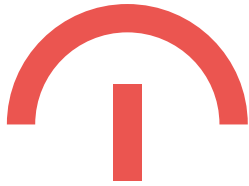




Let's work together
to create a better future

Solutions to guarantee safety in the Food Industry

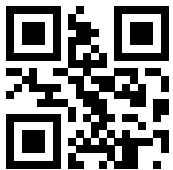


Let's work together
to create a better future

What we do?

At Terragene® we offer simple and effective methods to accurately control cleaning and sterilization processes in the food and beverage industry. Available in a variety of formats, these high-performance control devices provide fast and consistent results so you can properly monitor all your infection and contamination control protocols.

terragene.com



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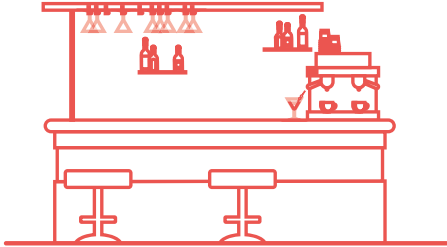
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Room Disinfection

In recent years, there is an increasing consensus that improved cleaning and disinfection of environmental surfaces is needed not only in healthcare environment but also in other places like offices, hotels, means of transportation and other public spaces.

We have developed the most complete and innovative portfolio of products for disinfection monitoring in room and airborne disinfection procedures. Technology developed to certify disinfection in operating rooms also applied to everyday life.

H2O2 Airbone Disinfection Biological Monitoring Systems

BioSurf BT97

Bionova® BT97 BioSurf Biological Indicator has been designed for quick and easy monitoring of airborne and surface disinfection processes by VHP and HPV. The system consists of two tubes: tube A which contains the spores to challenge the disinfection process, inoculated in a metallic coupon, and tube B which contains the culture medium used to reveal decontamination process success.

Advantages

- ✓ Super Rapid Biological Indicator for Room Disinfection.
- ✓ Incubation results in just 1 hour.
- ✓ Unique in the market.
- ✓ Easy handling, without cross-contamination.
- ✓ Evaluation of the actual process, exposing bacteria on a surface directly to H2O2.



- ✓ Compatible with all Bionova® Fluorescence Automatic Readers.
- ✓ Exclusive holder specially designed for holding in place both tubes in a desired position inside the room to be disinfected.
- ✓ The Type 1 indicator in the Tube B label allows verifying the correct exposure of this indicator to the decontamination process.

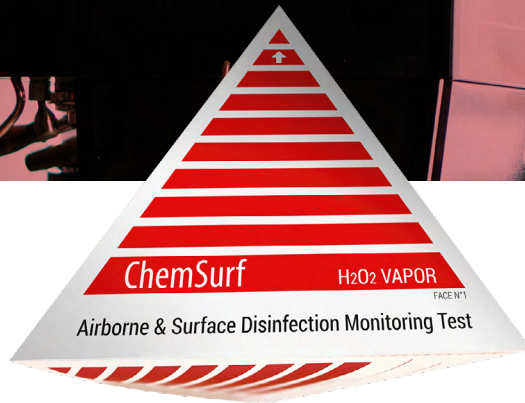


BT94

Specific design for Aerosol H2O2 disinfection systems.

- ✓ Monitoring of airborne and surface disinfection processes by aerosolized H2O2.
- ✓ Conventional readout with color change.
- ✓ Similar configuration as BT97.

H2O2 Airbone Disinfection 3D Chemical Monitoring



Advantages

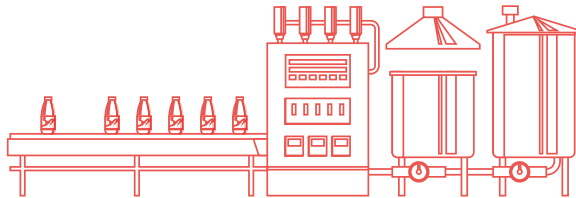
- ✓ ChemSurf indicators allows monitoring all critical parameters of the disinfection process: time, temperature and H2O2 concentration.
- ✓ The ink pattern permits to evaluate the homogeneity of H2O2 spreading and coverage over the room.
- ✓ Special 3D format, unique in the market, which concedes the possibility of monitoring all decontamination parameters in surfaces with different spatial dispositions.
- ✓ Its distinctive design includes a silicone seal, which allows the pyramid to be placed at different levels, according to the room display and monitoring needs.
- ✓ The indicator's base contains a reference chart to indicate the position of the indicator and the disinfection equipment location.

