MEASUREMENT TOOLS

for LIQUID SCINTILLATION COUNTING

metorX

ABOUT **METORX**

Measuring tools for radiation

MetorX B.V. is a specialised science and technology partner in the field of nuclear instrumentation. We are strongly committed to R&D and focused on innovating and simplifying measuring tools for radiation. In close cooperation with our customers and partners, we create and deliver user-friendly, clever and dedicated tools.

Support and maintenance

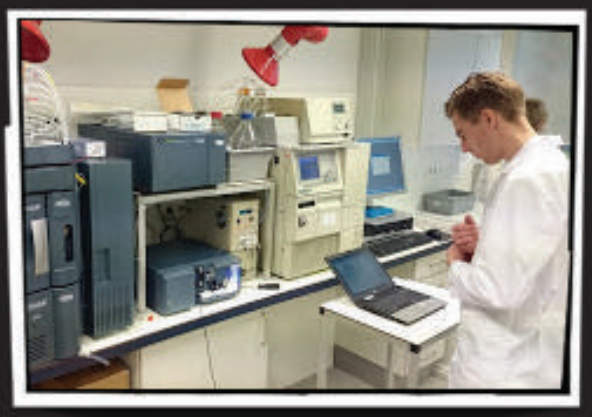
After having purchased one of our devices, you can rest assured that help and support will be nearby when and if you need it. Our knowledgeable engineers are equipped to diagnose and fix the problem while minimizing the downtime. If you are on an optional service contract, this is all included. An annual preventative maintenance (PM) visit is the best way to keep the instrument running smoothly, to specification and - in many cases - to ensure regulatory compliance.

Office facilities in Goedereede

MetorX was founded in The Netherlands, although our operations currently cover Denmark and the Benelux. Our head offices are based on the island of Goeree-Overflakkee, located in the southwest of The Netherlands. This historic town played an important role in medieval times. The name Goedereede literally translates as "safe harbour".

MetorX sponsors Kunstwereld

Kunstwereld is a unique project, in which a group of artists with a mental disability create lively and colourful pieces of art. MetorX is a proud sponsor of their activities. All of our corporate gifts are designed and created by Kunstwereld.



OUR **FOUNDER**

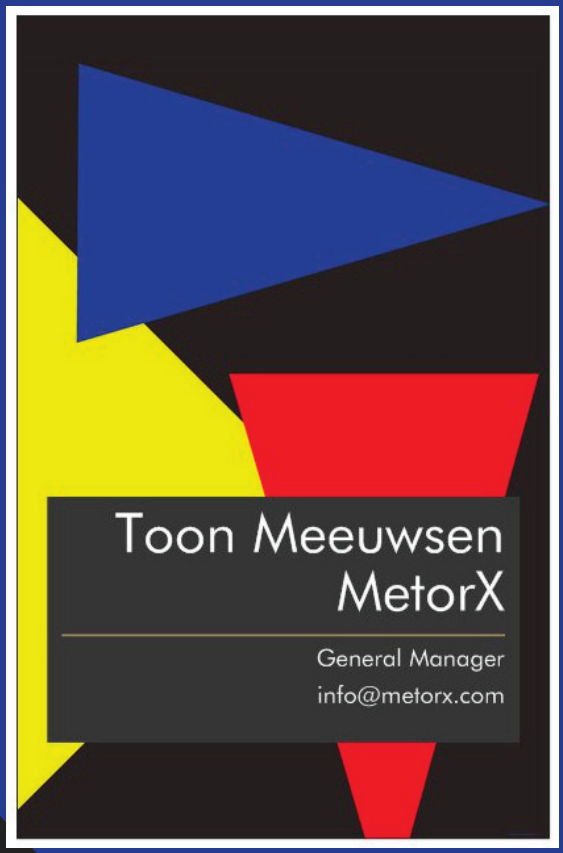
My name is Toon Meeuwsen and I am the founder and CEO of MetorX. For almost my entire working life, I have been working in the nuclear instrumentation field. Back in 1989, I was offered my first job in the industry, working as a sales engineer for liquid scintillation and gamma counters.

Since 1996, I have been responsible for the sales of the nuclear product assortment - which includes gamma-ray spectrometry, alpha beta counting, alpha spectrometry and health physics instrumentation - in The Netherlands and Denmark.

