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ABSTRACT

This handbook provides information for persons who are preparing to take a test for certification in the plastics industry. The nine sections of the handbook provide information on the following: (1) the mission of the Society of the Plastics Industry and the value of the National Certification in Plastics; (2) tips on preparing for the exam; (3) tips on taking the exam; (4) information about what happens after a candidate takes the exam; (5) the body of knowledge a candidate needs to know (basic process control; preventive and corrective action on primary and secondary equipment; handling, storage, packaging , and delivery of plastics materials; quality assurance; safety; tools and equipment; and general knowledge); (6) sample questions; (7) a reference list composed of 24 primary reference materials and 17 secondary reference materials; (8) a list of Sylvan Technology Testing Centers where the certification tests can be taken; and (9) tips on completing the application. An application to take the certification test and a step-by-step process for getting certified are included in the handbook. (KC)

National Certification in Plastics (NCP)

NCP CERTIFIED OPERATOR

Candidate Handbook

SPONSORED BY
The Society of the Plastics Industry, Inc.

Complete the certification requirements an
earn the privilege to wear the badge.

NATIONAL CERTIFICATION IN PLASTICS (NCP)

CANDIDATE HANDBOOK

SPONSORED BY

The Society of the Plastics Industry, Inc.

For more information about certification and to contact National Certification in Plastics

WRITE, CALL OR FAX

National Certification in Plastics
c/o The Society of the Plastics Industry, Inc.
1801 K Street, NW, Suite 600K
Washington, DC 20006

202-974-5356
fax 202-296-7005

OR

CONTACT US ON THE WORLD WIDE WEB

http://www.certifyme.org

FOR MORE HANDBOOKS

Send a letter requesting additional copies of the Candidate Handbook to the address or fax number listed above.

You may request a copy by e-mailing ncp@socplas.org or calling 1-888-NCP-3637. If you prefer, Candidate Handbook contents can be downloaded from the website.

A special thank you to the Handbook Team for their work on this book:
Enio Velazco, Chair, Nypro, Inc; Mark Heitker, Solvay Polymers; Andrew Adams, DPG Hospital Disposables; Drew Fleming, Stacey Glover and Evangeline Harris, The Society of the Plastics Industry, Inc.

Second Edition

Contents

Our Mission

National Certification in Plastics (NCP)

HISTORY

SPI National Certification in Plastics (NCP) grew out of efforts to provide plastics workers a career path within the industry. The plastics industry has grown from a fledgling industry 75 years ago to be the fourth-largest manufacturing segment in the United States today. As a result of this rapid growth, employers have encountered problems in hiring qualified personnel. In addition to this shortage of qualified personnel, there is also a need for an agreed-upon set of knowledge and skill standards for machine operators within the plastics processing industry.

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Plastic industry employers turned to SPI to develop a set of standards which serve two functions: 1) to provide all employers with guidelines of what to expect from a certified plastics operator, and 2) to provide employees with knowledge and skill goals for their own professional development. These standards enable you to demonstrate to your current and prospective employers your skill level and knowledge base. Exams and the certification credential allow the industry to measure and recognize you as having met these national standards.

HOW THE NCP CERTIFIED OPERATOR EXAM WAS DEVELOPED

The methodology used to develop the knowledge areas and the exam questions for certification was very detailed and comprehensive. Under the auspices of The Chauncey Group, International, a subsidiary of the Educational Testing Services of Princeton, New Jersey, a group of industry experts (operators, technicians, and supervisors) from four plastics manufacturing processes (injection molding, extrusion, blow molding, thermoforming) was assembled to develop an industry-wide survey. It listed the important knowledge and skills required of an operator. Over 2,000 operators and supervisors completed this survey, called the "Job Analysis."

The *Body of Knowledge* (see p. 9) was established based on that survey. Subsequently, different industry experts (again—operators, technicians, and supervisors from all four processes) met several times to develop, review, and confirm test questions for use in the exam. The results of these meetings are the different versions of the NCP Certified Operator exams for each of the processes.

The primary reason for such an exhaustive and comprehensive methodology involving the people who actually perform the job in all four processes is to ensure the validity of the exam questions. This validity has been established via two key phases. First, the Job Analysis process described above was validated by

a random survey of plastics industry practitioners throughout the United States. Second, all questions on the examinations were created by a group of industry experts from all four processes and then validated by over 800 participants in the pilot exam using well-accepted methods.

SPI's NCP Certified Operator exams meet testing-industry standards of fairness, validity, and reliability. These standards are defined as follows: an examination is fair when its contents neither favor nor discriminate against any individual or group due to ethnic background, geographic locale, practice setting, or other demographic criteria. Exams are valid when they accurately reflect the knowledge and skills required for competent practice; and they are reliable when they yield consistent results over time.

VALUE OF CERTIFICATION

The creation of the NCP Certified Operator exams is recognized by the plastics industry as evidence that continuing education and the measurement of knowledge and technical competence are valued in your facility. It is likely that the demand for fully trained, competent machine operators in the plastics industry will continue to increase as the industry and the equipment become more complicated and technically sophisticated. Additionally, SPI's research indicates that one positive impact of certification is the foundation for ISO/QS 9000 training requirements.

The impact of the NCP Certified Operator credential on your career opportunities will grow as employers increasingly attach value to this designation. Each year, more and more employers are expected to seek individuals who have earned the NCP Certified Operator certification. Attaining this certification will provide a means of assessing your personal progress in this occupation and will serve as a motivator for your continuing education. □

Preparing for the Exam

WHO SHOULD TAKE THIS EXAM

Anyone seeking a career in the plastics industry is eligible to take the NCP Certified Operator exam. However, you are more likely to be successful if you have a minimum of two (2) years experience in plastics processing and some formal training in many, if not all of the content areas on the exam. You may be able to achieve certification with less experience if you are comfortable with all of the content areas in the *Body of Knowledge* (see p. 9).

NCP has developed four versions of the NCP Certified Operator exams, one for each process. You must specify a process-specific version of the exam upon registering with the testing administrator.

FEES

The fee to take the NCP Certified Operator exams is $235; a special discount fee of $195 is offered to employees of SPI member companies. Your fees must be paid when you register.

Payments may be made by credit card, company check, certified check or money order. If you wish to pay by check or money order, it must be attached to the application and mailed to the address on the application. Checks should be made out to The Chauncey Group, International. Sorry, no personal checks are accepted.

