

MINIMUM TECHNICAL CHARACTERISTICS

<p>1.4mm RPCs working voltage at</p> <p>Description: One of the characteristics?</p>	<p>Gas control and manipulation <del>distribution</del> system. These detectors, in order to become operational, need a mixture of different gases, a total of three are 94.7-95.2% freon (C2, H2, F4), 4.5-5.0% isobutane (i-C4 H10) and 0.3% sulphur hexafluoride (SF6). This mixture is very efficient with relatively good results for detecting muons and other particles, and also the peak of work is relatively low, requiring only potential differentials of up to 6.8KV.</p> <p>This entire system must meet either the classic studies (i.e. with the mixture cited above) or with innovative gas mixtures, which are defined as ECO-GASES (environmentally acceptable). The characteristic of these compounds is that they do not catch fire, and do not pollute the surrounding environment and also the natural environment. These types of studies are also a European priority for the protection and maintenance of the natural environment and public health in the workplace.</p> <p>These additional mixtures consist of 35-45% HFO and 50-60% CO2, which can even replace the components of the classic mixture for RPC detectors.</p>
<p>stainless steel.</p> <p>Distribution panel</p> <p>The gas distribution and monitoring system consists of:</p> <p>(mixing)</p>	<p>10-100</p> <ul style="list-style-type: none"> <li>Six total gas distribution lines connected to their respective cylinders (14 liters - 20 liters) which will be mounted outside the main facility with the specific lines which will go to the Mixer structure, (also outside the main facility). The lines should be with strong metal material and not oxidizing from the inside. Preferably stainless steel or equivalent.</li> </ul> <p>From the Mixer Structure, only one line will be introduced into the Laboratory which will be connected to the Digital Reading and Flow Control Unit which will be mounted inside the Laboratory.</p> <p>? gases.</p> <p>The newspapers are:</p> <ol style="list-style-type: none"> <li>1.1 CO2</li> <li>1.2 HFO</li> <li>1.3 Freon (C2H2F4)</li> <li>1.4 Isobutane C4H10</li> <li>1.5 SF6</li> <li>1.6 Argon</li> </ol> <p>The system consists of:</p> <ul style="list-style-type: none"> <li>Flow Controller</li> <li>Mixer</li> <li>Air humidifier</li> <li>Digital Reading and Flow Control Unit</li> <li>Portable Gas Leakage Meters</li> <li>Dedicated Desktop Computer</li> </ul>
<p>AND</p> <p>Safety And fixed Sensors &amp; fixed back</p> <p>Line Connection Mode:</p> <p>AND ALARMS.</p>	<p>1.1 These lines must have a control panel with valves and barometers and anti-CO2 sensors, respectively indicating the pressure. These lines will be located in the structure of the cylinders.</p>