Later, I decided to start my own company. MetorX focuses on Measuring Tools for Radiation. We are working together with specialised partners in the field to develop and promote tools that can be used to help our customers. Together, we can ensure the safety of your personnel, assist you in making scientific breakthroughs and valuable discoveries, and realise a better environment in which the best medical care can be provided.

Customers need to be able to focus on their mission. For this, they need reliable, easy to operate systems that are dedicated to their needs and give the best service available. They can rely on us for speedy help and advice; as well as for support and service of their machines.

I look forward to meeting you soon and working together!



Liquid Scintillation

Hidex Triathler

Meet the **Hidex Triathler**. An easy-to-use, all-in-one *liquid scintillation counter*, *gamma counter* and *luminometer*. Provides fast and accurate results for a multitude of life science, medical and molecular biology applications, as well as for safety testing.

Its small size and weight make it ideal for personal use or field measurements. It has been thoroughly tested and proven even under the harshest of conditions; and boasts advanced features, including a built-in multichannel analyzer and optional alpha-beta separation electronics.

SPECIFICATIONS

- **Dimensions**: 33 L x 25 W x 19 H (cm)
- **Weight**: 9 kg
- **Detector**: NaI detector and/or Single-Photon Counting PMT
- **Energy range**: 2 keV - 2000 keV
- **Counting time**: 0.1 seconds - 99999 minutes
- **Power**: 110-240 V AC or 12V DC

and Gamma Counting

Portable as a result of its small size and light weight, making it very suitable for use on a benchtop or for on-the-spot measuring. Comes in an optional handy, fitted case.

Easy to use through its single-key operation, that works both intuitive and effective. Gives instant results using preset protocols for any isotope, including alpha emitters!

Flexible through its capability for nearly all beta or gamma radiation or luminescence applications. In doing so, it accepts most types of vials and sample formats.

Microplate

Hidex Sense Beta

This versatile and sensitive **microplate reader** uniquely combines liquid scintillation and beta counting and all common non-radioactive detection technologies.

The optional integrated dispenser system offers comprehensive injection procedures with true real time readout and anti-foaming injection head technology. Injection of radiolabelled compounds enables kinetic studies.

SPECIFICATIONS

- **Dimensions:** 49 L x 20 W x 28 H (cm)
- **Weight:** 13 kg
- **Background:** < 80 CPM
- **Time Resolved LSC:** < 20 CPM
- **Counting efficiency:** 3H >50%, 125 I > 65%, 14C > 90%

Reader

The **user interface** is independently rated the highest usability level **"Excellent"** on the System Usability Scale (SUS), making operation safe and comfortable with minimal operator training.

The comprehensive **assay library** gives immediate access to all your applications. The software includes functionality for DPM results and Beta spectrum analysis.

Liquid Scintillation

Hidex 300 SL

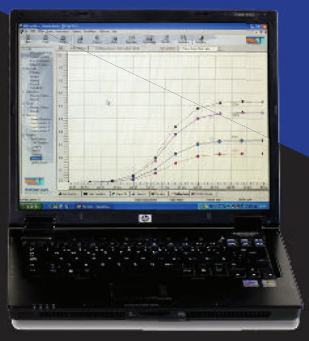
Also available as a **Super Low Level version**, boasting a **guard detector** and background 3H in water (CPM) of 3 (compared to 12 for the other available versions).

Counters

This revolutionary instrument has a modern and compact design measuring half the size and weight of some of its longstanding rivals. It is therefore much easier to install and fit it into smaller, more space conscious laboratories, such as research vessels or mobile labs.

Robotic loading arm removes the need for a complex elevator mechanism. Vertical shielding both on top and bottom of detector chambers provides biggest reduction of background effects.

Advanced **alpha beta separation** is available as an option, facilitating extremely sensitive detection of alpha isotopes in presence of high beta radiation. Separation even works for unknown mixtures of alpha and beta isotopes.



SPECIFICATIONS

- **Dimensions**: 63 L x 52 W x 68 H (cm)
- **Weight**: 125 kg
- **Sample capacity**: 20mL/7mL 40/96
- **Counting efficiency**: 3H/14C (%) 70/96
- **Background standard instrument**: 3H in water 12 CPM, low level 3 CPM

Liquid Scintillation

Hidex 600 SL

This automatic **Liquid Scintillation Counter** uses the robust and convenient triple to double coincidence ratio TDCR counting, well known from the 300 SL series.