NCP suggests that you refer to the *Body of Knowledge* (page 9) for each content area to guide your study.

HOW TO REGISTER

Registering by Phone *(credit card only)*

1. To register for the NCP Certified Operator exam, call the toll-free NCP Infoline at 1-888-NCP-3637. Be prepared to give the operator all of the information on the application. It may be helpful to review the application (see p. 20) before calling. After completing the application with the operator, you will receive an Authorization to Test (ATT) letter by mail. The ATT letter will contain your candidate identification number, scheduling information, the process-specific version of the exam you have selected, and an expiration date.

   You must have received your Authorization to Test letter before you may schedule an appointment to take the NCP Certified Operator exam.

2. Once you receive your ATT letter, you may schedule an appointment to test at any time during the period specified on your ATT letter. You may select any Sylvan Technology Center to take your exam. A listing of the testing centers can be found on p. 17. This list changes frequently; for current listings, consult the National Certification in Plastics website, www.certifyme.org, or call Sylvan at 1-800-774-1292.

Registering by Mail

1. Make checks payable to The Chauncey Group, International. Send your company check, certified check or money order with the completed application to:

   NCP Operations Center
   c/o The Chauncey Group, International
   664 Rosedale Road
   Princeton, NJ 08540

2. After processing your application and payment, you will receive the Authorization to Test (ATT) letter in the mail. The ATT letter will contain your test authorization number, candidate identification number, and an expiration date. Exam scheduling information will also be included in the letter.

   You must have received your Authorization to Test letter before you may schedule an appointment to take the NCP Certified Operator exam. If you have any questions, call **1-888-NCP-3637.**

SCHEDULING YOUR EXAM

1. Appointments are made on a first-come, first-served basis at 250 Sylvan testing centers throughout the U.S. It is to your advantage to schedule your test upon receipt of your ATT letter. Waiting to schedule your appointment may significantly limit the dates the center has available to seat you. If your first-choice date or time is unavailable, you will be offered an alternative that is as close to your first choice as possible. Testing centers are open six days a week. Call Sylvan at 1-800-774-1292 or contact your local Sylvan Technology Center directly for hours.

   You will be given a maximum of 2½ hours to complete the 150-question exam. Plan on your testing session lasting a maximum of 3 hours to allow time for a 15 minute tutorial before, and a short survey following the exam. You should also plan to arrive at least one half hour early for registration at the testing center.

2. The Sylvan operator will give you a confirmation number for your exam. *You will not receive a confirmation letter from Sylvan.* It is your responsibility to make note of the confirmation number, date and location where you have been scheduled to take the exam. Be sure to ask for directions to the test center if you need them.

3. If you do not take the exam during the time period indicated in your ATT letter, your eligibility to take the exam will expire, forfeiting payment of the exam. You will be required to re-register for the exam and repay to test. NCP will not issue refunds.

COMPUTER-BASED TESTING

You do not need extensive computer experience to take a computer-based test. If you are nervous about taking an online exam or have never used a computer before, you can reduce your anxiety level by familiarizing yourself with the basic functions of a computer, especially the keyboard and mouse. Computer stores and libraries typically have computers that you can use to practice the basics of computer usage.

Before you take the exam, you will receive a tutorial. This tutorial is designed to teach you how to navigate through the test by using examples. You will have up to 15 minutes prior to your exam to take the tutorial. This time is *NOT* included in your exam time and will *NOT* count toward your score. You may complete the tutorial more than once, however, once you exit the tutorial, you may not return to it.

During the tutorial, you will have an opportunity to become familiar with selecting answers and using all of the key features of the software you will need for the exam. Do not be concerned with the accuracy of the answers you give during the tutorial because this section is not scored.

CANDIDATES WITH DISABILITIES

If you have a documented visual, physical, hearing, or learning disability that would prevent you from taking the examination under standard conditions, you may request special testing accommodations and arrangements. You must use the application form to register; please be sure to check "yes" in the "Request Disability Accommodation" section and attach all required documentation before mailing.

Candidates with physical disabilities and learning disabilities must provide documentation from a licensed professional who is treating the existing disability. In addition, candidates with learning disabilities must provide a diagnosis from psychological testing. See p. 18 for documentation requirements.

In considering your request for special accommodations, SPI is guided by a sense of fairness. Special accommodations are granted to give you the opportunity to be examined in an equivalent manner with other candidates, but not to provide an advantage over other candidates. Special accommodation requests will be handled on a case-by-case basis.

RESCHEDULING OR CANCELING

All requests for rescheduling or cancellations should be made by contacting Sylvan at 1-800-774-1292. You may reschedule your exam prior to noon, two days before your scheduled test date without forfeiting the testing fee. There is no charge for rescheduling an exam during the eligibility period listed on your ATT letter. After this period, you must re-register for the exam by calling 1-888-NCP-3637 and repay to test. □

Taking the Exam

EXAM FORMAT

The NCP Certified Operator exams are designed to measure you against industry-developed standards of skill and knowledge for machine operators in the four major plastic processes—injection molding, blow molding, extrusion, and thermoforming. These standards encompass seven knowledge areas—five are common to all four processes, two are process-specific. The five common areas are: *Safety, Quality Assurance, Preventive and Corrective Action on Primary and Secondary Equipment, General Knowledge,* and *Material Handling, Storage, Preservation, and Delivery.* The two process specific areas are: *Tools and Equipment and Basic Process Control.* The certification exams are made up of questions in each knowledge area. Each area is weighted as to its relative importance to the position of machine operator as listed below.

Each of the NCP Certified Operator exam versions (blow molding, extrusion, injection molding, or thermoforming) contains 150 multiple-choice questions. The multiple-choice format is used throughout the examination. The NCP Certified Operator exam samples your knowledge of activities performed as a plastics machine operator. Four choices are provided for each question with only ONE designated as the correct or best answer. The NCP Certified Operator exam is not structured by content area; rather, questions from the seven content areas (including process-specific questions) are distributed randomly throughout the exam. Sample questions are provided in this Handbook on p. 14 to afford you the opportunity to review the format of multiple-choice questions.

HELPFUL HINT:

It is to your advantage to answer every question since the final score is based on the total number of questions answered correctly.