	1.2 These lines will be merged into a rack in the Mixer Structure, where each of them will have a flow controller.
<b>MFC Flow Controller</b>	
Type :	Gases
Quantity :	3 cups <i>3 channels</i>
Flow Range:	Max. 10 l/h for gases <i>for all other gases.</i> for SF6 Max. 0.5 l/h and C4H10 Max. 1.0 l/h.
Accuracy:	±0.5% Rd plus ±0.1% FS
Repeatability:	<±0.2% Rd (or <±0.04% FS whichever is greater)
Decrease ratio:	1:150 (1:50 in analog mode)
Multi-fluid capability:	Maintaining the maximum of 8 calibration curves
Deployment time (in control, typical):	1 typical second above 5% FS; Option: Up to 600ms
Control stability:	≤ ± 0.1 % FS (typical for 1 l/min N2)
Operating Temperature:	-10...+70°C
Temperature sensitivity:	zero: < 0.05% FS/°C; span: < 0.05% Rd/°C
Leak integrity, out:	tested < 2 x 10 <sup>-9</sup> mbar l/s He
Pressure Sensitivity:	0.1% Rd/typical N2 bar; 0.01% Rd/bar typical H2
Pressure Range Sensor:	0 to 64 bar
Leakage through closed valve:	< 10 <sup>-5</sup> Pa.m <sup>3</sup> /s Ai
Assembly:	maximum error at 90° outside the horizontal 0.2% at 1 bar, Typical N2
Heating Time:	≤ 30 minutes
Storage/Shipping Conditions:	0...+50°C, max. 95% RH (non-condensing)
<b>Mixer</b>	
Materials:	316L stainless steel, passivated surface; for high chemical loads — <del>PTFE-coated</del> <i>of what?</i> <del>internals</del> . Physical dimensions: dimensions for 19" industrial panel rack. Quantity 4 pieces
Tuba:	Stainless steel capillary tube <del>1/8" OD</del> (ID ranges <del>2-4</del> <i>6-4mm</i> mm for low-flow). Pressure rating ≥ 10 bar. Fittings: compression type ( <del>1/8" or 1/4"</del> ) with FKM/FFKM O-ring. Quantity 1 piece.
Welding tee (stainless steel):	316L; male/female sizes 1/8"-1/4"; Orbital welding tolerance ±0.1mm to avoid dead-volume. Quantity 14 <i>?</i> pieces.
Mixing tube:	ID: 2-4 mm; L: 150-300 mm (p.sh. 200 mm recommendation) for achieving homogenization at 0.1-10 l/h; Material: 316L stainless steel ( <del>or PTFE for butane/SF6 when inert required</del> ). Optional slope/spiral internals for better mixing. Quantity 1 <del>cup</del> <i>?</i>
Material for orbital welding:	Spec of materials for TIG/orbital: e.g. tungsten, argon purity ≥ 99.998%, fixtures for 1/8"-1/4". Quality control: argon purge and leak test after welding. Quantity 1 set.
Rack panels:	19" rack mount panels, 2-3U per panel for MFC + valves + rotameter. Material: anodized alu- <del>or stainless steel</del> . Includes cutouts for connectors and fields. Quantity 2 pieces.
Rotameter:	Range: 0-10 l/h (dual-scale for 0-1 l/h and 0-10 l/h). Nominal tube length 100-250 mm. Material tube: borosilicate; Float: stainless steel 316 / ceramic for aggressive gases. Typical accuracy: ±2-5% FS. Operating pressure up to 10-18 bar. Quantity 1 cup
Glass for flow meter:	Borosilicate glass; pressure rated; Protective Guard option. Quantity 1 piece.

Valve for flow meter:	Needle/finely adjustable valve; CV approx 0.004 for very fine checks; material stainless steel 316L; leak rate $\leq 1 \times 10^{-6}$ mbar · L/s (for laboratory). Quantity 1 piece.
HV-2 Manual Valve (2-port):	Needle/ball valves with fine control; small CV (p.sh. 0.003–0.01); stainless steel body; torque ergonomic; seal FFKM for inert/reactive gases. Quantity 7 <del>pieces</del> <i>pieces.</i>
HV-3 Manual Valve (3-port):	3-way switching valve, material inox, leak-tight. Quantity 1 piece.
MFC (Mass Flow Controller): <i>See previous section "Flow Controller"</i>	Flow ranges: gas configuration: 0–10 l/h (standard gas), 0–1.0 l/h ( $C_4H_{10}$ ), 0–0.5 l/h ( $SF_6$ ) — calibrated MFCs are recommended for the specific gas. Accuracy: typical $\pm(0.5-1\%$ FS) or by contraction; Repeatability: $< \pm 0.2\%$ FS; Resolution: 0.1% FS; Wetted materials: stainless steel 316L + seals FKM/FFKM/FFPM (or PTFE for butane), pressure rating: 1–5 bar in; interface: RS-232 / RS-485 / analogue 0–10 V or 4–20 mA; Response Time: 100–500 ms Typ. For hazardous areas, look for EX/ATEX versions (intrinsically safe EX-FLOW-type). Be calibrated for gas, ATEX/IECEx certification. Quantity 4 pieces.
Power Supply for MFC:	DC stabilized supply; galvanic insulation; output 24 V DC (or as required by MFC); ripple $< 50$ mV; over-voltage/current protection; for EX applications, preamplifier/safe-zone controller. Quantity 1 piece.
Mixer Composition: <i>See previous section "Flow Controller"</i>	<ul style="list-style-type: none"> <li>• Structural Mixing Material (NV) -4 Pieces</li> <li>• Connectors / tubes for internal mixing connections – 1 piece</li> <li>• Welding tees, stainless steel material for orbital / manual welding – 14 pieces</li> <li>• Mixing tube, for mixing for laminal flow with stainless steel/PFA material -1 piece (Suitable for flows 2-4 mm ID)</li> <li>• Cabinet Mounting Rack Panels – 2 Pieces</li> <li>• Rotameter for Calibrated Scale Visual Flow Measurement – 1 piece (0–10 l/h for standard gases; 0–1 l/h (or less) for special gases)</li> <li>• Glass for flow meters borosilicate material or inert material -1 piece</li> <li>• Valve for Flow Meter Regulating Finish for Rotameter.-1pcs</li> <li>• HV-2 manual valve (2 ports) manual flow closure – 7 pieces (Suitable for flows <math>&lt; \approx 1</math> l/h)</li> <li>• HV-3 manual valve (3 ports) for flow change closure -1 piece (Suitable for flows <math>&lt; \approx 1</math> l/h)</li> <li>• MFC (Mass Flow Controller), Automatic flow control; wetted materials: stainless steel 316L/seals FKM/FFKM; inlet pressure 1–5 bar.-4 pcs (0–10 l/h (usually inert gases) 0–0.5 l/h when used with <math>SF_6</math>, 0–1.0 l/h for <math>C_4H_{10}</math>)</li> <li>• Power supply for MFC, Stable DC output power source.-1pcs</li> </ul>
<b>Humidifier (MFC auto-control))</b>	
Manual valve (isolation):	Similar to HV-2: needle valves, Cv small, stainless steel. For humidifier, materials resistant to condensate (PTFE/316L). Quantity 6 cope
MFC (humidifier lines):	Flow ranges by humidification lines (0–10 l/h for gas, and 0–1 l/h for lines with $C_4H_{10}$ and 0–0.5 l/h for

