



DATA SHEET

Virtual Reality Training in LOTO processes



LOTO Processes is a LUDUS product oriented to the training of machine consignment processes.

The purpose of the user is to perform the procedures safely and avoiding risks.

The simulation serves both to explain the consignment process and security measures, and to test the knowledge acquired by the user.

01 Simulation content

Types of Trainings

The trainer will be able to use LOTO process training simulation to train students in two different ways:

Guided

- Students learn autonomously, through clues deployed by the simulation itself.
- More focused on the early stages of knowledge acquisition.
- Simulation evaluates decision-making and mistakes made.

Practical

- The Student must practice the knowledge acquired to carry out the LOTO process.
- More focused on testing the knowledge gained, and strengthening the process of assimilation/adjustment of information.
- Simulation evaluates decision-making and mistakes made.



Exercise 1: Electric Power Maintenance

The student is located in front of an electric cabinet in which he/she must work the electrical energy following the 5 Golden Rules.

The student must complete the following actions

- Use the necessary PPEs for the process.
- Interrupt the electrical energy into the gearswitch. Lock the disconnecter elements and signal them.
- Check using a measurement tool.
- Derive the system to ground and in short-circuit.
- Perform the maintenance task entrusted
- Unlock disconnecter elements.
- Reestablish the electrical power and check it.

The student may suffer an accident in the event that he/she performs the maintenance without having carried out the LOTO process correctly. This accident creates a good opportunity for the trainer to show the consequences of an incomplete LOTO process.



Exercise 2: Pneumatic Energy Maintenance

The student is located in front of a work table where there are different tools connected to the pneumatic system.

The student must complete the following actions:

- Use the necessary PPEs for the process.
- Interrupt the pneumatic energy using the general pass-through wrench.
- Lock the pass-through key and signal it.
- Checking the power dissipation on the system pressure gauge.
- Perform the maintenance task entrusted
- Unlock sectioning elements.
- Rearm the pneumatic energy and check it on the pressure gauge.

The student may suffer an accident in the event that he/she performs the maintenance without having carried out the LOTO process correctly. This accident creates a good opportunity for the trainer to show the consequences of an incomplete LOTO process.



Exercise 3: Hydraulic Energy Maintenance

The student is located in front of high-pressure accumulators of a hydraulic system that must be consigned.

The student must complete the following actions:

- Use the necessary PPEs for the process.
- Interrupt hydraulic energy using the general pass-through wrench.
- Lock the pass-through key and signal it
- Dispel accumulated energy in pressure accumulators Checking the energy dissipation on the pressure gauges.
- Perform the maintenance task entrusted
- Unlock sectioning elements.
- Rearm pneumatic energy, power accumulators and check it on the pressure gauges.

The student may suffer an accident in the event that he/she performs the maintenance without having carried out the LOTO process correctly. This accident creates a good opportunity for the trainer to show the consequences of an incomplete LOTO process.



Statistics System

Deployed to the student at the end of the simulation.

Save individual reports for later consultation.

The following data will be displayed and saved:

- Exercise time
- List of mistakes made
- Cause of accident
- Errors in PPEs selection
- Approved/Not Approved



02 Upcoming updates

Exercise: Multiple Energy Maintenance

This exercise reproduces the consignment of several energies at the same time. The user must perform the LOTO process of all the energies involved.

The student must complete the following actions:

- Use the necessary PPEs for the process.
- Interrupt the energies.
- Lock the sectioning elements and signal them.
- Dispel waste energy.
- Checking the power drain.
- Perform the maintenance task entrusted
- Unlock sectioning elements.
- Reestablish electricity

The student may suffer an accident in the event that he/she performs the maintenance without having carried out the LOTO process correctly. This accident creates a good opportunity for the trainer to show the consequences of an incomplete LOTO process.



Exercise: Group Maintenance

The student must perform group consignment in processes involving other roles.

The student must complete the steps of the LOTO process for the energy included in the operation

In addition to the steps to perform a LOTO, the dynamics required in the consignment at the group level are included:

- Signaling operations.
- Work permits, consignment records, etc.
- Management of padlocks of multiple stakeholders.
- Communication between stakeholders.
- Rearm tests.

The student may suffer an accident in the event that he/she performs the maintenance without having carried out the LOTO process correctly. In addition, accidents may also occur to other participants in case of making mistakes in the process. Both accident scenarios create a good opportunity for the trainer to show the consequences of an incomplete LOTO process.



Maintainance of Other Energies

These exercises will represent LOTO processes with energies such as:

- Gravitational energy
- Mechanical energy (Potential and kinetics)
- Chemicals (liquid and gas)
- Thermal energy

The student must complete the steps of the LOTO process correctly.

The student may experience accidents.

