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DISPERSIBILITY & STABILITY ANALYZER

TURBISCAN DNS

www.microtrac.com/nl/producten/static-multiple-light-scattering/turbiscan-dns/

TURBISCAN DNS

DISPERSIBILITY & STABILITY ANALYZER

A unique platform for dispersibility and stability: The Turbiscan DNS comes with 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, powered by Static Multiple Light Scattering (SMLS), the 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:

- Measurement while processing the formulation or dispersion (online or mixing directly in measurement vials) → dispersibility studies
- At rest, without any additional forces → fast and quantitative stability and shelf-life studies

* Image shows new product design – available starting April 2024

All 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 instrument 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, the DNS provides the insights you need to make informed decisions and stay ahead of the competition.

TURBISCAN DNS

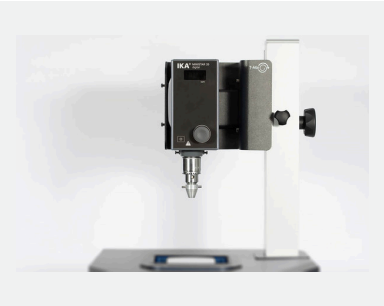
THE WORLD LEADER IN STABILITY ANALYSIS

- For dispersibility and stability studies, using the unique SMLS technology
- Online particle size determination on native samples and without any dilution at high frequencies (up to 10 measurements per second)
- Accelerated destabilization detection – up to 1,000 x faster than visual observation
- Temperature can be set up to 60°C
- Quantitative measurements of dispersion stability and shelf-life, migration velocity, particle size diameter, and other parameters
- Easy and repeatable redispersion measurements
- TLOOP and TMIX modules provide two possibilities for online measurements: either connect the DNS to your process via TLOOP or use vials as mini reactors by equipping them with specific blades (TMIX)
- Click & analyze: The TURBISCAN DNS is a fully integrated platform – everything is included and perfectly aligned

TURBISCAN DNS

TOEBEHOREN EN OPTIES

The TURBISCAN DNS comes with all you need to perform dispersibility and stability studies:



TMIX

Thanks to the mixing module of the Turbiscan DNS (TMIX), mixing and agitation can be applied inside the measurement vials. This setup has multiple advantages:

Adjust the formulation by changing the pH, adding stabilizers / destabilizers, adding salt … play with the formulation and directly measure the impact on the dispersion state – particle size

Apply shear inside the measurement vials, hence studying the powder hydration process, reconstitution of lyophilized products reconstitution, protein solubility, dispersibility studies …

TLOOP

The TLOOP module creates a circulation loop from a process or an outside batch to the measurement vials via a peristaltic pump. The liquid is pumped from the outside vessels to the measurement chamber, and back to the vessel. It measures the efficiency of dispersion processes such as pigment dispersion, emulsification studies, polymer dissolution, etc.

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 temperature. These vials are meant to reproduce your visual stability test.

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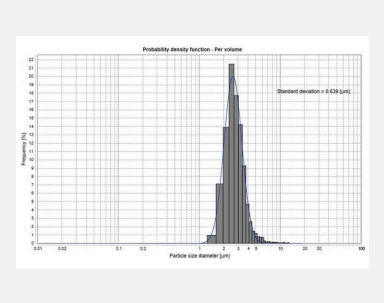
TOEBEHOREN EN OPTIES

ON-DEMAND ADAPTORS (FOR SYRINGES, 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.

KALIBRATIESTANDAARDEN

Elke TURBISCAN wordt geleverd met een set standaarden om de instrumentkalibratie te controleren. De TURBISCAN-software, DIMENSIONS TS, begeleidt u stap voor stap en zodra de procedure is voltooid, geeft de software een "OK"-signaal. De test en de resultaten worden opgeslagen, en de instrumentcontroleprocedure kan worden gevolgd.



PARTICLE SIZE DISTRIBUTION

The TURBISIZE software can measure the distribution of particle size (ISO13317) and the distribution of migration speed for any data obtained with a TURBISCAN, without any need to dilute, prepare, or modify the sample.