With the added sample capacity of over 500 small vials or 210 large vials even the most crowded labs can rely on this work horse.

SPECIFICATIONS

- **Dimensions:** 64 L x 125 W x 69 H (cm)
- **Weight:** 200 kg
- **Sample capacity:** 20mL/7mL 210/500
- **Counting efficiency:** 3H/14C (%) 70/96
- **Background standard instrument:** 3H in water 12 CPM, low level 3 CPM

Counters

Available with all the options you get in a standard Hidex counter. **Powerful alpha/beta separation, low level PMT detectors, active guard cooling unit,** and an **external ^{152}Eu standard** are all options.

Comes with **state-of-the-art software** that can be run on an external PC with Windows 10, featuring easy to use graphical interface and data export options. Automatic storage of full energy spectrum ensures that no data is lost.

Samples are loaded in racks with a **barcode template identifier**, making multi-user environments with different needs extremely easy.

Automated Sample

Fully **computer controlled automated catalytic combustion unit** for all organic sample preparation. The system uses industrial standard logic and mass flow controllers for fully reliable sample combustion process.

Oxidizer

Hidex OXC Oxidizer

"At Hidex scientific development is at the core of our values. We believe in the scientific advancement and continued improvement of our products. Our passion is to develop and optimise instrument sensitivity, streamline measuring operation and make usability as smooth as possible.

To ensure the continued operation with our instruments we commit to unrivalled support. Our customers can unleash the full potential of our instruments with the support of our application specialists and field support engineers.

Hidex guarantee you the state-of-the-art tools so you can focus on your research."

- Ville Haaslahti, CEO

Up to **six samples** can be loaded in one go. Operator has **walk away freedom** and is not tied up as it would be for older manual systems.

Ideal for **variety of samples** such as: soil, concrete, feces, tissue, cellulose, paint, adipose, crude oil, blood, plant material, bones, concrete from nuclear decommissioning of power plants.

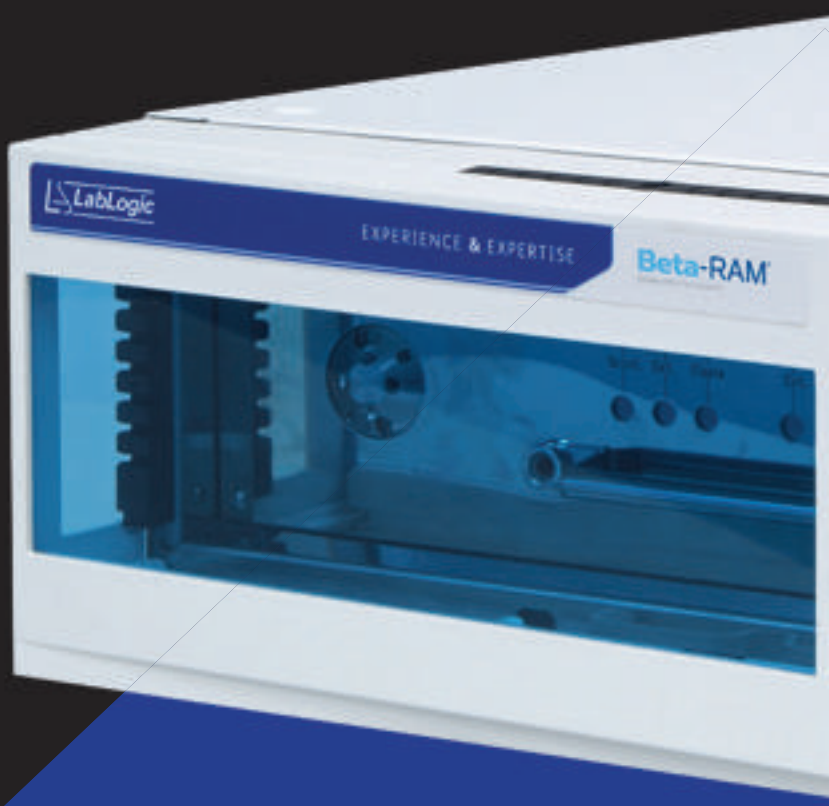
SPECIFICATIONS

- **Dimensions:** 60 L x 90 W x 60 H (cm)
- **Weight:** 85 kg
- **Power requirements:** 210-240 VAC, 10 A, 50 Hz
- **Gas connections:** Oxygen: 0,5 bar
  Nitrogen: 0,5 bar

Radio-HPLC

Lablogic BetaRAM

The world's leading **radio flow detector for HPLC** offers unrivalled sensitivity, resolution and versatility. Its use of the groundbreaking IRIS technology gives a wide range of cell volumes without the need to change the flow cell.