EXAM CONTENT AREAS

EXAM TIME REQUIREMENTS

While you are permitted up to 2½ hours to complete the NCP Certified Operator exam itself, be prepared to commit 3½ hours to the testing process to allow time for registration, the computer tutorial and exit survey. For registration, you should plan to arrive at the test center at least 30 minutes prior to your scheduled testing time.

TEST SECURITY

You will be asked to accept the terms listed in the *Statement of Confidentiality* before taking the exam and affirm that you have read and understood them. Failure to comply can result in termination of your participation, invalidation of the results of your examination, or other appropriate action.

WHAT TO BRING TO THE EXAM

Bring two forms of identification bearing your name and signature, at least one of which must be government-issued and include a recent photograph. Bring confirmation of your exam time (ATT letter) and record of payment (suggested) if paid by credit card. Arrive at least 30 minutes before your scheduled exam time to check in and have identification verified.

TEST CENTER REQUIREMENTS

Nothing can be brought into the testing room with you except a non-programmable calculator with the basic arithmetic functions.

- No papers, books, food or purses are allowed in the testing room.
- Eating, drinking or use of tobacco is not allowed in the testing room.
- Unauthorized scratch paper may not be brought into or removed from the testing room (scratch paper and pencils will be provided by the test center staff).
- You may not leave the testing room without the test administrator's permission.
- You must present your photo ID each time you enter the testing room.
- Only test takers are permitted in the waiting area.

STATEMENT OF CONFIDENTIALITY

- This examination and the test questions contained herein are the exclusive property of the SPI National Certification in Plastics program.
- This examination and the items (questions) contained herein are protected by copyright law. No part of this examination may be copied or reproduced in part or whole by any means whatsoever, including memorization.
- Future discussion or disclosure of the contents of the examination orally, in writing, or by any other means is prohibited.
- Any theft or attempted theft of exam items from the testing center is punishable to the fullest extent of the law.
- Your participation in any irregularity occurring during this examination, such as giving or obtaining unauthorized aid, as evidenced by observation or subsequent analysis may result in termination of your participation, invalidation of the results of the examination, or other appropriate action.

GROUNDS FOR DISMISSAL

Anyone who engages in misconduct and/or does not heed the administrator's warning to discontinue inappropriate behavior may be dismissed from the test center or have examination results voided. All of the following behaviors are considered to be misconduct:

- Giving or receiving assistance of any kind.
- Using any prohibited aids. (Prohibited aids are any device or material that will be helpful in taking a NCP Certified Operator exam. Examples include conversion tables, dictionaries, etc.)
- Attempting to take the exam for someone else.
- Failing to follow testing regulations or the instructions of the test administrator.
- Creating a disturbance of any kind.
- Removing or attempting to remove examination questions and/or responses (in any format) or notes about the exam from the testing room.
- Tampering with the operation of the computer or attempting to use it for any function other than taking the exam.

You will receive your test results on the computer screen immediately upon completion of the exam.

EXAMINATION RESULTS

NCP Certified Operator examinations are reported on a "certified/non-certified" basis only. You will receive your test results on the computer screen immediately upon completion of the exam. If you achieve certification, you will also receive an unofficial printed report with this information. If you do not achieve certification, you will see a printed "feedback" report, which will tell you how you performed versus the standard for each content area of the exam. Note: The results of two content areas (*Tools & Equipment and General Knowledge*) will be combined in the "feedback report." NCP suggests that you refer to the *Body of Knowledge* (p. 9) for each content area to guide your study. Use it as a guide to prepare to retake the exam after six months. The reference list is also useful (see p. 15) to find sources of study.

HELPFUL HINT:

Ask for help from your employer's training staff—remember, they're interested in seeing you improve and achieve certification, so they should be considered your primary source for help.

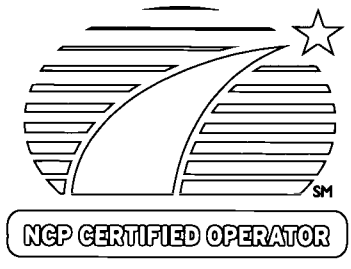
INFORMATION RELEASE POLICY

Registration to take the NCP Certified Operator exam constitutes authorization for the Sylvan Technology Center to release, only to you and NCP/SPI, your results and certification status. Access to this information at SPI is limited to those staff who are involved in the management and administration of the NCP Certified Operator program. Only you have the authority to provide your employer with your examination results.

RETAKING THE EXAM

You must wait six months from the date of your examination to take it again. When you are ready to schedule, contact 1-888-NCP-3637 and confirm that you are retaking the NCP Certified Operator exam. You will be required to re-register for the exam and repay to test. □

After the Exam



National Certification in Plastics

USE OF CREDENTIAL

After successfully completing the certification exam, you will receive an unofficial report at the testing center which confirms your certification. Within four weeks, SPI will verify this report and send you:

- Certificate recognizing you as an NCP Certified Operator.
- Certification duration and regulations.
- Complimentary decal (iron-on) for a shirt, jacket or hat.
- Wallet identification card indicating your status and the duration of your certification.
- Change of Information form to notify NCP of any changes in the information you gave when you registered (e.g., address, phone, employer).
- Certification products order form. These certification products (hats, shirts, pins) are only available to NCP certified operators.

CERTIFICATION PRIVILEGES:

- The right to use (in accordance with specific licensing regulations) the credential for the certification you have achieved.
- The right to display the certification mark (logo with "NCP Certified Operator") through either the certificate, decal or patch as recognition of your achievement.
- The right to purchase optional certification products available from NCP/SPI.

LENGTH OF CERTIFICATION

Certification is valid for four years from the date you take the exam (e.g., June 1, 1998 will expire on June 1, 2002).

REVOCATION OF CERTIFICATION

SPI has the right to revoke any NCP certification issued if you engage in any of the following:

- Divulging exam content.
- False representation (either misrepresenting yourself or attempting to take the exam for someone else).
- Cheating on the certification exam.

RECERTIFICATION REQUIREMENTS

We will advise you of renewal/re-certification requirements well in advance of the expiration date on your certificate. □

What You Need to Know

BODY OF KNOWLEDGE
The seven content areas and subcontent areas are defined in the *Body of Knowledge* and serve as an outline for the knowledge measured by the exam. For a list of the relative weights of importance, see p. 5.

BASIC PROCESS CONTROL

You need to have knowledge of...

