

BULLETIN 2000 - 03

Date: December 16, 1999

U.S. Department of Labor Employment and Training Administration Office of Apprenticeship Training, Employer and Labor Services (OATELS) Washington, D.C. 20210	<u>Distribution:</u> A-541 Headquarters A-546 All Field Tech A-547 SAC; Lab. Com	<u>Subject:</u> New Apprenticeable Occupation - Electrostatic Powder Coating Technician <u>Code:</u> 200
Symbols: DSNIP/JBMD		<u>Action:</u> Immediate

PURPOSE: To inform the Office of Apprenticeship Training, Employer and Labor Services (OATELS), Bureau of Apprenticeship and Training (BAT) Staff of a new apprenticeable occupation.

Electrostatic Powder Coating Technician
O*Net Code: 51-9121.01
RAIS Code: 1036
Training Term: 8000 Hours
Type of Training: Time - based

BACKGROUND: Request for apprenticeability consideration for this occupation was submitted by George F. Jones on behalf of UNICOR Federal Prison Industries, San Pedro, CA.

A suggested work process schedule and outline of related instruction are attached.

This occupation will be added to the Bureau's list of recognized apprenticeable occupations. For further information contact (202) 693-3813.

ACTION: Note: State Directors, please share this information with our SAC partners where appropriate.

Attachment

**WORK PROCESS
ELECTROSTATIC POWDER COATING TECHNICIAN**

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	<u>Approximate Hours</u>
<p>A. Operation of a Powder Coating System</p> <ol style="list-style-type: none"> 1. Powder formulation 2. Powder selection 3. Pretreatment and washing 4. Dry-off/Curing ovens 5. Conveyer 6. Powder spray application equipment 7. Powder spray booth and recovery systems 8. Powder systems design and operation 9. Troubleshooting and testing 10. Continuous improvement 	4000
<p>B. Pre-Start/Start-Up Procedures</p> <ol style="list-style-type: none"> 1. Pretreatment and wash tank start-up and test 2. Adjustment and test of spray nozzles 3. Dry-off and cure oven start-up and test 4. Powder spray booth set-up and test 5. Recovery system check 6. Conveyer speed check 7. Material inspection 8. On/off loading equipment check 9. Safety equipment check 10. Check of all motors and pumps 	1000
<p>C. Monitoring and Control of Powder Coating System During Operation</p> <ol style="list-style-type: none"> 1. All moving parts 2. Lubrication 3. Speed of conveyer 4. Load on conveyer 5. Emergency stop controls 6. Timing 7. Pretreatment and wash tank monitoring - temperatures, levels, concentrations, pH, flows and pressures 8. Chemical coating conversion 9. Dry-off procedures 10. Powder paint spray booth and recovery system monitoring 11. Film thickness 12. Drying/curing oven times and temperatures 13. On/off loading material requirements and limitations 14. Safety 15. Product and material management 16. Troubleshooting 	1000

D. Testing	1000
1. Safety devices	
2. Controls and instruments	
3. Circuits, wiring and hoses with chemicals	
4. Materials	
E. Maintenance	1000
Use of tools, factory procedure, logs and records, safety and sanitation, lockout and tagout procedures, schematic and diagram reading and drawing.	
1. Adjustment and lubrication of conveyer drive and take-up	
2. Descaling, cleaning and inspection of pretreatment and wash tanks	
3. Cleaning, inspection and repair of safety devices	
4. Cleaning, inspection and repair of gauges and meters	
5. Cleaning, inspection and repair of curing/dry-off ovens	
6. Cleaning, inspection and repair of ventilation systems and ventilation stacks	
7. Cleaning, inspection and repair of fire eyes and heat exchanges	
8. Electrical repairs	
9. Inspection of motors and pumps	
10. Inspection and maintenance of oven containment devices	
11. Testing and maintenance of electrostatic spray equipment	
12. Use of electronic tools	
Total Hours	8000

**RELATED TECHNICAL INSTRUCTION
ELECTROSTATIC POWDER COATING TECHNICIAN**

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The apprentice will receive approximately 144 hours of related technical instruction each year of the apprenticeship to supplement the on-the-job training required. The following outlines the related instruction:

<u>1st Year</u>	<u>Approx. Hrs - 144 hours</u>
a. Power Coating	
b. Powder Process	
c. Powder Formulation	
d. Pretreatment & Washers	
e. Ovens	
f. Conveyor	
g. Powder Equipment Options	
h. Power Spray Booths and Recovery	
i. Power Systems Design and Operation	
j. Troubleshooting	
k. Continuous Improvement	

RELATED TECHNICAL INSTRUCTION
ELECTROSTATIC POWDER COATING TECHNICIAN
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2nd Year**Approx. Hrs - 144 hours**

- a. Liquid Coating
- b. Paint and Painting - Basic Concepts
- c. Paint Components
- d. Liquid Organic Coatings
- e. Film Formation
- f. Paint Manufacturing Process
- g. Color Machining and Color Control
- h. The Paint Line
- i. Paint Film Defects and Wear Out
- j. Testing Paints
- k. Getting and Keeping a Quality Finish
- l. Paint Coverage

3rd Year**Approx. Hrs - 144 hours**

- a. Liquid Coating Application Equipment Spray Booths
- b. Painters Math
- c. Air Atomized Spray
- d. Airless Spray
- e. Air Assisted Airless Spray
- f. Air Electrostatic Spray
- g. Parts Presentation
- h. Parts Design & Acceptance to Electrostatic
- i. Spray
- j. High Volume Low Pressure
- k. Material Supply Methods
- l. Safety
- m. Automatic Application Equipment
- n. Application Techniques for each Technology

4th Year**Approx. Hrs - 144 hours**

- A. Systems Design
 1. Systems Layout
 2. Spray Booths
 3. Spray Washers
 4. Ovens
 5. Conveyors
 6. Coating Processes
 7. VOC Abatement
 8. Paint Waste Reduction and Management
 9. Waste Treatment
 10. Air Make-Up and Ventilation

- B. Paint Pretreatment
 - 1. Cleaning
 - 2. Phosphating
 - 3. Rinsing
 - 4. Substrates
 - 5. Washer Design
 - 6. Performance Testing
 - 7. Waste Treatment
 - 8. Troubleshooting

- C. Electrodeposition
 - 1. Electrodeposition Finishing Process
 - 2. Paint Chemistry
 - 3. Film Deposition,
 - 4. The Electrocoat Tank
 - 5. Post rinse System
 - 6. E-Coat Tank Leak Check & Cleaning
 - 7. E-Coat Tank Maintenance Cleaning
 - 8. Cure Oven
 - 9. Racking
 - 10. Waste Water Treatment
 - 11. Maintenance of Bath Chemistry
 - 12. Test Methods
 - 13. Troubleshooting Paint Problems
 - 14. Electrocoat Terms
 - 15. Applied Costs Calculations

SUGGESTED TEXTS.

The course curriculum may be augmented with additional textbooks, testing procedures, technical briefs, manufacturers' manuals, video training tapes, films, etc.

Also, a certification test is available through the Chemical Coaters Association International for a Finishing Technician.

SME Users Guide to Powder Coating (3rd Edition)
Paint Systems Design and Implementation

Society of Manufacturing Engineers (has over 250 course outlines)
(PO Box 930, Dearborn MI 48121-0930 (313-271-1500)
Power Coating - The Complete Finisher's Handbook (Powder Coating Institute) 2121
Eisenhower Avenue, Suite 401, Alexandria, VA 22314)