The **compact and integrated liquid manifold** handles the liquid distribution and mixing with scintillation cocktail. The manifold is designed to reduce dead volume to the minimum, ensuring excellent peak shape and resolution.

"LabLogic Systems is a premier instrument and software provider supporting PET/nuclear medicine facilities, pharmaceutical companies, agrochemical research, universities and contract research organisations for over 30 years. Our systems for radio-HPLC, radio-TLC and other quality control instruments are designed to help streamline operations and meet with demanding compliance requirements. In addition to instruments LabLogic produce a range of specialist applications software such as Laboratory Information Management Systems for ADME studies and PET production.

All LabLogic products are backed by an extensive support network providing a comprehensive installation, validation, maintenance and technical support service. The company is ISO 9001 accredited and meets all recognised GLP standards."

- Keith Hall, Product Manager

Flow Detector

The **stop flow mode** allows the user to achieve superb levels of sensitivity previously unavailable with online counting methods. The user can define a fraction time and counting time therefore eliminating the labour intensive, time consuming process of fraction collecting.

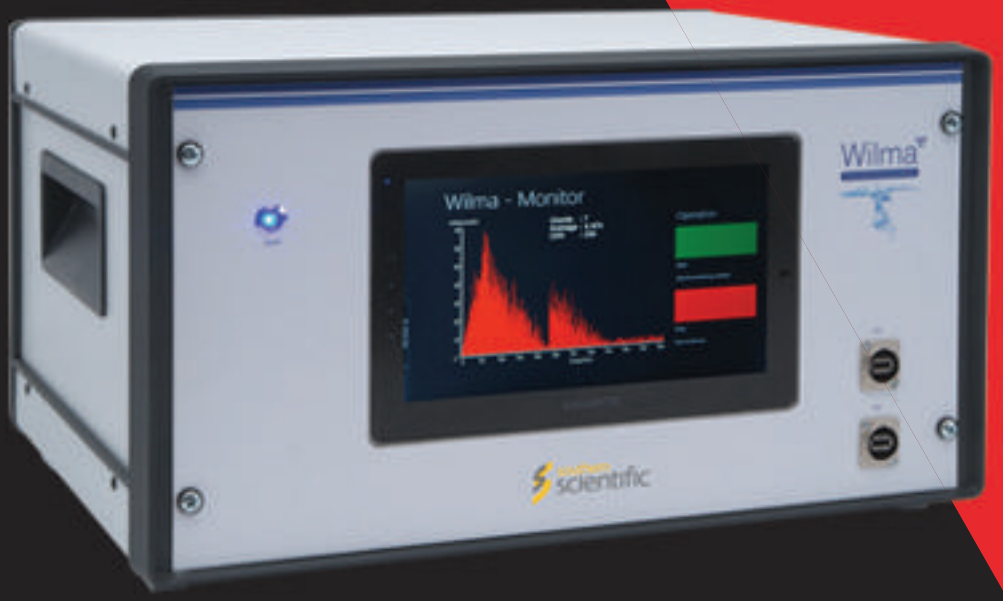
SPECIFICATIONS

- **Dimensions:** 49 L x 36 W x 16 H (cm)
- **Weight:** 20 kg

On-line Water

Lablogic Wilma

On-line water monitor for radionuclide detection, measurement and analysis. It is a self-contained system permitting periodic acquisition, measurement and analysis of discrete water samples. Features fully integrated fluid handling, radioactivity detection and spectral analysis modules all contained within a compact, rugged casing.