OPERATIONS

1. Machine Operations
   - process flow from raw material to finished product
   - pressure
   - time
   - heat
2. Secondary Operations
   - decorating
   - cutting & trimming
3. How to Operate the Machine
   - computer use: menus, stations/zones, input/output
   - process monitoring
   - process control
4. Working Standards
   - process parameter data
   - master specifications

PROCEDURES

1. Product Count Procedures
   - production reporting (yield & efficiency [cycle times], scrap, rejects, good products)
2. Shift Change Procedures
   - communication—passing along information
3. Routine Procedures
   - for changeovers (color, resin, die, mold)
   - for end of production runs (labels, cartons, packaging, shop orders, lot change)
4. Established Machine Start-Up and Shutdown Procedures
   - work instructions, standard operating procedures, job safety analysis
5. Machine Verification Setup Procedures
   - setup sheets
   - process parameters
   - process logs
6. Standard Documentation Procedures
   - operator checklist
   - parameter logs
   - operator instructions
7. Training Manual to Perform Your Job
   - standard operating procedures
   - operator training
   - new employee training

PREVENTIVE & CORRECTIVE ACTION ON PRIMARY & SECONDARY EQUIPMENT

You need to have knowledge of...

IDENTIFYING, TROUBLESHOOTING, AND RECORDING

1. Proper Setup Procedures
   - work instructions
   - setup sheets
   - visual inspection (gauges, displays)
2. Identifying Equipment Problems
   - visual
   - smell
   - sound

3. How the Equipment Functions
   - what the equipment does

4. Equipment Operation
   - what it takes to make it do what it does

5. Documentation Procedures for Equipment Problems
   - maintenance requests/log book
   - work orders

6. Safe Procedures to Use to Correct Equipment Problems Where it is Permissible for Machine Operator to Take Action
   - notify supervisor
   - notify repair person
   - restart machine

7. Measures to Avoid and Reduce the Recurrence of Environmental Problems
   - ear plugs—mufflers
   - ventilation respirators
   - proper cleanup and disposal of materials (liquid/pellets)

8. How to Document Preventive and Corrective Actions
   - safety checks
   - product defects
   - preventive maintenance

9. Procedures to Handle and/or Document Nonstandard Conditions
   - communicate process changes due to special conditions

PREVENTIVE ACTION

1. Appropriate Sources of Information to Detect, Analyze and Eliminate Defects
   - advisory
   - troubleshooting guide and appropriate sources of information

2. Potential Causes of Nonconformity
   - process and work operations affecting quality
   - supplies
   - audit results
   - quality records

3. Steps Needed to Initiate Preventive Actions
   - shutdown after power outage to prevent power surges
   - maintenance requests

CORRECTIVE ACTION

1. Corrective Actions to Bring Product Up to Customer Specifications
   - minor adjustments (weights, color, density)
   - notify appropriate personnel

2. Resolving Internal Complaints and Customer Complaints
   - corrective-action teams
   - find the cause and fix it

HANDLING, STORAGE, PACKAGING AND DELIVERY OF PLASTICS MATERIALS

You need to have knowledge of...

1. Product/Material Identification Procedures
   - labeling
   - tagging
   - bar coding

2. Customer Packaging Specifications
   - corrugated cartons
   - poly bags
   - skid size
   - quantity

3. Scrap Handling Procedures
   - proper segregation (purging, trim scrap, contaminated material)
   - regrind

4. "Work in Process" Packaging Specifications
   - work instructions per customer (do it the same every time)
   - lot traceability

5. Staging Locations for Specific Materials in Your Area of Responsibility
   - labels
   - packaging material
   - raw materials

QUALITY ASSURANCE

You need to have knowledge of...

QUALITY ASSURANCE CONCEPTS

1. Quality Assurance Systems
   - procedures
   - quality manuals (FDA, ISO)
   - continuous improvement (CPK reports, cost of quality reports)

2. Customer Specifications and Product/Materials Specifications
   - visual
   - functional
   - dimensional
   - critical specifications
   - spec sheet/drawing

3. How to Monitor Process to Stay in "Spec"
   - process control
   - basic concepts of quality control
   - SPC and SQC

4. Basic Concepts of Statistical Process Control
   - control limits
   - averages/means
   - trends
   - ranges

5. Benefits of "Zero" Defects
   - cost of quality
   - do it right the first time
   - customer satisfaction

INSPECTION AND TESTING

1. Appropriate Data and Sampling Procedures
   - frequency and quantity
   - recording information
   - reference spec sheet/drawing

2. Inspection and Testing Procedures for Plastic Parts/Products
   - frequency
   - quantity
   - comparison against a standard
   - measurable or not

3. What Defines a Defect
   - meet specifications
   - nonconformance
   - outside the internal specifications that make it appear abnormal

4. Procedure to Handle and Document Defects During Production
   - who to notify
   - quarantine, hold out
   - production reports

5. Inspection Equipment Usage Procedures
   - proper use of types of equipment
   - safe handling
   - calibration
   - consistency of measurement technique

6. Procedures for Nonconformances after Production (quarantine, hold out)
   - what happens to nonconformances
   - rework procedures

SAFETY

You need to have knowledge of...

SAFETY PROCEDURES

1. Equipment Safety Procedures and Devices for Assigned Machine Operations
   - guards, gates, emergency stops, safety pins, hydraulic safety
   - fire extinguishers

2. Hazardous Material Handling, Storage and Disposal
   - HAZMAT
   - fire cabinets
   - storage environment: temperature, ventilation
   - labeling
   - cleanup procedures

3. Plant Safety Procedures
   - dangers of working with hot plastics
   - incompatible plastic mixtures

4. "Lock-out Tag-out" Procedures

5. Accident Reporting and Documentation Procedures
   - whom to notify
   - proper investigation
   - near-misses

6. Emergency Procedures
   - evacuation plan
   - first aid
   - CPR
   - emergency machine shut down
   - firefighting
   - proper notification
   - cleanup of blood-borne pathogens

7. Housekeeping Procedures
   - workspace cleanliness
   - checklist
   - proper floor markings
   - clear exits, aisles, and electrical panels

SAFETY REGULATIONS & INFORMATION

1. MSDS Information
   - interpretation
   - location (where to find it)
   - hazardous communications

2. Basic Safety Techniques
   - proper lifting
   - awareness of environment

3. Personal Protective Equipment
   - safety goggles
   - gloves
   - ear plugs
   - proper footwear

4. Potentially Hazardous and Dangerous Conditions
   - warning signs
   - pinch points
   - hot materials
   - pressurized systems
   - wet floors
   - crushing

5. Safety Regulations and Requirements
   - OSHA
   - EPA

6. Safety Issues for Material Handling Equipment
   - fork truck certification
   - moving material handling equipment

TOOLS AND EQUIPMENT

You need to have knowledge of...

