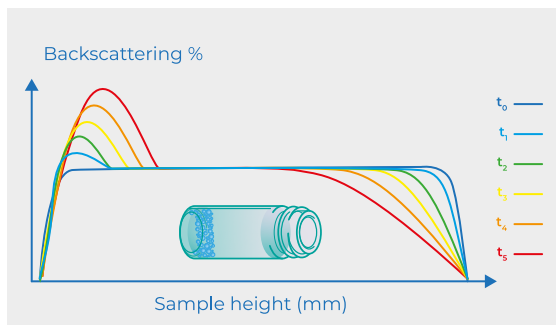
- Sensitive to the slightest variation of particle size and concentration
- Non-dilution, native samples
- High space resolution: 20µm scanning
- Single technique, huge possibilities:  
From: 10 nm to 1 mm  
From: 10<sup>-4</sup> up to 95% v/v
- Works on any dispersion : suspensions, emulsions and foams
- Fast stability measurement

## STATIC MULTIPLE LIGHT SCATTERING (SMLS)

# DATA AT A GLANCE

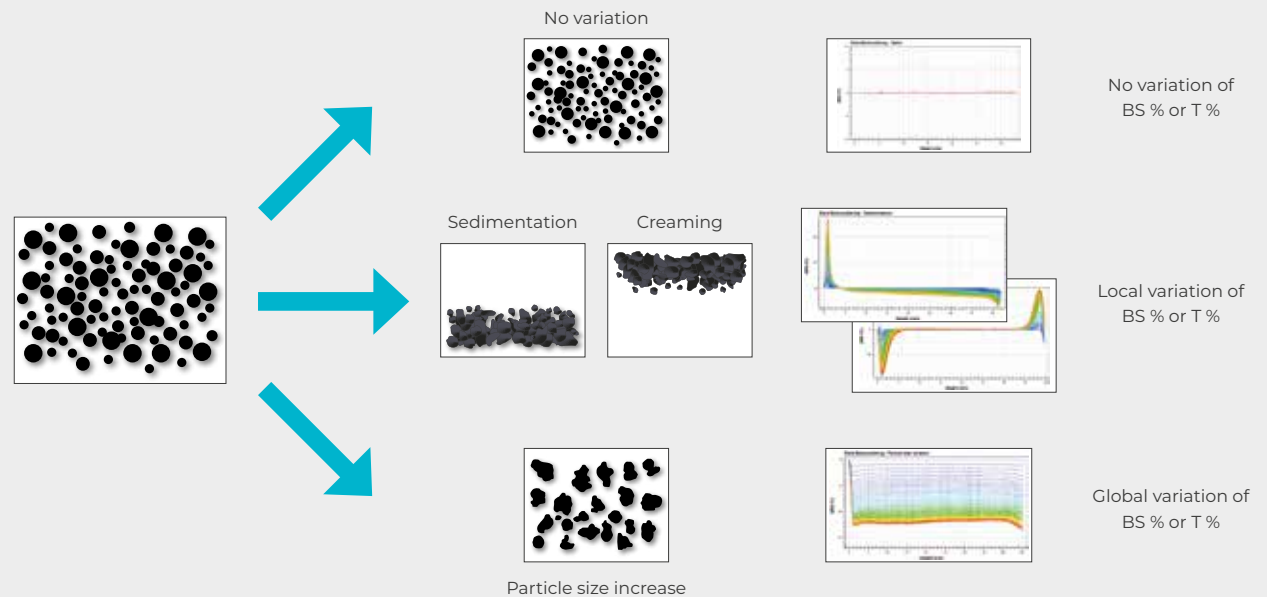
### DATA REPRESENTATION

Scans are overlaid on the same graph and in function of sample height. Each scan has a specific colour from blue - first scan to red - last scan to easily understand signal variations in function of time.



### DESTABILIZATION DETECTION

In the case of destabilization, deviations in scans are detected as a function of sample height. Due to the high sensitivity of the SMLS technology, destabilizations are detected in their very early stage and **up to 1,000 times faster** than visual observation.