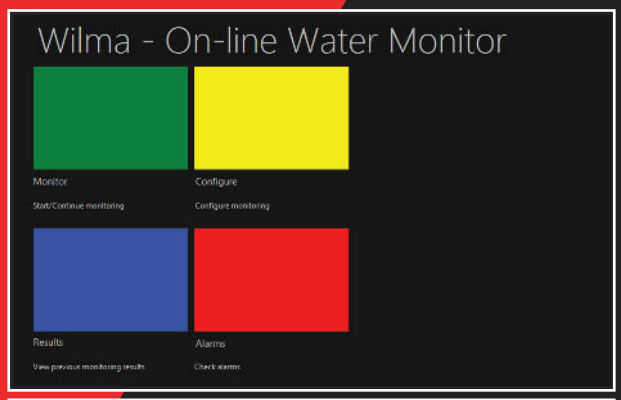


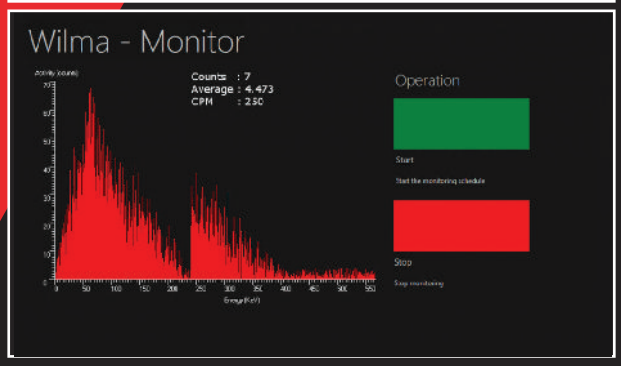
SPECIFICATIONS

- **Dimensions:** 52 L x 40 W x 30 H (cm)
- **Weight:** 30 kg
- **Background:** <5 cpm
- **Efficiency (3H):** >50%
- **Sensititivity:** 370 Bq/L
- **Power:** 100 - 240 Vac

Utilises a novel approach to streamline the time-consuming process of sample collection and preparation traditionally required for **detecting alpha and beta contamination** in water via liquid scintillation counting.

Monitoring





Operated by a unique user interface based on a **Windows operating system**, controlled locally by a **touch-screen tablet** or remotely through USB, the instrument can run and transmit data unattended for period of up to 30 days, making it ideal for installation in isolated locations.

The **Wilma Tritium in Air Monitoring System** utilises the configurable Wilma fluid handling and LSC detector to automate the operation of a **tritium bubbler**. The **customised software** includes cycles to sample water in the bottles, as well as emptying, washing and refilling them as part of the standard operating procedure.

Atmospheric

E2S Innovation Smart PA3

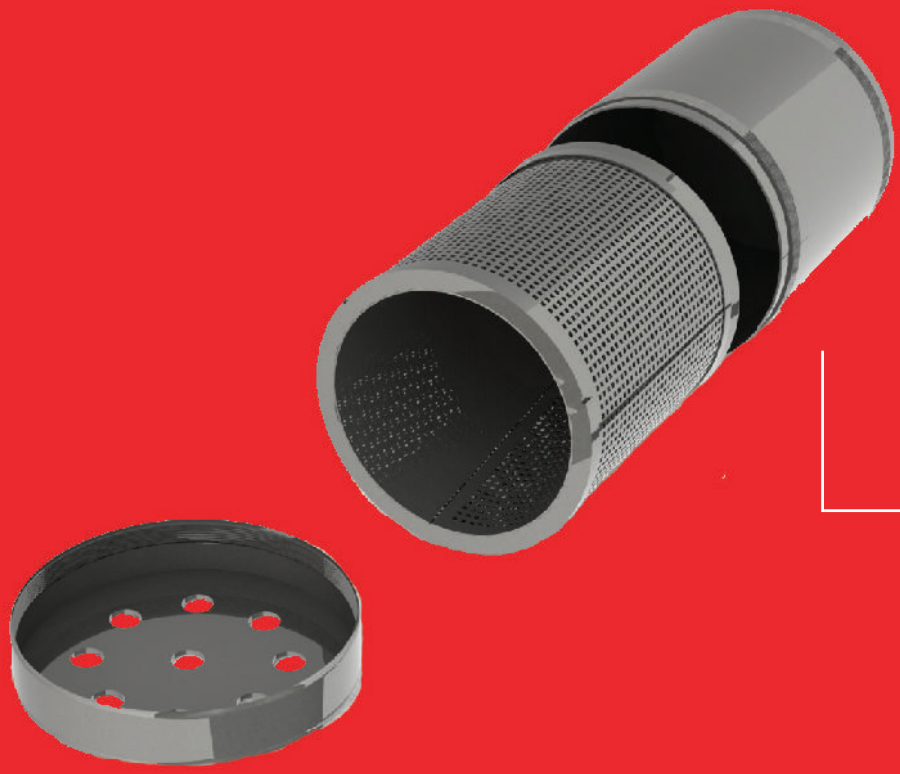
The **Smart PA3** is a field deployable standalone solution for analysis and ongoing monitoring of tritium sampling.