1. Tools Used in Plastics Manufacturing
   - clippers
   - utility knives
   - checking fixtures
   - hand tools/power tools

2. Maintenance of Tools Used in Plastics Manufacturing
   - changing blades
   - proper storage

3. Equipment Used in Plastics Manufacturing
   - grinder
   - conveyors
   - blowers
   - controllers
   - die/mold temperature control (chillers, thermolators)
   - scales
   - dryers
   - material conveying systems (vacuum pumps, loaders, hoppers)

GENERAL KNOWLEDGE

You need to have knowledge of...

BASIC KNOWLEDGE

1. Communication Techniques (oral, written, interpersonal)
   - shift-to-shift exchanges
   - conveying information clearly
   - proper terminology
   - interpreting job-related written materials

2. Basic Math Concepts
   - arithmetic
   - proper units
   - fraction-to-decimal

3. Mechanical Principles
   - vacuum/pressure
   - force
   - temperature profile
   - fluid flow
   - heat transfer

4. Logical Problem Solving Methods and Procedures
   - troubleshooting
   - data collection/interpretation
   - brainstorming

MANUFACTURING KNOWLEDGE

1. Team Building and Work Group Techniques
   - information sharing
   - meeting participation
   - team participation
   - achieving consensus and compromise
   - goal setting

2. Time Management Techniques
   - organization
   - planning

3. How to Initiate Changes for Quality Improvement
   - implementing new procedures for performing tasks
   - process improvements
   - documenting and communicating improvement ideas

4. General Manufacturing Practices
   - standards
   - policies/procedures
   - work instructions

5. How Defects Effect Final Product
   - customer dissatisfaction

Sample Questions

1. **The measurement and adjustment of the process temperature during the manufacturing of parts is a good example of**
   - A. machine control
   - B. process control
   - C. process monitoring
   - D. quality monitoring

2. **How many parts are manufactured in a 12 hour period, given a cycle time of 12.0 seconds and a mold cavity of 16 pieces?**
   - A. 2,304
   - B. 11,520
   - C. 57,600
   - D. 138,240

3. **When should a setup sheet for a new job be filled out?**
   - A. Before the start of a setup
   - B. After the production run
   - C. After the setup has been completed
   - D. Throughout the setup

4. **A corrective action plan is used for all of the following EXCEPT**
   - A. finding a cause of a problem
   - B. eliminating the cause
   - C. evaluating an operator's performance
   - D. monitoring the effectiveness of a quality system

5. **If there are five boxes of parts that are in need of rework, what should an operator do with them?**
   - A. Push the boxes out of the way until they can be reworked.
   - B. Shut the machine off and go rework the parts.
   - C. Label the boxes with a hold tag and put them in a designated area.
   - D. Save time by shipping them anyway so the customer can rework them.

6. **When discovered, contaminated material should be**
   - A. thrown away
   - B. put back in the warehouse
   - C. identified, tagged, and separated
   - D. sorted right away

7. **Which of the following is a term used to describe a quality assurance target in fabricating products?**
   - A. Zero bleed
   - B. Zero crossing
   - C. Zero defect
   - D. Zero time

8. **Cabinets that contain flammable materials must be colored**
   - A. red
   - B. white
   - C. blue
   - D. yellow

9. **Which of the following organizations has broad authority over emissions into the air?**
   - A. United States Department of Agriculture (USDA)
   - B. Environmental Protection Agency (EPA)
   - C. Occupational Safety and Health Administration (OSHA)
   - D. Food and Drug Administration (FDA)

10. **Which of the following is NOT related to problem-solving methods?**
    - A. Random Process Changes
    - B. Troubleshooting
    - C. Brainstorming
    - D. Data collection

(ANSWERS ON PAGE 16)

Reference List

The following is a list of publications and training resources that may be useful to aid you in preparing for the exam. Some of these references were used during the test question development process. This list represents only a portion of the many study resources available, including on-the-job training. Use the *Body of Knowledge* as your guide in determining what to focus on.

HELPFUL HINT:
It may not be necessary for you to purchase the materials on the reference list. Many plastics manufacturing companies have some of these references in offices, libraries or training departments. These materials may also be available from an inter-library loan at libraries in many community colleges and universities.

PRIMARY REFERENCE MATERIALS

Basic Injection Molding. Tobin, W. J. (1988). (2nd ed). California: T/C Press.

Blow Molding Handbook. Rosato, D.V., and Rosato, D.V. (Eds). (1989). New York: Hanser Publishers.

Blow Molding Handbook: Technology, Performance, Markets, Economics. Rosato, D.V., and Rosato, D.V. (1989). Hanser Gardner Publishing.

Cosmetic Specifications of Injection Molded Parts. (1994 ed). Sponsored by the Molders Division of The Society of the Plastics Industry, Inc.

The Dynisco Extrusion Processors Handbook, (1st ed). (1988). Sponsored by Dynisco.

Film Extrusion Manual: Process, Materials, Properties. Butler, T. I., Veazey, E.W. (Eds). (1992). Georgia: Tappi Press.

How to Assure Quality in Plastics. Keating, M. (1995). New York: Hanser Publishers.

Injection Molding Handbook. Rosato, D.V., and Rosato, D.V. (Eds). (1994). (2nd ed). New York: International Thomson Publishing.

Injection Molding Machines: A User's Guide. Johannaber, F. (1994). (3rd ed). New York: Hanser Publishers.

Injection Molding Reference Guide. (1996). (3rd ed). Oregon: Advanced Process Engineering.

Injection Molding Troublshooting Guide. (1996). (2nd ed). Oregon: Advanced Process Engineering.

Introduction to Injection Molding. Weir, C.L. (1975). Connecticut: Society of Plastics Engineers.

Operator's Handbook for Plastic Injection Molding. (1996 ed). Sponsored by the Molders Division of The Society of the Plastics Industry, Inc.

Plastic Blow Molding Handbook. Lee, N.C. (Ed). (1990). New York: International Thomson Publishing.

Plastics Extrusion Operating Manual. Griff, A.L. (1996). (12th ed). Maryland: Edison Technical Services.