## TURBISCAN SMART ANALYSIS

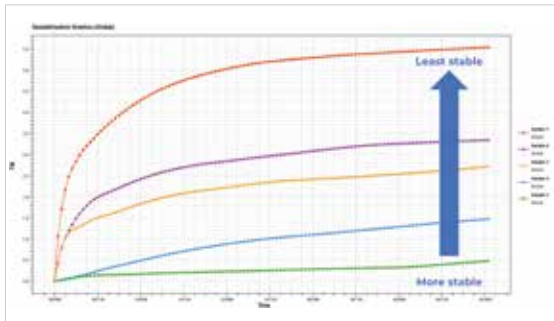
# ON-BOARD TECHNOLOGY FOR ONE-CLICK RESPONSE

### TURBISCAN STABILITY INDEX – TSI

Turbiscan Stability Index (TSI) sums all the signal variations along the entire sample height and therefore, takes into account all destabilizations occurring. Thanks to the TSI, sample comparison is easy as the higher the TSI, the lower the stability.

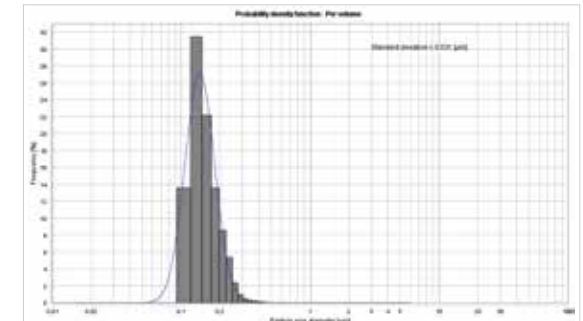
The key points of the TSI: it is “one-click” and fully automatic, operator-independent, and does not require any data input.

The TSI is used in R&D labs for formula stability comparison and optimization, Quality Control as well as for academic research and quickly becoming the stability criteria.



### PARTICLE SIZE & DISTRIBUTION

Particle size distribution is determined from migration profiles and migration velocities and offers to investigate size and its distribution in native samples and without any pumping, dilution or mechanical stress. Standard: ISO 13317.





**TURBISCAN  
TOWER**

SHELF-LIFE & DISPERSIBILITY  
ANALYZER TURBISCAN

**THE BEST TECHNOLOGY  
FOR FAST & NON-INVASIVE  
STABILITY ANALYSIS**

## TURBISCAN LAB

# THE WORLD REFERENCE STABILITY ANALYZER

**TURBISCAN LAB** allows fast and sensitive identification of destabilization mechanisms (creaming, sedimentation, flocculation, coalescence, ...). A temperature-controlled measurement chamber allows stability monitoring at specific storage temperatures or acceleration of the destabilization process with a temperature increase up to 60°C.

**TURBISCAN LAB** can be used in both R&D and QC labs for the development and routine control of raw materials and final product formulations. The Turbiscan technology does not only detects stability evolution at an early stage (up to 1,000 times faster compared to visual testing) but also quantifies global formula evolution with the Turbiscan Stability Index (TSI) scale.

|                            |                                                                                              |
|----------------------------|----------------------------------------------------------------------------------------------|
| NUMBER OF SAMPLES          |           |
| TEMPERATURE RANGE          |  RT-60 °C |
| TURBISCAN STABILITY INDEX  |           |
| PARTICLE SIZE DISTRIBUTION |           |



## FEATURES

- Static Multiple Light Scattering (SMLS) Technology
- 1 sample position
- Temperature range: from **RT to 60 °C**
- Accelerated destabilization detection **up to 1,000x faster** than visual observation
- **Real stability:** No dilution ( $10^{-4}$  up to 95% v/v) – No mechanical stress
- Destabilization quantification: migration velocity, particle size
- One click stability ranking with the **Turbiscan Stability Index (TSI)**
- Bar code reader for easy sample management
- Convenient: plug & play, free licence software, multiple computers, limited footprint
- Standards: ISO/TR 13097:2013, ISO/TS 22107:2021, ISO/TS 21357:2022, ISO 13317

## TURBISCAN TRILAB

# 3-SAMPLE MACROSCOPIC & COLLOIDAL STABILITY ANALYZER

**TURBISCAN TRILAB** is a multi-sample stability analyzer based on the SMLS technology. It enables fast and reliable shelf-life studies of formulations (emulsions, suspensions, foams).

