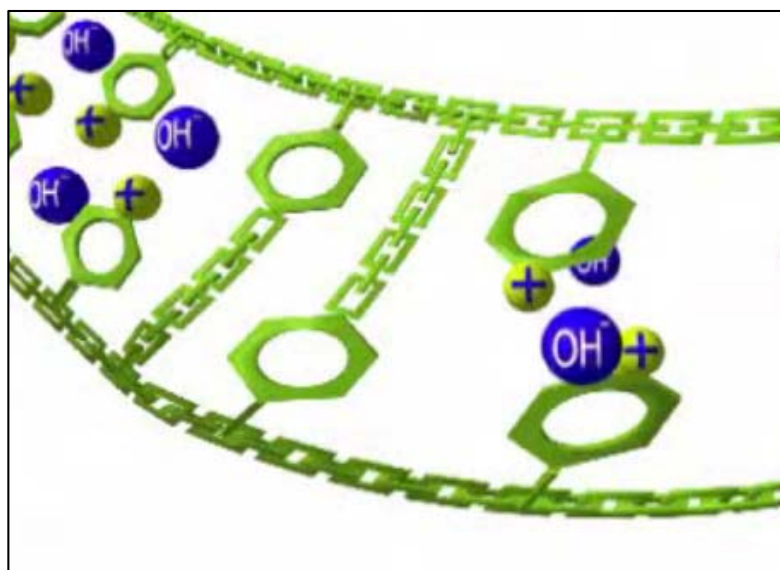


# **Ion Exchange Water Treatment**

**OLC411**



**Online Training**

## **Information Packet**

## Costs

- \$203 USD
  - Price includes
    - Narration
    - Many illustrations
      - Video clips
      - Animations
      - Pictures
    - Interactive questions
    - Practice exams
    - Final exam
  - Discounts may apply
    - Bundled discount for RO Certification
    - Multiple-course discount
    - Multiple-trainee discount
    - From time to time DHP runs special discounts

## Length:

Seven (7) hours

## What you will earn:

David H. Paul, Inc Certificate upon successfully passing an exam based on the knowledge and proficiencies learned in this course

## Description:

You will learn the fundamental knowledge needed to understand the ion exchange technology and thoroughly understand how the ion exchange technology works. You will understand the equipment involved. You will also understand the various types of SAC and SBA beds and how they are regenerated.

## Overview of Topics

- Ion Exchange Analysis
- Ion Exchange Principles
- Ion Exchange Vessels
- Strong Acid Cation Resins
- Strong Base Anion Resins
- Ion Exchange Systems
- Ion Exchange Regeneration



## Topic Breakdown

### Ion Exchange: Analysis

- Ions
- Problems Caused by Ions
- Conductivity
- Silica
- Silica Analysis
- Organics
- TOC Analysis
- Strong Acids
- Weak Acids
- Strong Base
- Weak Bases

### Ion Exchange Principles

- Ion Exchange Principles: Solution Neutrality
- Ion Exchange Principles: Ion Exchange
- Ion Exchange Principles: Resin Beads
- Ion Exchange Principles: Strong Acid Cation (SAC)
- Ion Exchange Principles: Strong Base Anion (SBA)
- Ion Exchange Principles: Weak Acid Cation (WAC)
- Ion Exchange Principles: Weak Base Anion (WBA)
- Ion Exchange Principles: Resin Sheet

### Ion Exchange Vessels

- Single Beds External Construction
- Single Beds Internal Construction
- Mixed Beds External Construction
- Mixed Beds Internal Construction

### Strong Acid Cation (SAC) Resins

- SAC Exchangers
- SAC Exchangers: Sodium Cycle (Softening)
- SAC Exchangers: Hydrogen Cycle
- SAC Bed Regeneration
- SAC Bed Regeneration: Sodium Cycle
- SAC Bed Regeneration: Hydrogen Cycle
- WAC Bed Regeneration: Hydrogen Cycle

### **Strong Base Anion (SBA) Resins**

- SBA Exchangers: Chloride Cycle (Dealkalizing)
- SBA Exchangers: Hydroxide Cycle
- SBA Bed Regeneration
- WBA Bed Regeneration: Hydroxide Cycle

### **Ion Exchange Systems**

- Electrodeionization (EDI)
- Ion Exchange Systems
- Ion Exchange Systems: Dual Beds
- Ion Exchange Systems: Multiple Single Beds
- Ion Exchange Systems: Full Train
- Ion Exchange Systems: Reverse Osmosis & Mixed Bed

### **Ion Exchange Regeneration**

- Dual-Bed Regeneration
- Multiple-Bed Regeneration
- Monitoring & Troubleshooting Single Bed Regeneration



## DHP's Training Methodology

DHP uses the consulting services of a Doctor of Education from Columbia University (Dr. Linda Paul) in the development of its online training courses.

DHP's training methodology includes:

- Short, interesting, interactive lecture sessions using:
  - Lecture slides
  - Video clips
  - Animations
- Pop quizzes to enhance understanding and retention
- Practice exams

## Who Should Take This Course

Everyone who works with, or will work with, the reverse osmosis and pretreatment technologies in operating plants needs to know the tips, techniques and proficiencies taught in this online training, including:

- Operators
- Maintenance personnel
- I & C Technicians
- Supervisors/Managers
- Engineers
- Original Equipment Manufacturers
- Service technicians
- More

## What You'll Receive

- 7 hours of interesting, easy-to-understand training
- David H. Paul, Inc Certificate upon successfully passing an exam based on the knowledge and proficiencies learned in this course