Practical Thermoforming: Principles and Applications. Florian, J. (1996). (2nd ed). New York: Dekker, Inc.

Quality Control for Plastics. Tobin, W. (1986). Los Angeles: T/C Press.

Rosato's Plastics Encyclopedia and Dictionary. Rosato, D. (1993). Hanser Gardner Publishing.

SPC: Statistical Process Control in Extrusion. Rauwendall, C. (1993). New York: Hanser Publishers.

Standards & Practices of Plastics Molders. (1993 ed). Sponsored by the Molders Division of The Society of the Plastics Industry, Inc.

Technology of Thermoforming. Throne, J. L. (1996). New York: Hanser Publishers.

Thermoforming. Throne, J. L. (1987). New York: Hanser Publishers.

Thermoplastic Troubleshooting for Injection Molders. Bryce, D. M. (1991). Connecticut: Society of Plastics Engineers.

Total Quality Process Control for Injection Molding. Gordon, J.M. (1993). New York: Hanser Publishers.

SECONDARY REFERENCE MATERIALS

DuBois and Pribble's Plastics Mold Engineering Handbook. Buckleitner, E.V. (Ed). (1995). (5th ed). New York: Chapman & Hall.

The Dynisco Injection Molders Handbook. Whelan, T., and Goff, J. (1996). (1st ed). Sponsored by Dynisco.

Extruder Operator Basic Training Manual. Longfellow, T. (1985). Sponsored by Witt Plastics, Inc.

Fundamentals of Injection Molding. Tobin, W. (1991). Colorado: WJT Associates.

Handbook of Plastic Materials and Technology. Rubin, I. I. (Ed). (1990). New York: John Wiley & Sons.

Handbook of Plastics Testing Technology. Shah, V. (1984). New York: John Wiley & Sons.

Injection Molding Set-Up Manual. Wolfer, S. (1994). Michigan: Guiness Technologies.

Injection Molding Troubleshooting Guide. Carender, J. (1996). (2nd ed). Oregon: Advanced Process Engineering.

International Plastics Handbook for the Technologist, Engineer & User. Saechtling, H. (1995). (3rd ed). New York: Hanser Publishers.

Introduction to Extrusion. Richardson, P.N. (1974). Connecticut: Society of Plastics Engineers.

Machinery's Handbook. Oberg, E., Jones, F.D., Horton, H.L., Ryffel, H.H., and Green, R. (Ed) (1996). (25th ed). New York: Industrial Press.

Plastics Engineering Handbook of the Society of the Plastics Industry, Inc. Berins, M.L. (Ed). (1991). (5th ed). New York: Van Nostrand Reinhold.

Plastics Extrusion Technology Handbook. Levy, S., and Carley, J. F. (1989). (2nd ed). New York: Industrial Press.

Plastics Processing Data Handbook. Rosato, D.V., and Rosato, D.V. (1990). New York: Chapman & Hall.

Plastics Processing Technology. Muccio, E. A. (1994). Ohio: ASM International.

Plastics Recycling: Products and Processes. Ehrig, R. J., (Ed). (1992). New York: Hanser Publishers.

Training in Injection Molding. Michaeli, W., Greif, H., Kretzschmar, H., Kaufmann, H., and Bertuleit, R. (1995). New York: Hanser Publishers.

TRAINING AND EDUCATION SOURCES

NCP has a list of training and education organizations who incorporate the *Body of Knowledge* in their programs. To get a copy of this list, contact SPI by phone, fax, U.S. mail or e-mail as listed in the front of this handbook.

(If your organization does not appear on the list and you would like it to, please contact SPI).

SAMPLE QUESTION ANSWERS

1. B	2. C	3. D	4. C	5. C
6. C	7. C	8. D	9. B	10. A

SYLVAN TECHNOLOGY CENTERS

For the latest information on test center locations and hours, call Sylvan at 1-800-774-1292.

STATE	AREA	SITE #
ALASKA		
	ANCHORAGE	5201
ALABAMA		
	BIRMINGHAM	2600
	MOBILE	2601
	MONTGOMERY	2603
	DECATUR	2608
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ARKANSAS		
	FT. SMITH	2801
	LITTLE ROCK	5212
AMERICAN SAMOA		
	PAGO PAGO	5254
ARIZONA		
	TUCSON	409
	CHANDLER	410
	PHOENIX	413
	PHOENIX	5225
CALIFORNIA		
	CULVER CITY	1
	CULVER CITY	2
	SAN JOSE	8
	FAIR OAKS	508
	SANTA ROSA	517
	RIVERSIDE	528
	ANAHEIM	529
	RANCHO CUCAMON	531
	DIAMOND BACK	533
	LOS ANGELES	536
	GARDEN GROVE	543
	SAN DIEGO	548
	WALNUT CREEK	552
	REDLANDS	556
	SAN FRANCISCO	558
	FREMONT	559
	SAN JOSE	580
	OAKLAND	587
	CULVER CITY	591
	ATASCADERO	594
	GARDENA	596
	SAN DIEGO	598
	FRESNO	5319
	IRVINE	9035
	WESTLAKE	9091
COLORADO		
	COLORADO SPR	1204
	BOULDER	1209
	LITTLETON	1211
	PUEBLO	1213
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	HAMDEN	2403
	GLASTONBURY	2411
DISTRICT OF COLUMBIA		
	WASHINGTON	5216
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	DOVER	5202
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	WINTER PARK	600
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	TALLAHASSEE	617
	TEMPLE TERRACE	620
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	SARASOTA	623
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	ORMOND BEACH	630
	MIAMI LAKE	9072
	DAVIE	9074
GEORGIA		
	JONESBORO	3005
	SAVANNAH	3007
	AUGUSTA	3010
	MACON	3012
	SMYRNA	3019
	VALDOSTA	3024
	GUAM	5500
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	KAILUA	3103
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	W. DES MOINES	3300
	BETTENDORF	3301
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	BOISE	2000
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	WESTCHESTER	3222
	CARBONDALE	3225
	CHICAGO	5230
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	INDIANAPOLIS	1800
	INDIANAPOLIS	1802
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	EVANSVILLE	1807
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	MERRILLVILLE	1815
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	WICHITA	1502
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	LOUISVILLE	1101
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	E. LONGMEADOW	517
	BOSTON	5135
	BOSTON	5235
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	PORTLAND	3400
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	ANN ARBOR	2300
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	TROY	2305
	LANSING	2306
	LIVONIA	2312
	UTICA	2314
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	DULUTH	805
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	ROCHESTER	808
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	SAIPAN	5501
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	BILLINGS	3700
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	ASHEVILLE	1608
	GASTONIA	1617
	RALEIGH	5270
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	FARGO	4300
	BISMARCK	4301
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	OMAHA	3800
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	CONCORD	5242
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	VERONA	4110
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	ALBUQUERQUE	1900
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	LAS VEGAS	2201
	RENO	2203
NEW YORK		
	WHITE PLAINS	4202
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	VESTAL	4216
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	AMHERST	4219
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	BROOKLYN	4235
	BROOKLYN	4236
	QUEENS	5206
	QUEENS	5306
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	PITTSBURGH	1700
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	ERIE	1730
	PHILADELPHIA	1731
	YORK	1733
	SCRANTON	5249
	PLYMOUTH	5320
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	HATO REY	5221
RHODE ISLAND		
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	GREENVILLE	2100
	CHARLESTON	2101
	IRMO	2104
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	SIOUX FALL	4400
TENNESSEE		
	MEMPHIS	1000
	KNOXVILLE	1001
	CHATTANOOGA	1010
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	MADISON	1015
	FRANKLIN	1018
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	MIDLAND	319
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	AUSTIN	337
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	LYNCHBURG	4723
	ARLINGTON	9019
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	FOX POINT	4906
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	MORGANTOWN	5237
WYOMING		
	CASPER	5000