The **TRILAB** offers several advantages for studying the stability of dispersed systems. It allows simultaneous and independent analysis of **up to 3 samples**, thus saving time and resources. It provides a comprehensive and quantitative characterization of the physical phenomena involved in destabilization, such as sedimentation, creaming, flocculation, or coalescence. Not only does it save time thanks to the extreme sensitivity of the SMLS technology, it also enables accelerated stability tests by varying the temperature from **20°C to 60°C** and follows ISO recommendations (ISO TR/13097:2013, ISO/TR 18811:2018). The stability measurement is done with a non-invasive and non-destructive measurement, preserving the integrity and nature of the samples.

The Turbiscan technology guarantees a direct reading of macroscopic and colloidal stability without dilution or mechanical stress.

|                            |                                                                                              |
|----------------------------|----------------------------------------------------------------------------------------------|
| NUMBER OF SAMPLES          |           |
| TEMPERATURE RANGE          |  20–60 °C |
| TURBISCAN STABILITY INDEX  |           |
| PARTICLE SIZE DISTRIBUTION |           |



## FEATURES

- ▶ Static Multiple Light Scattering (SMLS) Technology
- ▶ **3 independent sample positions**
- ▶ Temperature range: from **20°C to 60°C**
- ▶ Accelerated destabilization detection **up to 1,000x faster** than visual observation
- ▶ **Real stability:** no dilution ( $10^{-4}$  up to 95% v/v) – No mechanical stress
- ▶ Destabilization Quantification: migration velocity, particle size
- ▶ One click stability ranking with the **Turbiscan Stability Index (TSI)**
- ▶ Sample management via bar code & LCD screen with measurement status and stability results
- ▶ Convenient: plug & play, free licence software, multiple computers, limited footprint
- ▶ Standards: ISO/TR 13097:2013, ISO/TR 18811:2018, ISO/TS 22107:2021, ISO/TS 21357:2022, ISO 13317



The measurement cell is placed directly in the trap door's sample holder.



## TURBISCAN TOWER

# 6-SAMPLE MACROSCOPIC & COLLOIDAL STABILITY ANALYZER

**TURBISCAN TOWER** is the flagship product of the Turbiscan range, for fast, precise, and quantitative stability measurement of formulations (emulsions, suspensions, foams).

The **TOWER** offers **6 independent measurement positions** allowing simultaneous formulation comparison or providing flexibility when working on different projects. It allows fast and accurate assessment of the stability and aging of any formulation (highly concentrated and opaque to water-like systems). Any changes occurring in the dispersion, such as sedimentation, flocculation, creaming, and coalescence will be detected and quantified right away. Not only does it save time thanks to the extreme sensitivity



of the SMLS technology, but it also enables accelerated stability tests by varying the temperature from **4°C to 80°C** and follows ISO recommendations (ISO/TR 13097:2013, ISO/TR 18811:2018). The stability measurement is done with a non-invasive and non-destructive technique, preserving the integrity and nature of the samples. The results are saved into the software and are also displayed on the front screen with an easy reading of the stability thanks to a simple color code.

The **TURBISCAN TOWER** helps to design, improve, and monitor the quality of formulations and dispersions cost-effectively and reliably. Make fast decisions based on facts.

## FEATURES

- ▶ Static Multiple Light Scattering (SMLS) Technology
- ▶ **6 independent sample positions**
- ▶ Temperature range: from **4°C to 80°C**
- ▶ Accelerated destabilization detection up to 1,000x faster than visual observation
- ▶ **Real stability:** no dilution (10<sup>-4</sup> up to 95% v/v) – No mechanical stress
- ▶ Destabilization Quantification migration velocity, particle size
- ▶ One click stability ranking with the **Turbiscan Stability Index (TSI)**
- ▶ Sample management via bar code & LCD screen with measurement status and stability results
- ▶ Convenient: plug & play, free licence software, multiple computers, limited footprint
- ▶ Standards: ISO/TR 13097:2013, ISO/TR 18811:2018, ISO/TS 22107:2021, ISO/TS 21357:2022, ISO 13317