ChemSurf CDS47V | CDS47A

ChemSurf indicators have been specially designed to react to Hydrogen peroxide based Airborne and Surface Disinfection, guaranteeing an adequate control of this process efficacy. The ink was developed to change its color when the disinfection process reaches the stated values of the critical variables. Two different products specially designed for each H2O2 disinfection technology.







Sterilization Monitoring

Sterilization procedures should be monitored using biological and chemical indicators. Biological indicators, or spore tests, are the most accepted means of monitoring sterilization because they assess the sterilization process directly by killing known highly resistant microorganisms. Chemical indicators do not guarantee sterilization; however, they help detect procedural errors and equipment malfunctions. On the other hand, some chemical indicators should be used inside a package to verify that the sterilizing agent has penetrated it and reached the material inside.

Biological Indicators



Check out our **Biological Indicators** available here
terrakene.com

Self-contained Biological Indicators



BT20

Bionova® BT20 Self-Contained Biological Indicators were developed to control Steam sterilization processes. Biological indicators contain bacterial spores inoculated on a carrier packaged within a special plastic tube. Inside the tube, there is a sealed-glass ampoule with a specially-formulated culture medium containing a pH indicator which turns to yellow when spores grow. Bionova® BT20 biological indicators give their final results within 24 hours.

Bionova® BT20 Biological Indicators are certified for species, population, purity and resistance (Population size, D value, Z value and survival/ kill times).

This products are developed and manufactured under ISO 13485 certified systems. The quality parameters are determined at the time of manufacturing according to ISO 11138 (Parts 1 and 3) standards.

Advantages

- ✓ A specially formulated synthetic medium allows to get results in short times.
- ✓ Cross contamination risk reduction.
- ✓ Handling and analysis cost reduction.

24h 
Readout



Code

BT20

Conditions

121-135 °C

Sterilization

Steam

- ✓ Culturing may be performed in incubators for any other biological indicators at 60 °C.
- ✓ Type 1 chemical indicator on label.
- ✓ Label allows cycle data recording.



Dual incubator for Sterilization & Hygiene Indicators

IC10/20

Bionova® IC10/20 Incubator provides a convenient and reliable system for monitoring Steam, Dry Heat and Gamma Radiation sterilization processes as well as Hygiene Monitoring Systems.

It allows to select a temperature of either 37 or 60 °C and to incubate various types of sterilization and cleaning indicators.



Compact design

Bionova® IC10/20 is a compact tabletop incubator that requires minimal work space and thus can be placed almost anywhere in your facility.



Easy to use

The device is extremely user-friendly and requires no special training for its use, since it only contains a single button located at its base to select the desired incubation temperature.



No maintenance required

It does not need any kind of routine maintenance.



High capacity incubation

Allows simultaneous incubation of many samples, since it has numerous incubation positions:

- 34 positions for conventional self-contained.
 - 14 positions for self-contained ampoules, culture media and pen for protein and allergen detection.
- It also includes an ampoule crusher integrated in the incubation area to activate SCBIs.