Completing the Application

Read the entire handbook carefully before filling out your application. Print in ink or type all information requested on the form and enclose the proper fee. Registration forms that are not signed will not be processed. Forms containing partial information may delay processing.

SECTION 1: PERSONAL DATA

Prefix – Please check the appropriate box (Mr., Mrs. or Ms.).

Name – Print your name on the line provided as shown on your identification, including first, last and middle initial. Be sure to add a suffix, if applicable (e.g., John M. Smith, Jr., or John M. Smith, II). Do not use nicknames or titles.

Social Security Number – Fill in your social security number including spaces or hyphens.

Mother's Maiden Name – Fill in your mother's maiden name.

Request Disability Accommodations – Mark yes if you are requesting a special exam accommodation due to a disability. Attach a letter from an appropriate licensed professional who is familiar with your disability (dated within the past three years), which includes: 1) a clear statement of your disability with past and present symptoms; 2) a summary of the analytical methods which were used to diagnose your disability; 3) a narrative summary to support that diagnosis; 4) relevant medical information (e.g. medications affecting test performance); and 5) his/her suggestion for a reasonable accommodation supported by the diagnosis (i.e. extra time, separate testing room, etc.).

SECTION 2: MAILING INFORMATION

Mailing Address – Print your mailing address (include apartment number, if applicable). Unless otherwise requested in writing, all correspondence regarding your application and certification will be mailed to this address. Certain couriers do not deliver to post office boxes.

Primary Telephone – Fill in the area code and telephone number where you can be reached between 8:00 am and 5:00 pm eastern time, Monday through Saturday.

Secondary Telephone – Fill in the area code and telephone number where you are likely to be reached other than the number listed above.

E-mail Address – Fill in your Internet e-mail address, if applicable.

SECTION 3: OTHER INFORMATION (OPTIONAL)

Information provided in this section is optional. This is the only section that you may choose not to complete.

Sex – Check the appropriate box (male or female).

Ethnicity – Circle only one of the ethnic groups listed on the form. For any group not listed, select "Other".

Date of Birth – Fill in your date of birth. Use two digits each for month, day and year.

SECTION 4: PROFESSIONAL INFORMATION/EDUCATION

Name of Employer – Fill in the name of the company where you are employed.

City, State – Fill in only the city and state of your current employer.

Plastics Process – Circle your plastics process (e.g., film extrusion).

Job Title – Fill in your job title.

Highest Educational Attainment – Circle the level of education that most closely matches your own.

SECTION 5: MEMBERSHIP DATA

Is Your Company an SPI Member? – If your company is an SPI member please check "yes". Sometimes SPI membership is held by the parent company; be sure to verify membership status to receive member price. You can verify your company's membership with your human resources/personnel department.

SECTION 6: FEES

Exam Fee – The exam fee is $235; a special **discount offer of $195** is extended to employees of SPI member companies.

Version of Exam – Check which version of the NCP Certified Operator exam you would like to take.

Payment by check or money order – Enclose your check or money order, in U.S. dollars, payable to The Chauncey Group, International for the total registration fee. Check the appropriate box (certified check, company check or money order). If you are paying for multiple examinees, attach check to all application forms.

Payment by credit card – Check the appropriate box for VISA, MasterCard, American Express. Be sure to include the cardholder's name, account number, expiration date, and signature. By signing in the space provided, you authorize NCP to charge the account.

Please do not mail your application to SPI.

SIGNATURE

Statement of Agreement – Be sure to read the Statement of Agreement then sign and date the application form. Your application can not be processed without your signature. You will be asked to affirm this statement of agreement verbally if you register by phone.

Application

NATIONAL CERTIFICATION IN PLASTICS
NCP CERTIFIED OPERATOR

EXAMINATION APPLICATION

For directions on completing the application see page 18.

NCP CERTIFIED OPERATOR℠
National Certification in Plastics

SECTION 1: PERSONAL DATA

Name Mr. Mrs. Ms. .....
FIRST NAME M.I. LAST NAME SUFFIX

Social Security Number .....

Mother's Maiden Name .....

Request Disability Accommodations Yes ..... No .....
If yes, please see p. 18 for instructions.

SECTION 2: MAILING INFORMATION

Unless otherwise requested in writing by you, all correspondence regarding your application and certification will be sent to you at this address. Certain couriers do not deliver to post office boxes.

(detach here)

This address is: Home ..... Business .....

STREET ADDRESS APT. NO

CITY STATE COUNTRY ZIP CODE

Primary Telephone .....

Secondary Telephone .....

E-mail Address .....

SECTION 3: OTHER INFORMATION (OPTIONAL)

Sex: Male ..... Female .....