NUMBER OF  
SAMPLES



TEMPERATURE  
RANGE



TURBISCAN  
STABILITY INDEX



PARTICLE SIZE  
DISTRIBUTION

|                               |                                                                                            |
|-------------------------------|--------------------------------------------------------------------------------------------|
| NUMBER OF<br>SAMPLES          |  54       |
| TEMPERATURE<br>RANGE          |  RT-60 °C |
| TURBISCAN<br>STABILITY INDEX  |  TSI      |
| PARTICLE SIZE<br>DISTRIBUTION |           |



## TURBISCAN AGS

# HIGH-THROUGHPUT STABILITY ANALYZER

The **TURBISCAN AGS** is a high-throughput stability analyzer to shorten a formulations' time-to-market and for quality control.

Stability is one of the key parameters for the development and quality control of dispersed systems, such as emulsions, suspensions, or foams.

Assessing the stability of such systems requires reliable and sensitive methods that can detect and quantify the physical phenomena involved, such as creaming, sedimentation, flocculation, or coalescence.

**TURBISCAN AGS** combines:

- SMLS technology for fast, quantitative, and reliable stability and shelf-life measurement
- Automated sample handling system working **24/7**
- Storage unit for **54 samples** split in **3 temperature-controlled** racks (up to 60 °C)
- Smart software for automatic sample handling and reporting

**TURBISCAN AGS** is the ideal companion when dealing with large batches of samples, it operates 24/7 and without any human intervention, stability measurements and giving you the time to focus on what matters.

## FEATURES

- ▶ Static Multiple Light Scattering (SMLS) Technology
- ▶ 3 independent thermoregulated racks of 18 samples for a total of **54 samples**
- ▶ Temperature range: from **RT to 60 °C**
- ▶ Accelerated destabilization detection **up to 1,000x faster** than visual observation
- ▶ **Real stability:** no dilution ( $10^{-4}$  up to 95% v/v) – No mechanical stress
- ▶ **Fully automated** robotic station working 24/7
- ▶ Destabilization quantification, migration velocity, particle size diameter...
- ▶ One click stability ranking with the **Turbiscan Stability Index (TSI)**
- ▶ **Convenient:** free licence software, multiple computers, limited footprint
- ▶ Standards: ISO/TR 13097:2013, ISO/TR 18811:2018, ISO/TS 22107:2021, ISO/TS 21357:2022, ISO 13317

## TURBISCAN DNS

# DISPERSIBILITY AND STABILITY ANALYZER

|                            |                                                                                           |
|----------------------------|-------------------------------------------------------------------------------------------|
| NUMBER OF SAMPLES          |          |
| TEMPERATURE RANGE          |  RT-60°C |
| TURBISCAN STABILITY INDEX  |  TSI     |
| PARTICLE SIZE DISTRIBUTION |          |



**TURBISCAN DNS** is a cutting-edge technology that offers a comprehensive solution for measuring the dispersibility and stability of emulsions, suspensions, and foams.

With its advanced optical system and sensitive detectors (Static Multiple Light Scattering – SMLS), **TURBISCAN DNS** can accurately detect and quantify changes in the physical properties of these complex systems over time. The measurement of the dispersibility and stability is done via two functions:

### DISPERSIBILITY STUDIES

Measurement while processing the formulation or dispersion (online or mixing done directly in the measurement vials) allows precise dispersibility studies (ISO/TS 22107:2021).

### SHELF-LIFE STUDIES

At rest and without any additional forces, for a fast and quantitative measurement.

All the measurements are done without dilution on the native sample to provide a clear and reliable measurement of the dispersion state and its evolution.

This powerful tool enables researchers and manufacturers to optimize their formulations, identify stability issues early on, and ensure consistent product quality. Whether you are developing new products or improving existing ones, Turbiscan DNS provides the insights you need to make fast decisions and stay ahead of the competition.