DISPERSIBILITY AND STABILITY AT A GLANCE

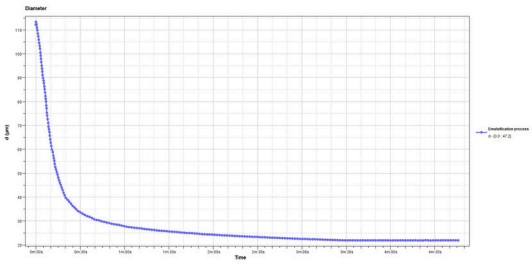
TURBISOFT FOR TURBISCAN DNS

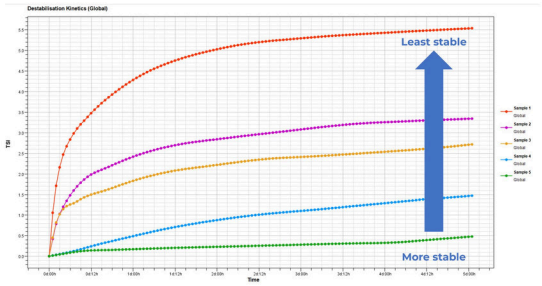
Data acquisition, interpretation, and export are done with TURBISOFT, the dedicated and intuitive software for the TURBISCAN range. TURBISOFT has been developed for and is continuously optimized towards more intuitive and straightforward data analysis, hence saving time and helping users to get the results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

DISPERSIBILITY AND STABILITY AT A GLANCE

TURBISOFT FOR TURBISCAN DNS

- Intuitive and straightforward navigation
- Fast and robust stability comparison thanks to the TSI algorithm
- Advanced calculation for deep data analysis: migration rate, mean particle size evolution, phase separation, and more
- Ideal for very fast kinetic or variation measurements: Data acquisition with up to 10 measurements per second
- Stay up to date: free license – free software updates
- Need to use multiple computers? This multi-user software has you covered
- Data export as easy as copy-paste
- Video recording of sample destabilization for up to 6 samples
- Fully guided calibration check-up procedure
- Multi-language support: English, Spanish, French, Chinese, Japanese, German, and more

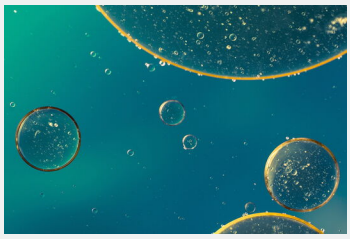




HIGH-THROUGHPUT STABILITY ANALYZER TURBISCAN DNS

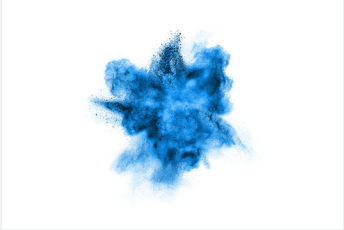
TYPISCHE TOEPASSINGEN

Whenever you are working with suspensions, emulsions, colloids, or foam, the TURBISCAN is your ideal characterization companion. The TURBISCAN series is used in various industries such as pharmaceuticals, cosmetics, food and beverage, paints and coatings, oil and gas, batteries, agrochemicals, chemistry, and much more.



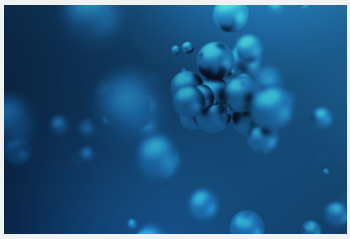
EMULSIES

- Cosmetic creams and lotions
- Dairy products and beverages, flavor emulsions
- Pharmaceutical parenteral and topical forms
- Metalworking fluids
- Agrochemical: fertilizers, pesticides, ...
- Petroleum emulsion



SUSPENSIES

- Paints, inks, and coatings
- Drug & vaccine suspension
- Make-up and sunscreen
- Chemical & polymer industry
- Ceramics and catalysts
- Battery slurries
- Electronic slurries



COLLOIDALE SUSPENSIES & NANODEELTJES

- Drug delivery system: LNP, Liposomes, ...
- Research on nanoparticles and nanoparticle suspension
- Polymer and biopolymer dispersion

... en meer!

TURBISCAN DNS

TOP APPLICATIEOPMERKINGEN

Ontdek praktische voorbeelden van hoe SMLS wordt gebruikt in een breed scala aan toepassingen en industrieën.

How to predict Shelf-life with the Turbiscan
DOWNLOAD → microtrac.com/files/410693/how-to-predict-shelf-life-with-the-turbiscan.pdf

Detect Stability 1,000x faster with Turbiscan
DOWNLOAD → microtrac.com/files/461367/detect-stability-1-000x-faster-with-turbiscan.pdf

Sedimentation studies with the Turbiscan
DOWNLOAD → microtrac.com/files/322964/sedimentation-studies-with-the-turbiscan.pdf

Creaming Studies With the TURBISCAN
DOWNLOAD → microtrac.com/files/325715/creaming-studies-with-the-turbiscan.pdf

Emulsion - Surfactant Optimization
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Stability Mapping by TSI
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TURBISCAN DNS

TOEPASSINGSVOORBEELDEN

HOW CAN PARTICLE DISPERSIBILITY MEASUREMENT HELP YOU?