	SF6); outputs and interfaces as above. Quantity 3 pieces.
Mixing tubes (hum):	ID 2–4 mm, length 150–300 mm; poss. packed section (PTFE) for entropic transfer and lukewarm distribution. Quantity 2 pieces.
Connecting Pipes:	Compression fittings, purge points for deactivation. Quantity 1 piece.
Material for orbital welding:	Spec of materials for TIG/orbital: e.g. tungsten, argon purity $\geq 99.998\%$ , fixtures for 1/8"-1/4". Quality control: argon purge and leak test after welding. Quantity 1 set.
Welding Tea:	Stainless Steel 316L; minimize dead volume; see purge. Quantity 3 Pieces
Humidifier Composition:	<ul style="list-style-type: none"> <li>Manual valves, (Fine-adjust valve for insulation/leakage.) -6 pieces</li> <li>MFC for humidity control with range according to quoted gases in flow controller-3 pcs</li> <li>Mixing tubes for mixing dry + humidified stream with inner diameter 2-4 mm ID-2 pieces</li> <li>Connecting pipes for curing gas elements -1 piece</li> <li>Orbital welding material, for welding pipelines for humidification.-1 set</li> <li>Welding tees for flow separation -3 pieces.</li> </ul>
<b>Moisture measurement</b>	
Sensors:	<p>Humidity sensor (Dew-point / RH sensor or equivalent), accurately according to the dew point specification <math>\pm 2</math> °C (or Equivalent). To support flow-independent measurements and to be suitable for low flows.</p> <p>Range dew point or equivalent: typical covering wide range Accuracy: <math>\pm 2</math> °C dew point for the specified sensor; Sensor technology: DRYCAP or equivalent polymer with auto-calibration; Output: analog 4–20 mA / 0–10 V + digital options (RS-485). Operating temp: -40...+60 °C . Wetted condensate tolerant materials; long-term good stability; Recommended periodic calibration interval: 12 months (or according to use). Quantity 1 cup</p>
Sensor Power Supply:	Have a power supply for the sensor. 24 V DC nominal; ripple low; polarity protection; As for MFC, isolation is needed when in hazardous environments. Quantity 1 piece.
Reading panel for humidity measurement:	Parameter reading panel (RH, dew point, temperature). Panel-mounted display for dew point/RH/T; numeric readout + analogue output passthrough; Alarm relay outputs (2 levels) for setpoints. Quantity 1 cup
<b>Portable Gas Leakage Meters</b> <i>AND F-KED.</i>	
Description:	Portable Multi-Gas Detector with Integrated Pump
Detection Type:	4 gases simultaneously: O <sub>2</sub> , <del>LEL</del> , CO, H <sub>2</sub> S
Gases detected:	<ul style="list-style-type: none"> <li>- Oxygen (O<sub>2</sub>)</li> <li>- All Combustible Gases (<del>LEL</del>, Even Isobutane in this case)</li> <li>- Carbon monoxide (CO)</li> <li>- Hydrogen sulfide (H<sub>2</sub>S)</li> </ul>
Detection method:	Electro-chemicals for CO, H <sub>2</sub> S and O <sub>2</sub> ; catalytic for LEL
Built-in Pump:	Yes – electric pump for sampling up to 20 meters (flexible tube)
Response Time:	- O <sub>2</sub> : $\leq 15$ seconds

