

DELTA COLLEGE
COUNSELING/ADVISING & CAREER SERVICES
CHEMICAL PROCESS OPERATOR

Salary Range: \$22,820 to \$59,030 annually

Personal Interests: Working with your hands, machines and processes.

Work Environment: Well lighted and ventilated, may be noisy from machinery and may require wearing safety equipment.

Description

Chemical process operators tend or control machinery to create changes or reactions in chemicals during the processing of raw materials into industrial or consumer products, such as detergents, soap, emulsifiers, cosmetics, paints, fertilizers, acids, bleaching agents and lubricant.

Operators must read plant specifications to determine product type, ingredients needed, and any special procedures required. They may start equipment to feed raw materials automatically or dump preweighed ingredients into mixing tanks, heating vessels, or onto conveyors. Operators have to set up and adjust equipment and observe gages to analyze and control process conditions such as temperature, pressure, vacuum level, and flow of coolant, steam, and chemical ingredients. They also move controls to adjust feed and flow of liquids and gases through equipment in specified sequences. They open valves or operate pumps to admit or drain specified amounts of materials, impurities, or treating agent to or from equipment.

Operating chemical equipment includes adjusting controls to regulate temperature, pressure, and time of prescribed reaction, according to knowledge of equipment and processes. Operators must also draw samples of the product at specified stages, perform standard tests or send samples to a laboratory for analyses. This may include observing color and consistency of the product and comparing these

observations to instrument readings and laboratory and standard test results. Some operators in management positions may also supervise and assign tasks to helpers.

Chemical process operators may also operate or tend auxiliary equipment, such as heaters, scrubbers, filters, or dryers, to prepare or further process materials. It is also the responsibility of the operator to routinely inspect equipment for leaks or other hazards and to maintain a log of gage readings, shift production and equipment malfunctions.

Working Conditions

Chemical process operators often work with helpers under the supervision of a chemical leader or shift supervisor. Some of these operators work in cramped quarters or high places. They might be required to climb ladders to storage areas and tanks. Chemical process operators usually work in areas that are well lighted and ventilated to reduce the build-up of chemical odors and dust. Workers might be subjected to noise and vibration of machine operations. Operators might be assigned to day, afternoon, or night shifts because the manufacture of chemical products is a continuous process. Operators might be required to work overtime and also on weekends. All employees in a chemical plant might have to wear safety helmets, goggles, safety shoes, gloves, and respirators at all times. Safety equipment plus fire extinguishers and hoses, safety showers, and eye wash

fountains are usually provided by the employer. Chemical process operators who join labor unions must pay periodic dues.

Training, Other Qualifications

On the job training provided by the employer and a high school diploma or equivalent may qualify a person for this occupation. A background in chemistry, mathematics and scientific methods enhances the skills needed for this profession.

Delta College offers an Associate in Applied Science degree and an Advanced Certificate in Chemical Process Technology. This program prepares graduates for employment as a process operator in the chemical/material processing industry.

Job Outlook

There were approximately 49,000 chemical process operators, tenders, and controllers employed nationally in 2004. Employment of chemical process operators is expected to grow about as fast as average for all occupations in Michigan through the year 2014.

There were about 2,260 chemical process operators and tenders employed in Michigan. Most worked in urban areas. All of them were employed in the manufacturing industry. About 100 annual openings are expected, all due to replacement of chemical process operators who retire, die, or leave the labor force for other reasons.

Earnings

Earnings of chemical process operators vary depending on the type and geographic location of the employer, seniority and job classification of the operator, type of product produced, and

equipment operated. Those workers involved in formulating, processing, and testing (class A operators) earn more than those primarily involved in tending machinery (class B operators).

Nationally, chemical equipment operators had average hourly earnings ranging between \$12.15 and \$28.10 per hour in 2006, depending on the chemical products produced.

Average wages in May 2006:

	Average	Range
National	\$41,300	\$25,280 - \$58,440
Michigan	\$42,340	\$22,820 - \$59,030
Warren	\$39,820	\$27,880 - \$53,880

Related Occupations

Water/Wastewater Plant Operator, Cement Manufacturing Worker, Paper Manufacturing Machine Operator, Food and Dairy Process Machine Operator and Plastic Products Manufacturing Worker.

Chemicalprocess.doc SC/9/07
 Sources: Michigan Occupational Information System, Delta College Catalog, O'NET Occupational Profiles

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