CHEMISTRY – RAW MATERIAL SELECTION

Dispersibility corresponds to uniformly dispersing particles into liquids and with a particle size as close as the primary particle size. Being crucial to match product specifications and get the most value out of the used raw material, dispersibility is impacted by the particle-to-particle interaction and must, as stated in ISO/TS22107:2021, be measured while processing the particle into the liquid and native sample (no dilution, no mechanical stress). Thanks to the online capabilities of the TURBISCAN DNS, it is the first ready-to-use instrument to investigate particle dispersibility and helps the operator to formulate safe and cost-effective higher-performance formulations. Please take a look at our numerous applications and measurement examples to find the right raw materials, optimize processes, and look for alternative solvents.

FAST DETECTION OF SETTLING PARTICLES

SEDIMENTATION

The TURBISCAN technology offers a significantly faster (up to 1,000 times) and more reliable detection of sedimentation compared to visual observation. Furthermore, naked-eye observation makes it difficult to calculate the migration rate and is prone to error and misinterpretation. In contrast, the TURBISCAN technology provides a fast and non-destructive way to detect and quantify sedimentation and particle size over time and can detect even small changes in highly concentrated samples without any dilution or mechanical stress. This makes it ideal for analyzing complex suspensions and formulations, and getting a quicker, reliable, and more accurate answer on sedimentation monitoring.

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TOEPASSINGSVOORBEELDEN

FAST DETECTION OF DROPLET MIGRATION

CREAMING OF EMULSIONS

When it comes to measuring droplet migration and creaming behavior in emulsion systems, the TURBISCAN technology has several advantages for formulators. On one hand, it provides a fast measurement (up to 1,000 times faster than visual observation) of native samples and a non-destructive way to detect and measure droplet migration. On the other hand, the migration rate can easily be determined and helps the formulator to compare formulas, making it ideal for analyzing complex emulsions with a wide range of droplet sizes and concentrations. Additionally, the TURBISCAN technology provides insights into the mechanisms driving droplet migration, which can be used to improve formulation and processing conditions. Overall, the use of TURBISCAN technology in emulsion analysis leads to faster, more accurate, and more reliable results compared to traditional methods.

RECONSTITUTION AND REHYDRATION STUDIES

DEHYDRATED PRODUCTS AND POWDERS

Dehydrated powders are used in various industries – such as the food, cosmetics and pharmaceutical industries – to maintain the quality and shelf-life of products. However, the reconstitution and rehydration of these powders can pose several challenges, such as ensuring the homogeneity, stability and functionality of the reconstituted product. It is therefore of utmost importance to investigate the factors that influence the reconstitution and rehydration behavior of dehydrated powders and optimize the conditions to achieve the best performance. Thanks to the "online" and "at rest" measurements you can study the ability of the powder to rehydrate, as well as the stability of the reconstituted product, in a single experiment and with a single device. For more information, please read our application note on reconstitution of milk powder.

TURBISCAN DNS

TECHNISCHE GEGEVENS

Acquisition scan step	20 µm
Automatic sample recognition (bar-code)	ja
CE Certified	ja
Afmetingen	70 x 63 x 52 cm
Standaarden	ISO/TR 13097:2013, ISO/TR 18811:2018, ISO/TS 22107:2021, ISO/TS 21357:2022
Maximum acquisition speed	0.1 seconds (in fixed mode)
Maximum sample concentration	95% v/v
Measured size range	10 nm - 1 mm
Measurement type	At rest and under mixing conditions
Meetprincipe	Static Multiple Light Scattering (SMLS)
Particle size distribution	ja (aanvullende software vereist)
Number of Samples	1
Reproducibility / Repeatability on latex standards	0.1% / 0.05%
Sample volume at rest	4 or 20 mL
Sample volume under mixing conditions	10mL up to Liters
Software	TurbiSoft + TurbiSoft Fast
Temperature range	RT - 60°C
Gewicht	30 kg

Productinformatieblad Turbiscan DNS · Nederlands (~2 MB)

PRODUCTINFORMATIEBLAD →

microtrac.com/files/452625/productinformatieblad-turbiscan-dns.pdf

TURBISCAN DNS

CONTACTEER ONS →

microtrac.com/nl/contact-services/general-request/?prefilltext=contact_form.request&product=200

OFFERTE-AANVRAAG →

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