## FEATURES

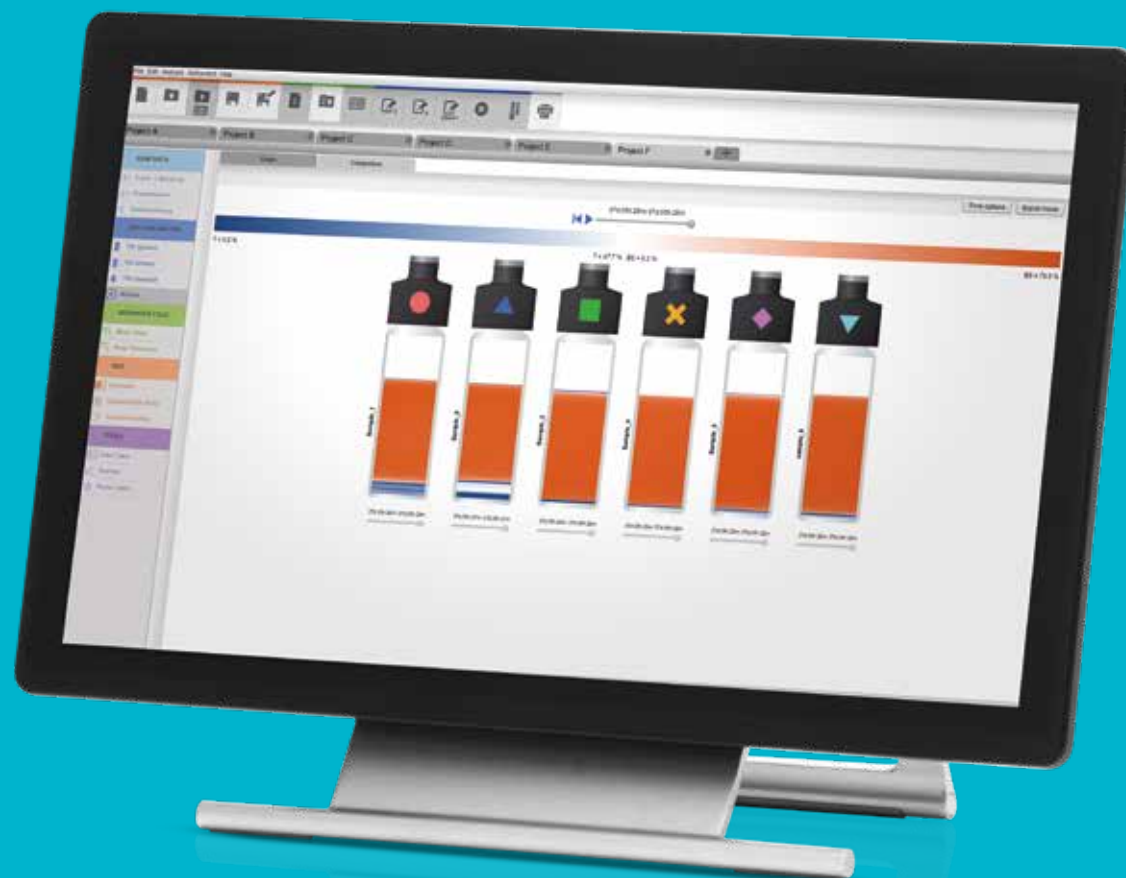
- Static Multiple Light Scattering (SMLS) Technology
- Temperature range: **from RT to 60°C**
- Accelerated destabilization detection **up to 1,000x faster** than visual observation
- Real stability:** no dilution (10<sup>-4</sup> up to 95% v/v) – No mechanical stress
- Destabilization quantification, migration velocity, particle size diameter...
- One click stability ranking with the **Turbiscan Stability Index (TSI)**
- Mixing and circulating function
- Ultra-fast measurement** (up to 10 measurements per second).
- Convenient:** plug & play, free licence software, multiple computers, limited footprint
- Standards: ISO/TR 13097:2013, ISO/TR 18811:2018, ISO/TS 22107:2021, ISO/TS 21357:2022, ISO 13317



## TURBISOFT FOR TURBISCAN

# DATA INTERPRETATION MADE SIMPLE

- I Intuitive and straightforward navigation
- I Fast and robust stability comparison thanks to the TSI algorithm
- I Advanced calculation for deep data analysis: migration rate, mean particle size evolution, phase separation...
- I Stay up to date: Free license – Free software updates
- I Multi-user software
- I Easy data export
- I Sample destabilization movies
- I Fully guided calibration check-up procedure
- I Multi languages: English, Spanish, French, Chinese, Japanese, German ...



