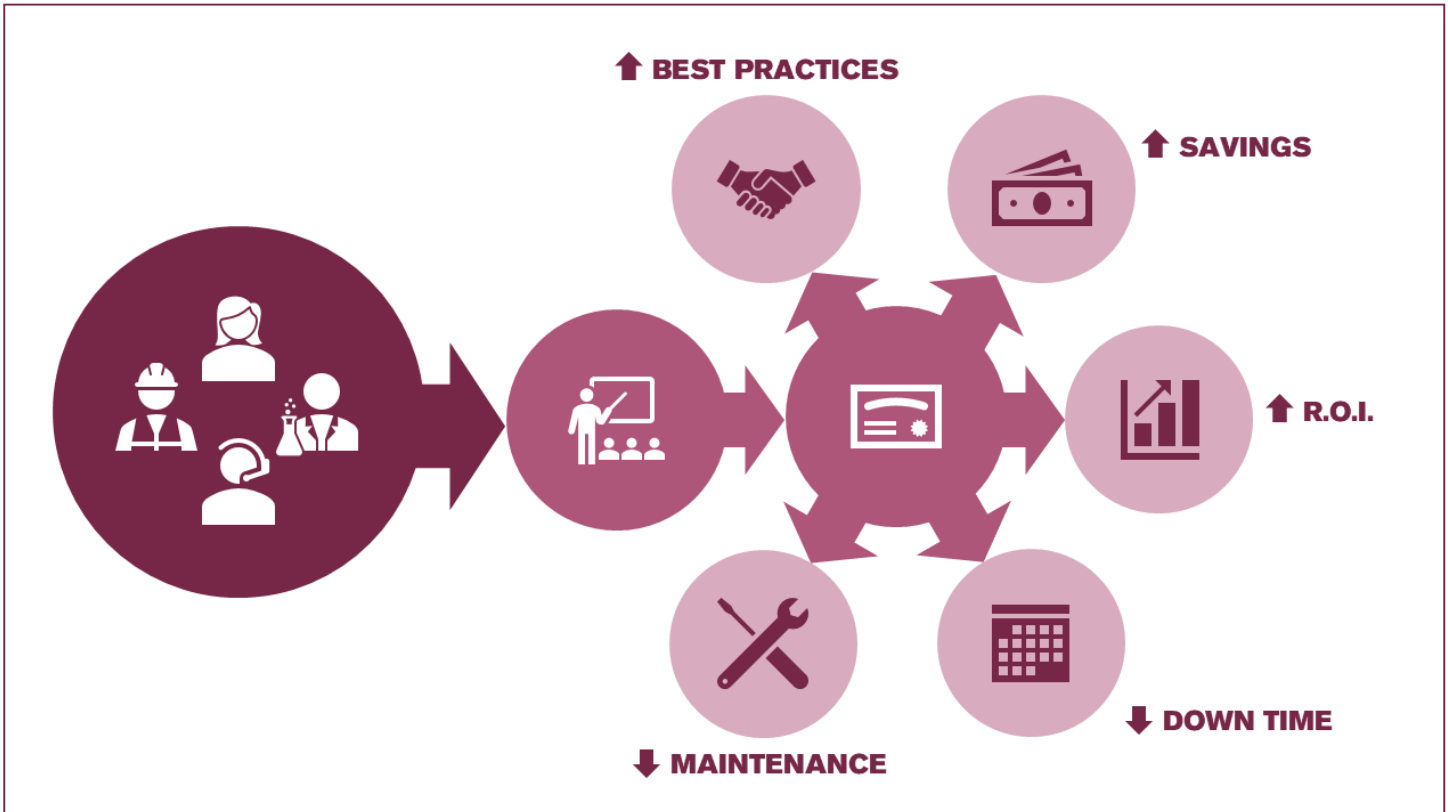




# EMOS® 6.0 TRAINING OFFERINGS

**INCREASE** plant **SAFETY** and **SAVINGS** by investing in standard and expert training courses from R2.



BENEFITS	FEATURES
Maximize your Return on Investment (R.O.I.)	Standard Trainings for All R2 Products
Increase Savings	Expert Trainings with Industry Veterans
Learn Best Practices	Adapted to the Audience
Improve Safety	Hands-On Training
Minimize Down Time	Combine Trainings
Trainings to Fit your Needs	On Site and Remote Options



## PRODUCT DATA SHEET

MKD0083 v1.1

World Trade Center | 380 Saint-Antoine Street West, Suite 2000 | Montreal, Quebec, Canada, H2Y 3X7  
T. +1.514.987.1303 | F. +1.514.987.1305 | R2.ca



Whether you are looking to train new employees on our products or refresh your own knowledge, R2 offers a wide variety of trainings suitable for all skill levels. The options are divided into **standard** and **expert** level trainings. All trainings are also offered in two formats:



**On site:** lecture and hands on training with R2 products, adapted to your workflow.



**Online:** lecture followed by a Q&A.



## STANDARD TRAININGS

These trainings are given by an R2-certified **operations specialist** or engineer and cover **required topics and standard products**.

