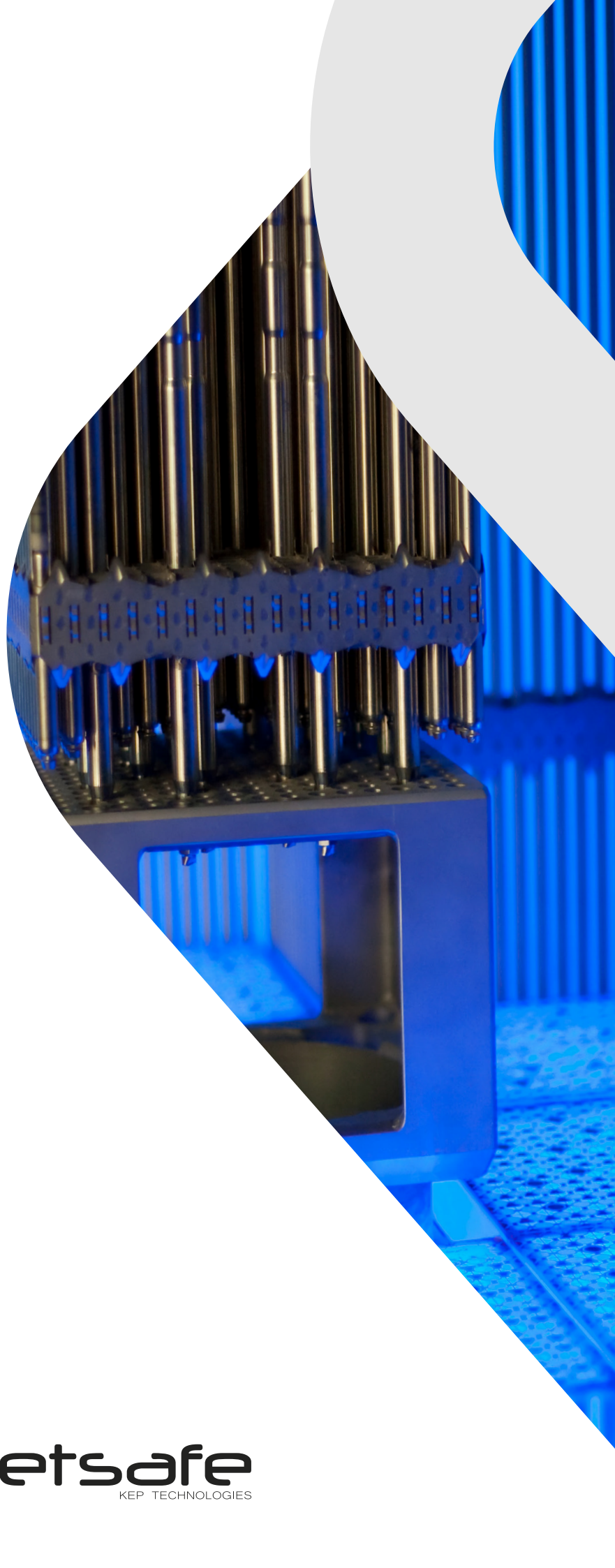




# NUCLEAR MEASUREMENT



**setsafe**  
KEP TECHNOLOGIES





## **SETSAFE**

I am proud to say that our accrued expertise in the field of nuclear measurement now allows KEP Technologies to offer a complete range of solutions under the **SETSAFE** brand.

Our combined capabilities also allows us to intervene in multi-disciplinary projects that may for example integrate engineered, automated and/or industrial control solutions.

With a direct presence on four continents, an innovation center in Geneva and a team of experts in nuclear measurement, thermal analysis, engineering, electronics, robotization, artificial intelligence and software, we are at your disposal to ensure the most effective and safe solution.

**Sylvain Calzaroni**  
Managing Director

# NUCLEAR MEASUREMENT

## COMPLETE SOLUTIONS FOR NUCLEAR MEASUREMENT

**SETSAFE** is a full service provider of solutions for nuclear measurement and related operations. Our offer includes instruments, software, qualification, commissioning, training, support, engineering and consultancy. Our experience allows us to manage standard or custom solution development projects, meeting all operational and security needs.