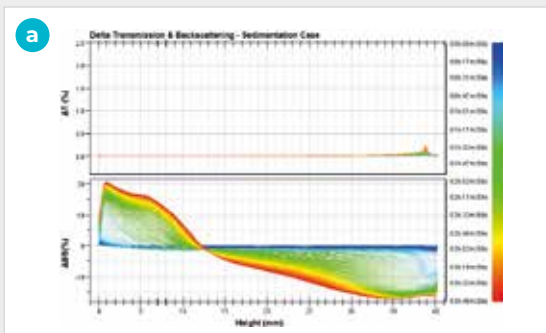
## TURBISOFT FOR TURBISCAN

# SELECTED FUNCTIONS

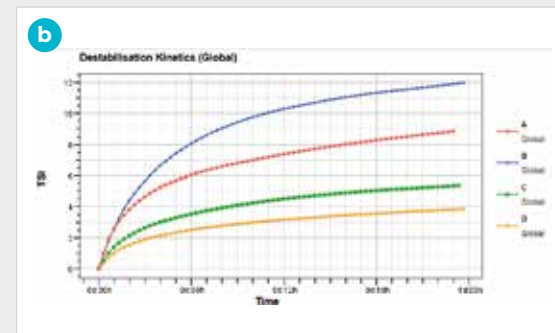
Data acquisition, interpretation, and export are done with the Turbisoft, the dedicated software for the Turbiscan range. Turbisoft is continuously optimized towards more intuitive and straightforward data analysis, hence saving time, and helping users get the results they need in a few clicks.

- Destabilization visualization** is made simple via automatic colour code (first scan in blue, last in red) and sample height detection (**graph a**).
- Turbiscan Stability Index** is computed fully automatically, without any input and in just a single click (**graph b**).
- Simulated destabilization video** can be reconstituted and compared (up to 6 samples) from the variation of the backscattering and the transmission in function of time (**image c**).
- Histogram sample** ranking upon their TSI value at one time, and a color code is associated in regards of the destabilization importance (**graph d**).
- Advanced calculation** allows user to go deeper in the understanding of the destabilization processes: phase separation kinetics, migration speed, particle size.... (**graph e**).
- Free license and multi-computer** – Turbisoft gives the flexibility you need to acquire, share, and analyze data on separate computers. If you are changing your operating system, the newest version of the software is free.

Data exportation can be done on every graph on the screen and as easy as "copy/paste".



Transmission and backscattering in function of the sample height



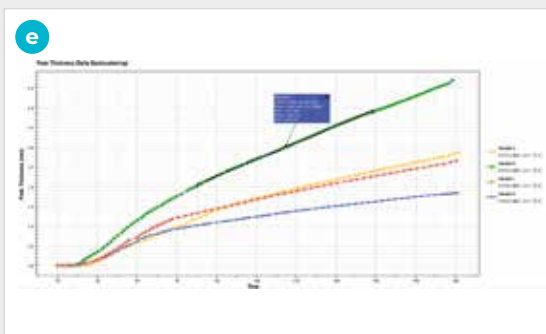
Turbiscan stability index In function of time



Video representation of the destabilization



Sample ranking via TSI value



Advanced calculation and phase separation thickness kinetic

T-loop



## TURBISCAN RANGE

# APPLICATIONS

When it comes to stability measurement, shelf-life studies and dispersibility, the Turbiscan technology is the must-have instrument whatever the field you are working on.