### EMOS® OPERATOR TRAINING

**SP970**

This course will familiarize operators with the basics of the R2 safety system and the voltage monitoring software. It covers the following topics:

- SIL2 Safety System Overview
- EMOS® View
- SIL2 Safety Algorithms
- Pinhole Detection
- Single Cell Temperature Evaluator
- Early-Detection Engine
- Alarms
- EMOS® Advisory

On Site: 4 hours [SP970-1] • Online: 2 hours [SP970-2] • Prerequisites: none

### EMOS® PROCESS ENGINEER TRAINING

**SP971**

This course will give process engineers a more in-depth understanding of some of the Operator training topics and it will also cover some more advanced concepts such as event investigation and data analysis. It covers the following topics:

- R2 Control Panel Overview
- Alarm Management
- Pinhole Detection
- Modifying Hardware SIL Settings
- Single Cell Temperature Evaluator
- Early-Detection Engine
- EMOS® Visual Extractor

On Site: 4 hours [SP971-1] • Online: 2 hours [SP971-2] • Prerequisites: SP970



**EMOS® SYSTEM ADMINISTRATOR TRAINING****SP972**

This course will provide system administrators and IT specialists with the knowledge necessary to maintain and troubleshoot R2 software systems. It covers the following topics:

- R2 Network Architecture
- EMOS® Server
- Troubleshooting
- R2 Watchdog
- Databases (R2DB, PostgreSQL)
- Security Settings and Licenses
- Backups

On Site: 4 hours [SP972-1] • Online: 2 hours [SP972-2] • Prerequisites: SP970\*, SP971\*, SP974\*

*\*Optional prerequisite*

**EMOS® SIL2 SAFETY SYSTEM TRAINING****SP973**

This course will provide a better understanding of the SIL2 Safety system, including how the various components fit together and function, and how to troubleshoot and maintain the system. It covers the following topics:

- System Architecture
- MODA and SILCAM
- System Modifications and Maintenance
- General Troubleshooting
- Walkthrough of the System (On Site)
- Troubleshooting Communication (On Site)
- Installing/Removing Components (On Site)
- IFOCOM Web Server (On Site)

On Site: 4 hours [SP973-1] • Online: 2 hours [SP973-2] • Prerequisites: SP970\*

*\*Optional prerequisite*

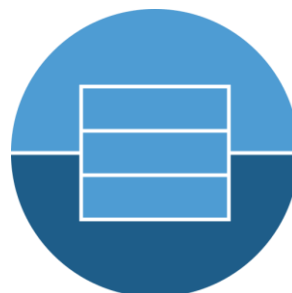
**EMOS® ASSET MANAGEMENT TRAINING****SP974**

This course will demonstrate how to use the EMOS® Asset Management Database software to effectively track asset movements (anodes, cathodes, membranes, etc.), maintenance activities, and asset properties. It covers the following topics:

- Interface Overview, Using the Browser
- Manipulating Assets
- Backup and Restore
- Comments and File Attachments
- Forms: Adding, Editing and Exporting Data
- Database Configuration Adjustments
- Reports: Asset, Position, and Maintenance
- Application Settings

On Site: 8 hours [SP974-1] • Online: 2 hours (condensed) [SP974-2] • Prerequisites: none





## EXPERT TRAININGS

These trainings are given by an R2-certified **chlor-alkali expert** and cover **advanced topics and products**.