*LEL  $\equiv$  Lower Explosive Limit*



	<ul style="list-style-type: none"> <li>- LEL: <math>\leq 15</math> seconds</li> <li>- CO/H<sub>2</sub>S: <math>\leq 20</math> seconds</li> </ul>
<b>Measurement range:</b>	<ul style="list-style-type: none"> <li>- O<sub>2</sub>: 0–30%</li> <li>- LEL: 0–100% LEL</li> <li>- CO: 0–1000 ppm</li> <li>- H<sub>2</sub>S: 0–200 ppm</li> </ul>
<b>Alarms:</b>	<ul style="list-style-type: none"> <li>- Visual</li> <li>- Acoustic</li> <li>- Vibration</li> </ul>
<b>Display:</b>	LCD with automatic illumination; shows gas concentrations, pump and battery status
<b>Memory &amp; Login:</b>	Stores the history of alarms and events
<b>Powering the pump:</b>	Automatic and blocked suction protected (displays blockage alarm)
<b>Power Supply:</b>	Rechargeable lithium-ion battery
<b>Battery life:</b>	Up to 13 hours of continuous operation with active pump
<b>Charging Time:</b>	Approximately 5 hours
<b>Weight:</b>	No more than 350 Grams with the built-in Pump
<b>Working Conditions:</b>	Temperature: -20 °C to +50 °C Humidity: 10 – 95% RH
<b>Certifications:</b>	ATEX, IECEx, UL, CSA – for use in hazardous environments
<b>Note:</b>	CE product, Total 2 of them needed.
<b>Warranty Coverage Period:</b>	Min. 2 years (24 months)
<b>Dedicated Desktop Computer</b>	
<b>Min. Points for Processor As:</b> <b>cpubenchmark.net</b> <b>Min Proc. Rating According to:</b> <b>cpubenchmark.net:</b>	Min. 49000 Dots with Min 20 Core
<b>"RAM":</b>	Min. 32 GB, min. DDR5 5600 ECC
<b>Hard Disk Size "HDD Size":</b>	Min. (1) x 1T SSD M.2
<b>Raid:</b>	Raid 0, 1 Support
<b>Graphics card:</b>	Integrated graphic Card.
<b>"Media Device":</b>	DVD+/-RW RW (External DVD+/-RW can also be used, not necessarily of the same brand as the computer)
<b>"Slots":</b>	Min (3) M.2 PCIe, Min(4) PCIe where (1) be x16 slot. Min(3) SATA 3.5 inch
<b>Communication &amp; Management</b>	
<b>Communication Ports "Ports":</b>	Min(9) USB, where Min (7) is USB 3.2. Min (4) USB to be Money. (1) RJ-45, Min (2) Display Port. Min (1) Headset jack Min (1) Thunderbolt Port
<b>"Networking" Network:</b>	1 RJ45 (1GbE) Ethernet port Wi-Fi 7 802.11be, Bluetooth Min5.4
<b>"Sound":</b>	Integrated Sound Card
<b>"Speakers":</b>	Internal speakers or Built-in Monitor
<b>Security Management:</b>	Embedded Security TPM 2.0
<b>"Preinstalled Licensed O. S." Operating System:</b>	Ubuntu 24.04 LTS
<b>Keyboard:</b>	Standard Keyboard QWERTY
<b>"Mouse":</b>	Minimum 3 Button scroll Optical
<b>"Power Supply" Food:</b>	220 V AC , 50 Hz
<b>Energy Efficiency:</b>	Energy Star
<b>Accessories</b>	
<b>Power Cord Cable:</b>	Yes, European