## TYPICAL FIELDS OF APPLICATION

- ▶ SPECIALITY CHEMICALS & POLYMERS
- ▶ PHARMACEUTICALS
- ▶ FOOD & BEVERAGES
- ▶ HOME & PERSONAL CARE
- ▶ COATINGS, PAINTS & INKS
- ▶ OIL & LUBRICANTS
- ▶ BATTERY & ELECTRONICS
- ▶ AGROCHEMICALS
- ▶ CONSTRUCTION MATERIALS

## APPLICATIONS

# EXPLORE OUR WIDE RANGE OF APPLICATIONS

Turbiscan technology (SMLS) can analyze a very wide variety of samples: opaque or clear, highly concentrated and very diluted, from nanoparticles to large floccs (mm), emulsions, suspensions, colloids, foams... The application field of the Turbiscan is limitless.

Turbiscan is used today in research & development, quality control as well as in the academic research field and is the reference technique for shelf-life studies and stability measurement.

## KEY BENEFITS

- | Time saving
- | Detect & Quantify
- | Objective and real stability



### | SPECIALITY CHEMICALS & POLYMERS

Surfactants, stabilizers, polymers and bio polymers, fillers and pigments, latexes, solvents...



### | FOOD & BEVERAGES

Soft drinks, flavor emulsions, beverages, milk and dairy products, vegetable drinks, plant protein, wine & beers, additives, gums and stabilizers...



### | PHARMACEUTICALS

Injectables, parenterals, vaccines, drug delivery systems, skin treatments, inhalers, cough syrups, ophtalmic suspensions...



### | HOME & PERSONAL CARE

Creams & lotions, moisturizers, sunscreens, detergents, fragranced formulations, cleansers, foundations, make up, nail polishes...



#### | COATINGS, PAINTS & INKS

Water-based, solvent-based, resins, varnishes, inks, primers, protective and special coatings...



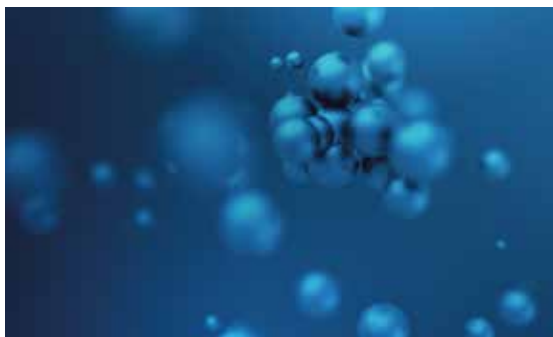
#### | OIL & LUBRICANTS

Water-in-oil demulsification, enhance oil recovery, drilling fluids, crude oils, heavy fuels, fuel & oil additives, metal working fluids, lubricating agents...



#### | BATTERY & ELECTRONICS

Anode & cathode slurries, CMP slurries, multilayer capacitors, LCD and LED display...



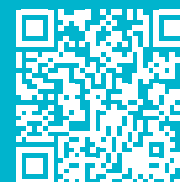
#### | AND MANY MORE

Agrochemicals, building materials, colloidal suspensions, nanoparticles...

## VISIT OUR APPLICATIONS DATABASE

Interested to hear more about applications in each industry, visit the MICROTRAC website

**START EXPLORING!**



[www.microtrac.com/applications](http://www.microtrac.com/applications)



SHELF LIFE & DISPERSIBILITY  
ANALYZERS TURBISCAN

## ACCESSORIES AND OPTIONS



### I STANDARD VIALS (20 mL)

Cylindric glass vials have a recommended volume of approximately 20 mL. They are disposable to avoid chemical or bacterial contamination and decrease labor costs for washing and drying. The vials are closed thanks to a cap and a disposable PTFE seal to prevent evaporation in case of elevated temperatures. These vials are meant to reproduce your visual stability test.



### I SMALL VOLUME (4 mL)

Small sample volume? No problem. Small-volume vials and specific adapter are available. The measurement can be done with as few as 2 mL. Another benefit: the sample can be fully recovered, Turbiscan measurement is non-contact/non-destructive.



### I ON-DEMAND ADAPTORS (FOR SYRINGE TYPE, PRESSURIZED VIALS, ...)

You have special needs, and we understand this! Our development team loves challenges: on-demand adapters can be offered (pre-filled syringes, pressurized vials,...). Perfect to study the stability in specific conditions (pressure) or for Quality Control.