By connecting the PA3 to the 3BASE system, it establishes a standalone solution for tritium mapping that wirelessly (Bluetooth) transmits real-time data to the user with a mobile app.

The trap is based on a cartridge with a specific patented geometry. The molecular sieves act as a micropump to adsorbe, preferencialy, tritiated humidity and C14 (coming soon).

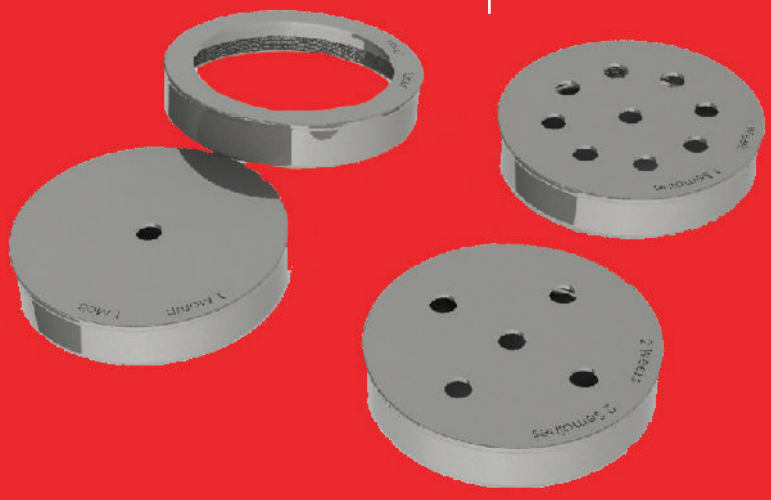
To control the adsorption time, the number of openings can be chosen and fixed for periods from 1 day to 1 month.

Tritium Sampling



The trap is based on a cartridge with a **specific patented geometry**. It has been designed to facilitate the transport of molecules from the air to the device of trapping through the property of molecular diffusivity of gas.

The molecular sieves act as a **micropump** to preferentially atmospheric tritium and C14 (in study) in proportion constant regardless of the relative humidity.



SPECIFICATIONS

- **Dimensions**: 215 L x 130 W x 156 H (mm)
- **Weight**: 1,35 kg
- **Battery life**: 260 hours (3,7 V)
- **Desorption efficiency**: > 99%
- **Detection limit**: 0,01Bq HTO /m3
- **Contactless technology**: Bluetooth LE 4.0 NFC (min ANDROID 4.3)

Meridian Biotechnologies

Cocktails

Liquid Scintillation Cocktails manufacturing and subsequent distribution into the supply chain is highly regulated within the chemical industry. In the European Union chemicals are regulated under **REACH: Registration, Evaluation and Authorisation of Chemicals.**

Chemical regulations are wide reaching and cover every aspect of LSC cocktail production starting with importation of raw materials, through formulation, manufacturing, packaging, classification and labelling for supply, finishing with transport and safety documentation that is sent out with the final product. In order to comply with each of these development stages and with each country's different requirements, an **in-depth knowledge** is required as well as expert help which can be costly.

The overall aims of all the chemical regulations are to ultimately ensure that chemicals are **safe for human health and the environment** and to **increase economic efficiency**. However, escalating regulatory requirements and subsequent costs have in some cases driven up the cost of raw materials to such an extent that they are being withdrawn from the market as they are no longer viable, forcing some of the smaller chemical manufacturers to shut down. Other historic raw materials are being highlighted as being unsafe and have limited time left on the market whilst **safer alternatives** are sought.

& Vials

"In 2006 I left Packard (Perkin Elmer) and joined Meridian Biotechnologies Ltd. to pursue the development of "Safer" LSC cocktails. The goal was to develop and launch a range of LSC cocktails that were Nonyl Phenol Ethoxylate (NPE) free and therefore less harmful to the environment. This project produced the ProSafe range of LSC cocktails for routine and specialised use as well as the ProFlow range for flow counting. Both ranges are NPE-free. Additionally I was able to expand the existing Gold Star range to include specialist products for environmental counting and introduce specialist cocktails for use in instrumental combustion techniques. To complement these ranges and offer a complete package I also developed less harmful Tissue solubilizers and a gelling cocktail. Finally, over the many years on involvement in LSC I have been able to resolve many customer application issues and offer solutions that help the customer."