## INSTRUMENTATION & MEASUREMENT

- Calorimetry
- Gamma spectrometry
- Neutron counting
- Gas flow meters
- Thermal analysis
- Dimensional control
- Vision and X-ray inspection
- Customized integration of other technologies
- Automation of measuring lines



## SERVICES

Consultancy and expertise  
Mechanical engineering  
Automation, control command  
Numerical simulation  
Electronic and software development  
Adaptation to nuclear environments  
Nuclear Safety  
Qualification (FAT, SAT)  
Commissioning  
Training  
Technical support  
Maintenance

## MARKETS

Waste & Dismantling  
Defense  
Industry  
Research

## They trust us

ORANO, CEA, ANDRA, EDF,  
KARLSRUHE INSTITUTE  
OF TECHNOLOGY,  
ITER ORGANIZATION,  
KEPRI, LOS ALAMOS NATIONAL  
LAB, AWE, SCK CEN, CANADIAN  
NUCLEAR LABORATORIES,  
SANDIA NATIONAL  
LABORATORIES, KEPCO,...

# 1 STANDARD SOLUTIONS

## NUCLEAR WASTE & MATERIALS

**SETSAFE** develops, manufactures and commercializes solutions to address challenges linked with the characterization of radioactive materials and waste.

Challenges include: the detection, quantification and composition analysis of radioactive waste and materials for safeguard, accounting, inventories for the selection of the safest storage or disposal modes.

Our non-destructive characterization solutions are particularly well suited to help you with these challenges. They include Calorimetry with the **HEAT-CHECK** line and Neutron Counting with **n-CHECK**, Gamma spectrometry with **G-CHECK**, or their combination with multi-instrument characterization stations.

## THERMAL & THERMOPHYSICAL PROPERTIES

Our **SETARAM FOR NUCLEAR** solutions offer the characterization of the thermal and thermophysical properties of materials whether they are radioactive or not.

In particular, THEMYS thermal analyzer and CALVET calorimeter lines offer key information about the materials' heat capacity, thermal expansion, composition, change of state, reaction or decomposition.

We can help adapt relevant standard solutions to fit in gloveboxes and hot cells, if materials need specific handling conditions.





## GAS FLOW METERS

**SETSAFE** manufactures **U-FLOW** thermal gas flow meters applied in the control of gas flows on uranium isotopic separation processes like centrifugation.

They are non-intrusive, do not lead to any significant pressure losses and resist highly corrosive conditions.

## DIMENSIONAL CONTROL

Our **SETSMART FOR NUCLEAR** line offers manual or automated solutions to control the parts you manufacture whether made of nuclear materials or not. We ensure compliance to their geometrical specifications.

These solutions can integrate industrial vision or X-ray technologies to check if systems or sub-systems are correctly assembled. It addresses for instance the presence of mechanical and electronic parts (e.g. screws, connectors), clearance, soldering quality, material failure.

Like every **SETSAFE** solution, they can be automated and adapted to your safety, confinement, or radiological protection constraints.

# 2

# ENGINEERING & CONSULTANCY

## STRONG PROJECT MANAGEMENT EXPERTISE

Many challenges in the nuclear industry aren't standard and require custom solutions involving expertise, innovation capabilities, diversified skills, and strong project management.

Based on these, we can offer feasibility studies including simulation and modelling, customized instruments, automated mechanical and handling systems. All solutions are conceived to address your specific operational constraints.



### PRE-PROJECT

- Summary preliminary study (ADS)
- Detailed pre-project study (PDA)
- Risk analysis studies
- Drafting specifications

### PROJECT

- Planning
- Compliance and monitoring of requirements
- Change management
- Financial management
- Document Management
- Training for current or new operators
- Executed work files



### PROJECT MANAGEMENT

- Sourcing
- Manufacturing
- Mounting
- Commissioning (tests, controls, qualifications)
- Reception



## MULTI-DISCIPLINARY TEAM

Our engineers and doctors are specialists in thermal, mechatronics, automation, IT, calculations, numerical simulation and measurement.

Based in Lyon, France for Engineering, and Geneva, Switzerland for Innovation, our team has a great diversity of skills:

Hard and soft electronic engineering

Mechanical engineering

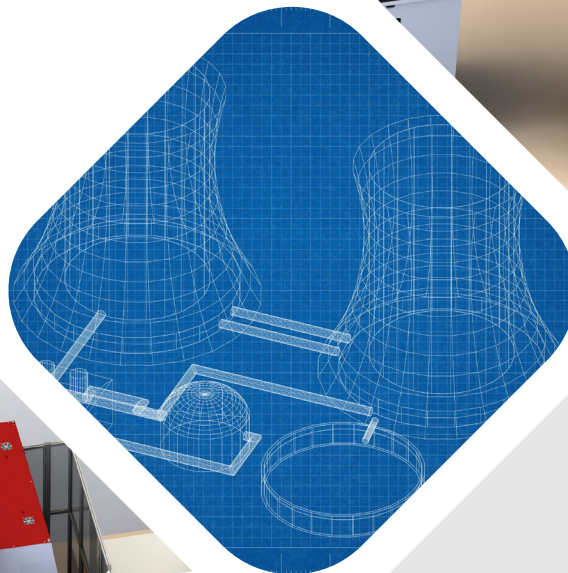
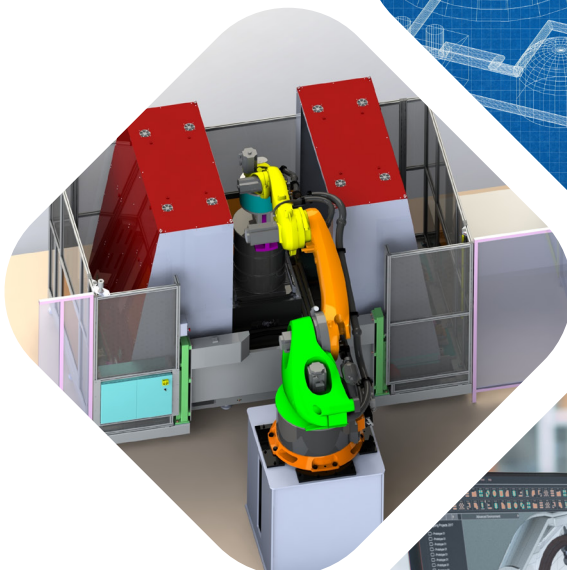
Numerical simulation

Industrial data

Robotics and automation

Measurement and instrumentation

Software development



## NUCLEAR SAFETY

Our studies and achievements cover the whole range of safety constraints to reach a high level of reliability : earthquake and flood resistance, durability, resistance to irradiation, safety redundancy, diversification, suitable physical separation, easy maintainability, and easy handling by operators.

# 3 SOFTWARE & AI

## NUCLEAR DATA

Our software collates a large amount of data, analyzes the results, automates measurements and controls, and generates reliable and sophisticated reports.

### Our developments use :

MCNPX,  
Tripoli 4.4.2,  
Géant4,  
MERCURE-6  
.Net  
C++,  
Visual Basic,  
Labview

### Functions :

Nuclear data  
IT (signal and image processing)  
Supervision  
Control / Command HMI Network



## SMART NUCLEAR INDUSTRY

Whether the goal of Smart Nuclear Industry is to improve safety, profitability of its processes, container management or the interpretation of measurement data, it is focused on new digital technologies, sensors, robots, cobots and smart machines. Our solutions, that integrate these technologies and which we design and install, enhance and streamline your operations.

They can integrate mathematical models for predictive calculation, alert-systems for when a measurement is out of specification, data traceability, image analysis control for object recognition and the development of reliable monitoring protocols.



## TRAINING

After installation and commissioning, we are committed to training your teams ensuring perfect operation. Your maintenance engineers, technicians and operators can benefit from training on multiple subjects: all aspects related to the measurement including the sensors, test methods, data processing, and all aspects related to software, Human-Machine Interfaces, safety and radioprotection, or to the use of industrial automation.



## GUIDANCE

Our expertise remains at your disposal to guide you to the best solutions, based on the latest and most suitable technologies in a continuously evolving nuclear industry.



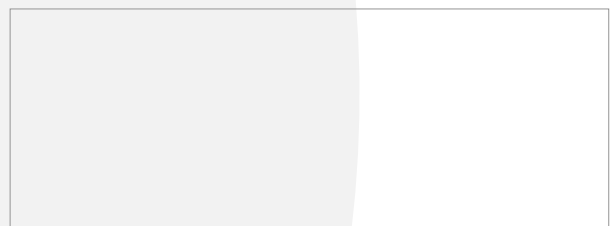
## TECHNICAL SUPPORT AND MAINTENANCE

We provide different means of assistance : on-line customer service platform, ticketing system, dedicated hotline for fast intervention on critical issues. We provide all the necessary information to ensure the operational continuity of our solutions during their whole lifecycle. We offer preventive and corrective maintenance services for our solutions through maintenance contracts.

As part of your project, we can analyze your nuclear measurement process and advise on optimizing productivity. We design, develop and deliver projects up to installation and training.

**Need financing? Contact us!**  
**We will find the best solution.**

# SUPPORT



Switzerland - France - China - United States - India - Hong Kong  
For contact details: [www.setsafesolutions.com](http://www.setsafesolutions.com) or [setsafe@kep-technologies.com](mailto:setsafe@kep-technologies.com)

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