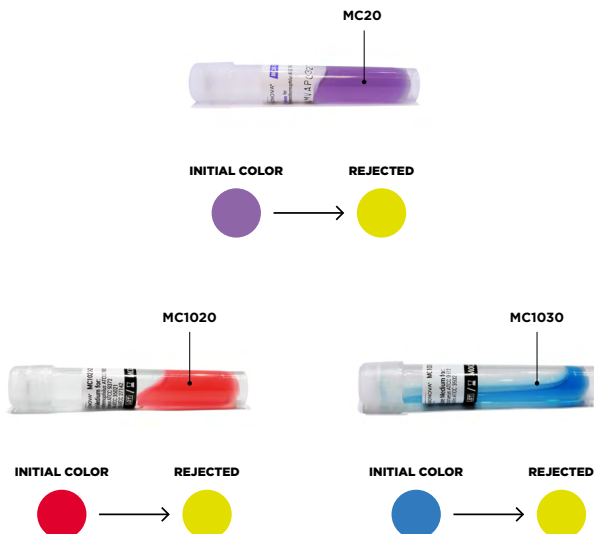
Quality certification included

Bionova® IC10/20 is manufactured with high-quality materials and is accompanied by a quality certificate that ensures characteristics and operating quality.

Spore Strips & Culture Medium

Bionova® Spore Strips consist of an envelope, permeable to the sterilizing agent, containing a paper strip inoculated with a spore population.

After exposure to the sterilization process, strips are aseptically transferred to the culture media tube and incubated in the Bionova® Dual Incubator according to the specific conditions. If sterilization has failed, culture medium will turn to yellow. Conversely, if the sterilization process has been successful, the culture medium will remain its original color.



Code	Use	Spore	Culture Media	Conditions
BT50	STEAM FORM	<i>Geobacillus stearothermophilus</i>	MC20 MC1020	24 hs at 60 °C 48 hs at 60 °C
BT60	EO DRY STEAM	<i>Geobacillus stearothermophilus</i> and <i>Bacillus atrophaeus</i>	MC20 MC1020 MC1030	24 hs at 60 °C 48 hs at 37 °C
BT70	IRRAD	<i>Bacillus pumilus</i> ATCC 27142	MC1020	48 hs at 37 °C

Steam & Dry Heat Sterilization Spore Ampoules

BT21 | BT22 | BT23 | BT24

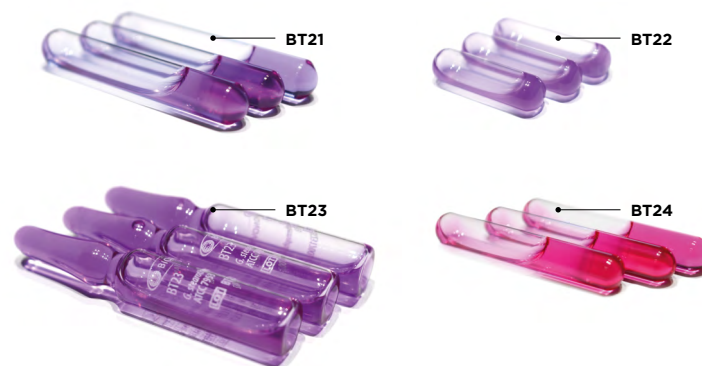
Bionova® Spore Ampoules are self-contained biological indicators for monitoring steam sterilization processes of liquid loads. Consists of different volumes of culture medium inoculated with a specific spores population: *Geobacillus stearothermophilus* ATCC 7953 (BT21, BT22 and BT23) and *Bacillus subtilis* DSM 5230 ATCC 35021 (BT24) within an hermetically sealed borosilicate glass. The culture medium is specially formulated to turn to yellow when spores grow. Bionova® spores ampoules provide visual confirmation of sterilization within 48 hs of incubation at 60 °C (BT21, BT22, BT23) or 37 °C (BT24). The ampoules must be kept refrigerated at 4-8 °C, RH 30-80 %.

Advantages

- ✓ Easy to use and interpret.
- ✓ Does not require activation.
- ✓ Evidence of growth with direct visual confirmation.
- ✓ For liquid load sterilization monitoring.
- ✓ Available in packages refrigerated at 4-8 °C, includes negative controls.

BT31

Spore ampoule for Dry Heat sterilization processes. Compatible with extremely high temperatures generated during depyrogenation cycles and sterilization processes in ovens and dry heat tunnels.