- James Thomson, Director

The raw materials used in LSC cocktails are highly specialised and chosen specifically for the properties they deliver. Surfactants based on Alkyl Phenol Ethoxylates (APE) commonly referred to as 4 Nonyl Phenol Ethoxylates (4 NPE's) are key components within many LSC cocktails. 4 NPE's have been highlighted in Europe under the REACH Regulations as being classified as Substances of Very High Concern (SVHC). They are subject to Authorisation and have been added to Annex XIV with a sunset date: 04/01/2021. After this date they cannot be manufactured and sold unless Authorisation is sought and granted.

This has recently led to several companies within Europe ceasing production of 4 NPE's as the cost of gaining Authorisation is prohibitive and is only granted for an interim period whilst alternatives are sought. This will ultimately lead to the removal of 4 NPE's from the market, which will vastly reduce the portfolio of LSC cocktails on offer. At the time of printing withdrawal of 4 NPE's from the market would reduce 57 currently available LSC cocktails down to only 9 in 2021.

Meridian Biotechnologies were the only LSC manufacturer who pre-empted regulatory difficulties with 4 NPE's and who have proactively worked for the past 10 years on developing and fine tuning a range of LSC cocktails based on safer alcohol ethoxylates. We now have 2 ranges of safer LSC cocktails that offer equivalent performance to the historic LSC cocktails based on 4 NPE's. We have been successfully selling these for the past 10 years and our customer base has expanded year on year as customers switch over to the ProSafe and ProFlow ranges of cocktails.

Standards

Eckert & Ziegler Standards

We offer a variety of **Liquid Scintillation standards** from **Eckert & Ziegler**. They manufacture a complete range of NIST traceable Standards for the calibration of Liquid Scintillation Counters (LSC). All of these LSC Standards are calibrated in an ISO9001 certified and ISO17025 accredited laboratory using state of the art equipment, operated by experienced, professional staff.

This includes **unquenched Tritium** and **Carbon-14 Standards** and a wide range of **quenched Standards** for the verification and calibration of LSC instruments from all major manufacturers.

For counting efficiency calibration by internal standardization, we provide all common nuclides in form of NIST traceable standardized solutions.

This list is an indication of what we offer, although there is much more that we can offer you.

If you cannot find the product you are looking for or if you would like to get more information, please contact us directly at **info@metorx.com** and we will get back to you as soon as we can.

- **C-14 Quenched LSC Standard Sets** - 20 ml vials - Toluene
- **C-14 Quenched LSC Standard Sets** - 7 ml vials - Toluene
- **H-3 Quenched LSC Standard Sets** - 20 ml vials - Toluene
- **H-3 Quenched LSC Standard Set** - 7 ml vials - Toluene
- **Low Level Counting C-14 Quenched LSC Standard Set** - 20 ml vials
- **Low Level Counting H-3 Quenched LSC Standard Set** - 20 ml vials
- **C-14 Ultima Gold Quenched Standard Set** - 20 ml vials
- **H-3 Ultima Gold Quenched Standard Set** - 20 ml vials
- **C-14 Ultima Gold Quenched Standard Set** - 7 ml vials
- **H-3 Ultima Gold Quenched Standard Set** - 7 ml vials
- **C-14 Ultima Gold LSC Standards for Low Level Counting** - 20 ml vials
- **H-3 Ultima Gold LSC Standards for Low Level Counting** - 20 ml vials
- **LSC Alpha/Beta Standards** - Ultima Gold AB
- **Single LSC Standards** - Ultima Gold cocktail in flamed sealed borosilicate glass ampoules, Argon purged
- **Ni-63 Quenched LSC Standard Set** - 20 ml vials
- **Am-241 Quenched LSC Standard Set** - 20 ml vials
- **Unquenched LSC Standard Set** - 20 ml vials
- **Unquenched LSC Standard Set** - 7 ml vials
- **Low Level Counting** - Unquenched LSC Standard Set
- **Unquenched LSC Standards** in flame sealed borosilicate glass ampoules
- **Internal standards for LSC counting efficiency calibration**

OUR **PARTNERS**

LabLogic

HIDEX

BSI BALTIC SCIENTIFIC INSTRUMENTS

BrightSpec

E2S Innovation

SCIONIX

Eckert & Ziegler

CAEN SyS

iPHASE technologies

POLIMASTER®