### I OPEN-BOTTOM CELLS – FOR VISCOUS AND FRAGILE SAMPLES

Some samples are not easy to transfer or are too fragile to be poured. The coring vials set helps to go around this problem. With its open bottom (closed manually with a stopper), a sticky sample or foam can easily be sampled with the coring vials.



### I CALIBRATION STANDARDS

Each Turbiscan comes with a set of standards to check instrument calibration. The Turbiscan software (Turbisoft) guides you step-by-step and once the procedure is finished, the software gives a thumbs up. Test and results are saved, and instrument-checking procedure can be tracked.

## TECHNICAL DETAILS

# SPECIFICATIONS AT A GLANCE



|                                                    |                                                                                       |                  |                 |                     |                            |
|----------------------------------------------------|---------------------------------------------------------------------------------------|------------------|-----------------|---------------------|----------------------------|
| System                                             | TURBISCAN LAB                                                                         | TURBISCAN TRILAB | TURBISCAN TOWER | TURBISCAN AGS       | TURBISCAN DNS              |
| Measuring principle                                | Static Multiple Light Scattering (SMLS)                                               |                  |                 |                     |                            |
| Measurement type                                   | Stability & Shelf Life Studies                                                        |                  |                 |                     | Dispersibility & Stability |
| Particle Size Distribution                         | Yes (additional software required)                                                    |                  |                 |                     |                            |
| Sample volume                                      | 2 -20 mL                                                                              |                  |                 | 20 mL               | 2 - 20 mL                  |
| Temperature range                                  | RT – 60°C                                                                             | 20 – 60°C        | 4 – 80°C        | RT – 60°C (3 racks) | RT – 60°C                  |
| Number of samples                                  | 1                                                                                     | 1 – 3            | 1 – 6           | 54                  | 1                          |
| Sample concentration                               | 0.0001 – 95% v/v                                                                      |                  |                 |                     |                            |
| Reproducibility / repeatability on latex standards | +/-0.05%/0.05%                                                                        |                  |                 | +/-0.1%/0.05%       |                            |
| Scan step resolution                               | 20 µm                                                                                 | 20 µm            | 20 µm           | 40 µm               | 40 µm                      |
| Automatic sample recognition (barcode)             |                                                                                       |                  |                 |                     |                            |
| Standards                                          | ISO/TR 13097:2013, ISO/TR 18811:2018, ISO/TS 22107:2021, ISO/TS 21357:2022, ISO 13317 |                  |                 |                     |                            |
| Mixing function                                    | –                                                                                     | –                | –               | –                   | Up to 2000 rpm             |
| Circulation function                               | –                                                                                     | –                | –               | –                   | Up to 1000 Cps / 1000 mPas |
| Software                                           | Turbisoft Lab                                                                         | Turbisoft Trilab | Turbisoft Tower | Turbisoft AGS       | TurbiSoft DNS & TS-Fast    |
| Dimensions                                         | 26 x 28 x 25 cm                                                                       | 38 x 48 x 58 cm  | 38 x 45 x 90 cm | 145 x 75 x 85 cm    | 70 x 63 x 52 cm            |
| Weight                                             | 8 kg                                                                                  | 35 kg            | 50 kg           | 80 kg               | 30 kg                      |
| CE Certified                                       |                                                                                       |                  |                 |                     |                            |

# VERDER – ENABLING PROGRESS

MICROTRAC is part of Verder, the scientific division of the Verder Group. Five more companies are part of the scientific division: Retsch, Carbolite Gero, QATM, Eltra and Erweka. Together we set new standards in the development and manufacturing of lab and analysis equipment, as well as sample preparation tools, which are used in areas such as quality control, research and development.



For more details about the extensive MICROTRAC product portfolio please visit our website: **[www.microtrac.com](http://www.microtrac.com)**

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## VERDER

Verder is composed of leading laboratory equipment companies active in sample preparation and analysis for quality control as well as research & development purposes.

As trusted solution partner, Verder Scientific enables thousands of companies to ensure economic, technological and environmental progress by mastering their scientific applications. Together, we make the world a healthier, safer and more sustainable place.