Code	Conditions	Sterilization
BT21 BT22 BT23	121-134 °C	Steam
BT24	110-121 °C	Steam
BT31	72 hs at 37 °C	Dry Heat

Chemical Indicators



Check out our Chemical Indicators available here
terragine.com

Self-adhesive Labels & Tape



CD77 TYPE 1 | GAMMA RADIATION

Self-adhesive label (dot) printed with indicator ink for monitoring Gamma Radiation sterilization processes.

INITIAL COLOR



FAILURES



FINAL COLOR



Sense of color change



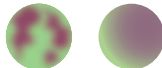
CD27 TYPE 1 | STEAM

Self-adhesive label (dot) printed with indicator ink for monitoring Steam sterilization processes.

INITIAL COLOR



FAILURES



FINAL COLOR



Sense of color change



CT22 TYPE 1 | STEAM

Sterilization package sealing tape with process indicator for monitoring Steam sterilization processes.

INITIAL COLOR



FAILURES



FINAL COLOR



Sense of color change



CD87

Self-adhesive label (dot) printed with indicator ink for monitoring disinfection processes by UV under different exposure conditions.

Code

Conditions

Disinfection

CD87-100

≥ 25 mJ/cm²

Continuous UV-C (254 nm)

CD87-200

≥ 50 mJ/cm²

Continuous UV-C (254 nm)

CD87-200PX

0-200 mJ/cm²

Pulsed UV (PX-UV)

CD87-1000

≥ 1000 mJ/cm²

Continuous UV-C (254 nm)

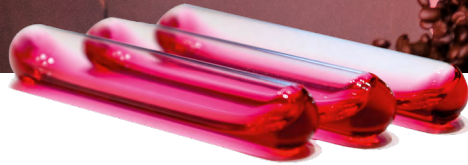
CD87-1000M

≥ 1000 mJ/cm²

N95 & FFP2 respirators by UVGI



Chemical Ampoules



CD210 | CD220 | CD250 TYPE 4

Chemical Chemdye ampoules CD210, CD220 and CD250 have been developed for the control of the sterilization of liquid loads. These multi-variable indicators are very easy to use, and consist of 40x7 mm borosilicate glass tubes, sealed at both ends.

The tube contains 0,25 ml of a thermosensitive red liquid that turns green when the declared values of the critical variables of the sterilization process have been reached.

Advantages

- ✓ **Readability:** The change of color from red to green facilitates the interpretation of the result.
- ✓ **Stability:** A permanent color change allows an immediate evaluation of the sterilization cycle.
- ✓ **Reliability:** It meets the quality standards from Type 4 multivariable indicators according to ISO 11140-1:2014.
- ✓ **Flexibility:** For monitoring different times and temperatures sterilization cycles.
- ✓ **Easy to use:** Allows monitoring sterilization inside liquids containers.

Code	Description	Conditions	Sterilization
CD210	Black spot	15 min. 121 °C 10 min. 126 °C	Steam
CD220	Yellow spot	3-3.5 min. 134 °C	Steam
CD250	White spot	120 min. 160 °C 60 min. 170 °C 35 min. 180 °C	Dry Heat

Performance

Chemdye® Chemical Tubes can be placed within the product to be sterilized. After exposure to the specific conditions, the reactive ink shows a permanent color change indicating that the parameters of the sterilization have been met.

INITIAL COLOR



REJECTED



FINAL COLOR



Sense of color change



Multivariable Indicator

Emulators for Steam sterilization



CD29 TYPE 4 | STEAM

Chemdye® Type 4 internal control strips are multivariable indicators that rapidly shows if critical parameters of the sterilization process have been reached, ensuring appropriate penetration of the sterilizing agent inside the packages. These chemical indicators offers a distinct color change when exposed to the stated values (SVs) of the critical process variables.



Chemdye® CD29 is FDA Cleared.