"Recover":	Recover Partition
<b>MONITORS</b>	
"Type" types:	LCD or LED of the same brand as the Computer
Size:	≥ 23"
Resolucioni "Native Resolution":	1920 x 1080 @ 60 Hz
Contrast Report "Constrast Ratio Static":	3000:1
Response Time:	≤ 6 ms
"Display Port":	(1) VGA or DVI and (1) from DP/DVI/HDMI Ports
Energy Efficiency:	Energy Star
"Power Supply" Food:	220 V AC , 50 Hz
<b>Warranty</b>	
Warranty Coverage Period:	Min. 3 Years (36 Months)

- Clarification on Gas Management System Installation Structure (OK)

Gas Management System Installation Structure	
<p>Description:</p> <p><i>need space for spare cylinders and empty ones outside</i></p> <p><i>e x 2 spaces for future or can be activated lines.</i></p>	<ul style="list-style-type: none"> <li>The first structure which is the cylinder cage should be constructed of <del>stainless</del> steel or 50×50mm galvanized steel profiles, with galvanized metal mesh panels (30×30mm mesh) for full natural ventilation. The roof should be sloping, covered with coated steel/aluminum foil for weather protection.</li> </ul> <p>The base should be made of metal beams reinforced with metal gratings (grating) for resistance and ventilation from below. The door must have stainless steel hinges and a safety lock. Inside there should be holders for fixing the cylinders.</p> <p>The minimum capacity should be <sup>12</sup> 12 canisters (14–20 l), diameter ≤ 230 mm, height ≤ 1700 mm, located vertically. The structure must be modular for future expansion and meet European safety standards for the storage of technical gases.</p> <ul style="list-style-type: none"> <li>The second structure will serve for the installation of the Mixer, Flow Controller and Air Humidifier. This structure will be placed next to the first structure of the cylinders and represents an external technical booth (Gas Mixing Shelter) dedicated to hazardous equipment operating with technical, flammable or toxic gases (<i>it should be noted that only one of the gases which is isobutane is flammable, but at the required limit there is no high risk. However, safety is required to be protected in any case.</i>). It is built to guarantee high explosion safety, atmospheric protection, controlled ventilation, gas leak monitoring, explosion-proof wiring, as well as safe access for authorized personnel.</li> </ul> <p>Six individual lines of metal piping (stainless steel <del>or equivalent material, corrosion-resistant, and non-oxidizing from the inside</del>) must emerge from the cylinder cage, each connected to the corresponding cylinder. The cage will be positioned outdoors, in front of the laboratory. The lines will be inserted into the second structure in which the mixer will be positioned</p>

<p>gas Bottles?</p> <p>See Previous Section</p>	<p>without the need for long horizontal alignment. And from the second structure in which the mixer is positioned, a line will be inserted inside the laboratory, short distance. Entry into the indoor environment must be carried out through a dedicated panel with hermetic passages, guaranteeing maximum safety and isolation from external factors.</p> <p>In the interior of the laboratory, in front of the cylinder cage and the structure of the Mixer, a dedicated metal rack unit will be mounted, which will contain all the main components of the gas management system. These include control panels and pressure gauges, as well as other auxiliary equipment necessary for accurately measuring <del>and distributing</del> gases to detectors. The rack should be of industry standard, with sufficient ventilation and easy access for maintenance. The connection of the equipment to the gas inlet lines from the cylinder cage in the mixer structure must be carried out with piping and hermetic connections certified for use with technical gases, guaranteeing maximum safety and stable operation of the system.</p>
<b>Structure of Bombula</b>	
<b>Cylinder Frame Material:</b>	Stainless steel or galvanized steel, 50×50 mm profiles
<b>Side panels for cylinder structure:</b>	Galvanized metal mesh (mesh), opening 30×30 mm
<b>Canister Structure Roof:</b>	Sloping, with coated steel/aluminum foil for weather protection
<b>Basis of the structure of the canisters:</b>	Metal beams reinforced with metal grating (grating) for ventilation and resistance
<b>Cylinder Structure Door:</b>	Reinforced with stainless steel hinges and key safety lock
<b>Capacity of the cylinders:</b>	Up to 6 vertical canisters, 14–20 liters, minimum diameter ≤ 230 mm, height ≤ 1700 mm
<b>Modularity for cylinder structure:</b>	Structure designed for future expansion with additional modules
<b>Gas Line Outlets for Cylinder Structure:</b>	6 stainless steel or equivalent metal piping lines, corrosion resistant and non-oxidizing
<b>Line connections in the Mixer structure:</b>	Direct insertion into the second structure through the panel with hermetic passages, no long distance
<b>Position of the Cylinder Cage:</b>	Outdoors, in front of the laboratory
<b>Balloon Structure Ventilation:</b>	Natural ventilation through side meshes and grilled bases
<b>Safety of Cylinder Structure:</b>	Limited lock access, cylinder drop protection, warning inscriptions
<b>Dimensions of the structure of the canisters:</b>	Minimum 1200 mm x 1000 mm x 2300 mm (Width/ Depth/ Height)
<b>Mixer Structure</b>	
<b>Mixer Structure:</b>	<ul style="list-style-type: none"> <li>• Metal sandwich panels with 60–80 mm insulation, of fire-resistant polyurethane / stone wool material.</li> <li>• Galvanized steel metal frame or <del>INOX AISI 304</del> or equivalent.</li> <li>• Raised floor with antistatic metal top, connected to the grounding.</li> </ul>
<b>Dera:</b>	<ul style="list-style-type: none"> <li>• Metal door with insulation, with anti-corrosion treatment.</li> </ul>