### EMOS® ASSET PERFORMANCE REPORT TRAINING

**SP975**

This course will cover how to effectively use APR to track individual cell key performance indicators ( $U_0$ ,  $k$ , CE,  $U_N$ , SPC) to perform economics-based electrolyzer maintenance by calculating savings and component replacement payback time. It covers the following topics:

- Current Efficiency Determination
- Operating Conditions for KPI Calculation
- KPI Trends and Bar Charts
- Economic Parameters Configuration
- Savings and Payback Time Calculations
- Maintenance Planning
- Exporting Data for Third Party Software
- Transferring Data To and From R2 FTP

On Site: 4 hours [SP975-1] • Online: 2 hours [SP975-2] • Prerequisites: none

### EMOS® MAINTENANCE STRATEGY TRAINING

**SP976**

This course will demonstrate how to apply the best electrolyzer maintenance strategy depending on the individual cell/electrolyzer/plant performance, production situation, spare part availability, etc. It covers the following topics:

- Aging Mechanism of Cell Components
- End of Life Criteria for Cell Components
- Electrolyzer Maintenance Timing
- Effect of Different Production Scenarios
- Testing/Selection of Parts for Maintenance
- Cell Upgrade Payback Simulation
- Asset Performance Report Software

On Site: 4 hours [SP976-1] • Online: 2 hours [SP976-2] • Prerequisites: SP975, SP977\*

\*Optional prerequisite



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MKD0083 v11

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**EMOS® ADVANCED SAFETY & MAINTENANCE TRAINING****SP977**

This course will detail the membrane electrolysis process, possible faults, their consequences, and appropriate countermeasures. The course will also explain how to detect problems and identify components to be repaired or replaced. It covers the following topics:

- Chlor-Alkali Cell Design and Internals
- Operating Conditions and Consequences
- Cell Component Failures
- Key Performance Indicators for Cells
- Early Detection of Faults
- Countermeasures
- Aging Mechanism of Cell Components
- Maintenance Strategy and Planning

On Site: 8 hours [SP977-1] • Online: 4 hours [SP977-2] • Prerequisites: SP970, SP971

**EMOS® ADVANCED EDE TRAINING****SP978**

This course will explain the EDE (Early-Detection Engine) model update strategy, how to interpret EDE alarms, how to react as an operator, and how to use EDE trends to identify aging components and inform maintenance decisions. It covers the following topics:

- Chlor-Alkali Cell Design and Internals
- Operating Conditions and Consequences
- Cell Component Failures
- Key Performance Indicators for Cells
- EDE Model Update Strategy
- Interpreting EDE Alarms
- Countermeasures
- Mechanism and Effect of Aging Cells

On Site: 8 hours [SP978-1] • Online: 4 hours [SP978-2] • Prerequisites: SP970, SP971, SP977\*

\*Optional prerequisite

**EMOS® ADVANCED ADVISORY TRAINING****SP979**

This course will explain detectable faults, their consequences, and the proposed countermeasures, as well as the process of fault and countermeasure customization for plant specific purposes. It covers the following topics:

- Chlor-Alkali Cell Design and Internals
- Electrolyzer Operation Modes
- Cell Component Failures
- Detectable Faults and Consequences
- Countermeasures for Individual Faults
- Fault Detection Customization
- Countermeasures Customization

On Site: 8 hours [SP979-1] • Online: 4 hours [SP979-2] • Prerequisites: SP970, SP971

## TARGET AUDIENCE

While our courses can be attended by anyone in the chlor-alkali industry, the following table outlines the **recommended target audience** for each course:

Target Audience \ Course Number	SP970	SP971	SP972	SP973	SP974	SP975	SP976	SP977	SP978	SP979
Cell Room Operator	✓									
Process Engineer	✓	✓	✓		✓			✓		
System Administrator / IT Personnel	✓	✓	✓		✓					
Electrician / Instrumentation	✓			✓						
Cell Maintenance Personnel					✓					
Maintenance Manager	✓	✓			✓	✓	✓	✓	✓	
Operator Trainer	✓	✓						✓	✓	✓

## ORDERING INFORMATION

Code	Course Name	Prerequisite(s)	On Site	Online
SP970	EMOS® Operator Training	–	4 hours	2 hours
SP971	EMOS® Process Engineer Training	SP970	4 hours	2 hours
SP972	EMOS® System Administrator Training	SP970*, SP971*, SP974*	4 hours	2 hours
SP973	EMOS® SIL2 Safety System Training	SP970*	4 hours	2 hours
SP974	EMOS® Asset Management Training	–	8 hours	2 hours
SP975	EMOS® Asset Performance Report Training	–	4 hours	2 hours
SP976	EMOS® Maintenance Strategy Training	SP975, SP977*	4 hours	2 hours
SP977	EMOS® Advanced Safety & Maintenance Training	SP970, SP971	8 hours	4 hours
SP978	EMOS® Advanced EDE Training	SP970, SP971, SP977*	8 hours	4 hours
SP979	EMOS® Advanced Advisory Training	SP970, SP971	8 hours	4 hours

\*Optional prerequisites