IT27-3YS | IT27-4YS | IT27-5YS | IT27-7YS TYPE 6

Designed for monitoring Steam sterilization processes. They fulfil the requirements for Type 6 indicators monitoring all the critical parameters of the sterilization process at their position in the chamber, and ensuring an adequate control of the efficacy of the sterilization processes (temperature, time, steam quality).

Code	Conditions
IT27-3YS	3 min. 134 °C
IT27-4YS	4 min. 134 °C
IT27-5YS	5 min. 134 °C - 15 min. 121 °C
IT27-7YS	7 min. 134 °C - 20 min 121 °C

Integrator Indicators

IT26-1YS Unique point Integrator TYPE 5

It was developed for verification of Steam sterilization cycles between 121 °C and 135 °C. These products ensure an adequate control of the effectiveness of sterilization processes (temperature, time, steam quality). The accepted final color is reached when a theoretical spore population reaches its kill time, indicating integration condition has been reached.



IT26-C with and without extender Moving front Integrator TYPE 5

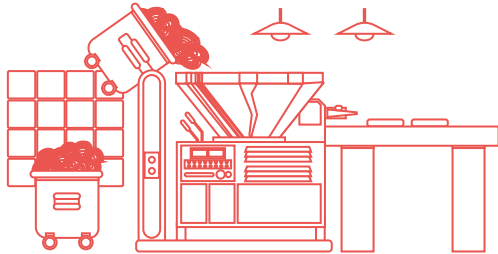
It was developed for monitoring Steam sterilization processes between 118 °C and 138 °C and to ensure an adequate control of the effectiveness of sterilization processes by monitoring all critical parameters of steam sterilization (temperature, time, steam quality). Chemical pellet melts and migrates as a dark bar along the paper wick. Migration occurs through a zone marked as accept or reject, thus indicating whether sterilization conditions were met or not. The accept result is reached when a theoretical spore population reaches its kill time, indicating integration condition has been reached.



Learn more and check the related products
terragene.com

Integron® IT26-1YS and IT26-C are FDA Cleared.





Hygiene Monitoring Systems

Cleaning is one of the most critical actions you can take to ensure hygienic conditions when manufacturing safe products. Hygiene monitoring helps to determine the effectiveness of your cleaning procedures.

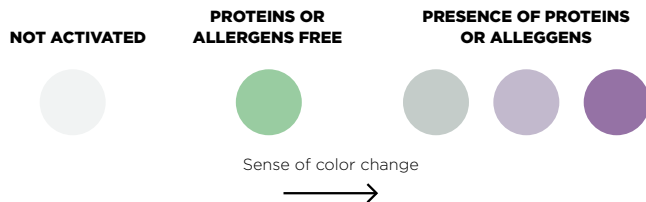
In a food-processing environment, taking the necessary steps to maintain hygienic conditions and prevent cross-contamination from occurring is an essential part of food safety testing and quality systems.

Terragene® offers a complete range of products for hygiene monitoring thus delivering accurate, quick and reliable data to help you monitor the cleanliness of your environment.

System for protein-based Allergen Quantification

Pro1 Alert

The Chemdye® Pro1 Alert hygiene monitoring system was designed for the fast and simple cleaning efficiency determination for the Food Industry. This device can be used to verify the presence of residual protein deposits after cleaning processes. The validation of this system reduces the use of multiple and time-consuming specific allergen tests. Its high sensitivity allows to alert the presence of residual proteins from different sources like milk, nuts, gluten, soy, egg, fish and seafood. The system is used along with Bionova® MiniPro auto-reader for analytical analysis.



**Ultra Rapid
Readout**

 **Incubation
Temperature
60 °C**

Certain food-related protein residues can cause affliction to consumers due to intolerances (gluten, milk, and dairy) or allergies (tree nuts, soy, egg, etc.). In the food industry, retail and gastronomic sector, ineffective cleaning processes can leave food-related residues over the contacted surfaces; this is highly unsafe for consumers with certain food intolerance or allergy. Since the exact amounts of food-related proteins necessary to elicit a hypersensitive reaction are unknown, a precise and sensitive protein detection and quantification method like the Chemdye® Pro1 Alert is essential for the Food Industry. It reduces the possibilities of food cross-contact, allows the safe labeling of products and guarantees the safety of consumers.