-heated  
to  $\geq 10^{\circ}\text{C}$

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	<ul style="list-style-type: none"> <li>Industrial/EX Locking Devices.</li> <li>Opening from the <del>outside</del> with emergency handle.</li> <li>Warning Plates: EX, Flammable Gas, Authorized Personnel Only.</li> </ul>
Dimensions:	<ul style="list-style-type: none"> <li>Length: 2.2 – 2.6 m</li> <li>Width: 1.8 – 2.2 m</li> <li>Interior height: 2.1 – 2.3 m</li> </ul> <p>These dimensions are sufficient for:</p> <ul style="list-style-type: none"> <li>Mixer</li> <li><del>Internal Distribution Panels</del></li> <li>EM Valves / Shut-off</li> <li>Ducted ventilation</li> <li>Service space (min. 80 cm in front of the equipment)</li> </ul>
Wiring (EX-zone):	All electrical equipment within the structure must be ATEX according to Directive 2014/34/EU.
Electrical elements to include:	<ul style="list-style-type: none"> <li>ATEX IP66 Lighting</li> <li>Emergency wrench / stop emergency EX</li> <li>ATEX Electric Distribution Box</li> <li>Installation of grounding (<math>\leq 1 \Omega</math>) and equalization of potentials</li> <li>Sheathed, anti-static and low/high temperature resistant EX cable</li> <li>Fire detectors.</li> </ul>
Ventilation:	<ul style="list-style-type: none"> <li>Natural + mechanical ventilation</li> <li>Ventilation grilles with stainless steel mesh (min. 150–200 cm<sup>2</sup> each)</li> <li>An ATEX <del>mechanical</del> fan for extraction (mandatory as working with HFO, Freon, C4H10, SF6)</li> <li>Sensor that activates the fan in case of leakage.</li> </ul>
Gas Detection:	<ul style="list-style-type: none"> <li>2–3 EX gas detectors (depending on the type of gases)</li> <li>Sensors for: CO<sub>2</sub>, SF<sub>6</sub>, C<sub>4</sub>H<sub>10</sub>, Freon, HFO, Isobutane <del>same</del></li> <li>Alarm panel inside lab + EX siren outside</li> </ul>
Clarification on the works to be carried out:	<p>The <u>Economic Operator</u> undertakes the supply of the gas management system along with all relevant components and accessories. Also, it must provide as part of the offered solution all the necessary technical installations to ensure the full and optimal operation of the system, in accordance with the defined technical specifications.</p> <p>In addition to the supply and installation of the main system, the <u>Economic Operator</u> is responsible for the realization of all the works for the extension and connection of the six gas pipeline lines that connect the gas cylinders in the metal cage with the gas management equipment within the second structure and the line that goes to the Laboratory to be connected to the Digital Reading and Flow Control Unit. These works must be carried out with certified, corrosion-resistant materials and suitable for use with technical</p>



	<p>gases, guaranteeing insulation, safety and stable operation of the system.</p>
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	<p>Also, the hermetic connection and installation of pipeline passage panels on the laboratory wall must be ensured, respecting technical requirements and international standards for safety and environmental protection. All works should include functional testing and quality control before the final acceptance of the system.</p>
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- Pressure Test
- Leak Tested.