Auto-reader for Hygiene Monitoring System



MINIPRO



Quantitative analysis

Bionova® MiniPro is an advantageous and very sensitive tool for incubation and reading of ProAlert hygiene monitoring systems since it offers the user the unique benefit of performing a quantitative analysis of small quantities of protein and allergens, thus providing an exclusive and convenient way to keep results recording and traceability of every surface checked for contaminants. This exclusive feature makes Bionova® MiniPro an innovative device to keep objective track of surface cleaning process monitoring unparalleled on the current market.



Time Optimization

Bionova® MiniPro has 3 incubation positions, thus allowing the incubation of 3 Protein Detection System Pens at the same time.



Built-in Thermal Printer

A thermal printer delivers a ticket showing the final result of each active readout position. This allows to register each result in a record keeping book.



Reading & Traceability system

USB connection for PC record keeping through Bionova® Cloud Reading and Traceability software. For more information go to: www.terragene.com



No maintenance required

The device does not need any kind of routine maintenance.



Temperature calibration

The device has an opening on its side to insert a thermometer, which allows temperature calibration control.



Compact design

Bionova® MiniPro is a compact table-top incubator that can be placed anywhere in your facility thanks to its small size.

ATP based Hygiene Monitoring System



Surface ATP Test

Chemdye® Pen system for ATP quantification used on any surface for hygiene monitoring after the washing or disinfection procedure.

ATP is a molecule present in all living organisms, so it is a good indicator of the presence of microorganisms or residues that may promote their growth. When monitoring begins, the reagent in the test pen vial reacts with the ATP collected on the swab to produce luminescence. The intensity of the light emitted is proportional to the amount of ATP, and, therefore, it is also proportional to the degree of contamination.

Characteristics

- The system has a highly absorbent swab that allows the collection of samples from different surfaces, and a reactive solution.
- The swab is pre-moistened and is capable of releasing the ATP present inside living cells.
- Detection limit: 0.5 femtomol of ATP.
- Quantitative analysis using a specific Luminometer.

System for surface residual protein detection



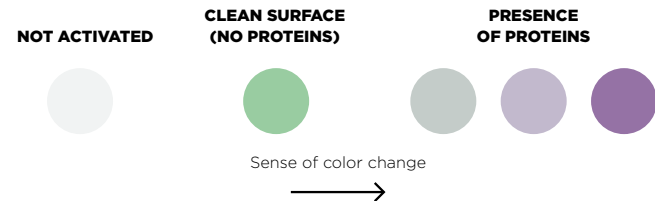
 **10'**
Rapid
Readout

 Incubation Room
Temperature
20 to 30 °C

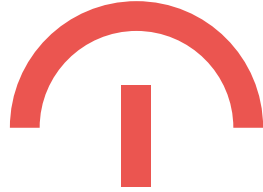
Pro1 RT

Surface cleaning and disinfection are processes applied on regular basis on different working environments like medical centers, bio-pharmaceutical industry, food industry, retail and gastronomy sectors. Residual protein levels on surfaces and rinsing water are an indicator of cleaning efficiency. This is because proteins represent the greatest challenge due to its high surface adhesion, especially when they undergo a denaturation process after being exposed to high temperature e.g. during thermo-disinfection or cooking steps. The Chemdye® Pro1 RT Hygiene Monitoring System was designed for the fast and simple protein level determination on instrument's surfaces, hard-to-access areas or in the rinsing water of instruments after cleaning.

The system includes a high absorption swab, which allows the collection of samples from different types of surfaces or solutions with high efficiency. A visual readout of a color change indicates the presence of detectable levels of protein in only 10 minutes allowing to take fast corrective decisions in the presence of contaminants. This system is highly sensitive, detecting from 25 µg of total protein (0.5 mg/ml in solution).



Let's work together
to create a better future.



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