Ethnicity (CIRCLE ONE)

American Indian or Native American, Inuit, Aleut
Asian, Asian American, Pacific Islander
African, African American, Black (non-Hispanic)
Hispanic or Hispanic American
Latin American, South American, Central American
Mexican, Mexican American, Chicano
Puerto Rican or Puerto Rican American
Caucasian, White (non-Hispanic)
Multiracial
Other

Date of Birth .....
MONTH DAY YEAR

SECTION 4: JOB INFORMATION/EDUCATION

Name of Employer .....

.....

City State

Plastics Process (CIRCLE ONE)

Bottle Blow Molding	Film Extrusion	Injection Molding	Light Gauge Thermoforming
Large Part Blow Molding	Profile Extrusion	Structural Foam Injection Molding	Heavy Gauge Thermoforming
	Sheet Extrusion	Other	

Job Title .....

Highest Education Attained (CIRCLE ONE)

Grade School	Some High School	High School	
Technical/Vocational School	Some/College Associate's Degree	Bachelor's Degree	Other

SECTION 5: MEMBERSHIP DATA

Is your company an SPI member? Yes ..... No .....

If yes, membership is under the company name of .....

SECTION 6: FEES (U.S. DOLLARS)

The exam fee is $235. The discounted fee for employees of SPI member companies is $195.

Version of Exam you wish to take (CHECK ONLY ONE):

Injection Molding ..... Extrusion ..... Blowmolding ..... Thermoforming .....

Checks should be made payable to The Chauncey Group, International.

Money Order .....

Certified Check-Check No .....

Company Check-Check No .....

VISA ..... MasterCard ..... American Express .....

Cardholder's Name .....

.....

Account Number Expiration Date

Signature .....

I authorize NCP to charge my credit card account.

STATEMENT OF AGREEMENT

I authorize investigation of all statements contained in this form. I understand that misrepresentation or omission of facts is cause for denial or revocation of the right to use the NCP certification mark and that I may not use the mark until I have received official notification of my certification by the NCP Board. To the best of my knowledge, the facts contained herein are accurate and complete. I have read and agree to be bound by the policies and procedures related to certification as described in the NCP Candidate Handbook..

Applicant's Signature .....

Date

Please send the completed application with your payment method (check, money order or credit card information) to **NCP Operations Center, The Chauncey Group, International, 664 Rosedale Rd, Princeton, NJ, 08540.** For questions call NCP Infoline at 1-888-NCP-3637.

OFFICE USE: Candidate ID# .....

CERTIFICATION SUPPORTERS
These companies are recognized as early sponsors of this important industry program having formally declared their tangible support by pledging funds or resources to National Certification in Plastics. Honor Roll Donations based on number of production employees.

HONOR ROLL DONORS
Processing companies, as of March, 1998

Accurate Plastic Molding Inc
American Technical Molding
Anchor Tool and Plastics
Beacon Plastics
Bemis Manufacturing Co
Blue Water Plastics Inc
Colonial Engineering
Colt's Plastics
DeKalb Molded Plastic
Dickten and Masch
Diemolding Corporation
E. L. Stone Co
Egli Machine
Elkay Products
Eptech Corporation
Geberit Manufacturing Inc
Geiger Plastics Inc
Gel Inc
GI Plastek
Hunter Industries
Imperial Custom Molding
Jatco Inc
Jet Plastics
Kamco Plastics Inc
Kinetico Inc
Landis Plastics
Maryland Plastics
Mastermolding Inc
Michigan Plastic Products
Mother Lode Plastics Inc
National Plastics
Nursery Supplies West
Nypro Inc
Onvoy, Divison of Badger
Oregon Precision Industries
Pacific Plastics & Engineering
Pitney Bowes Plastics Components
Plastics Eng. and Dev Inc
Plastics Industries
Polymer Conversions
Precision Southeast
Pro Mold Inc
Progress Plastics Products
RBK Tool and Die
Res-Tech Corp
Salazar Electro
SC Johnson Wax
Smith Marketing Services
SPM - A Dynacast Co
Steinwall Inc
Superfos Packaging Inc
Superior Mold Co
Sutherland, Billie and Ray
Team One Plastics
The Tech Group
Trans Container
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Vision Plastics

LEADERSHIP DONORS
Industry suppliers and injection molding companies who provided start-up funding

Amoco Polymers, Inc
BASF
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Blue Water Plastics, Inc
Cincinnati Milacron
Chroma Corp
Columbia-Greene Community College
D-M-E Co
Diemolding Corporation
Engel Canada
Hoffer Plastics
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Injection Molding Magazine
Michigan Plastic Products
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Plastocon Inc
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SPM - A Dynacast Co
The Conair Group
United Southern Industries
Van Dorn Demag Corp
Vaupell Industrial Plastics

RESOURCE DONORS
In-kind donors (employee work group participation or other service in lieu of financial donation)

A. Routsis Associates Inc
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Blue Water Plastics Inc
Capri Plastics
Captive Plastics
Caro Manufacturing Corp
Cherry Electric Products
Colt's Plastics
Curwood Packaging Corp
DeRoyal Plastics Group
Diemolding Corporation
Eastman Kodak Company
Engineered Plastics
EPC/Loudon
Fabri-Kal Corporation
Goex Corporation
Hanser Gardner Publications
Jatco Inc
Lexington Plastics Inc
Marysville Plastics
Michigan Plastic Products
Non-Metallic Components
Nypro Inc
Paulson Training Programs
Placon Corporation
Plaspec
Plastic Art Products
Polymer Conversions Inc
Polymer Training Resources
Prent Corporation
Ray Products Co Inc
Royal Precision Plastics
Solvay Polymers Inc
Southcorp Packaging USA
Steinwall Inc
Tetra Plastics
The Tech Group
Trans Container Corp
Tredegar Film Products
United Southern Industries
Vinyl Plastics Inc
Witt Plastics Inc

National Certification in Plastics

Getting Certified

THE NCP CERTIFIED OPERATOR EXAM

Follow these steps to apply for the NCP Certified Operator certification exam. Take it and get certified!

STEP 1

If you don't already have one, request a copy of the *National Certification in Plastics Candidate Handbook* by calling the NCP Infoline at 1-888-NCP-3637. Be sure to review it for details on how to apply for the exam, how to prepare for the exam and other relevant information.

STEP 2

COMPLETE THE APPLICATION FOUND IN THE HANDBOOK

- Credit card payments: call 1-888-NCP-3637 to register.
- Payments by company check, cashier's check or money order: complete the application form, attach payment, and mail to the address on the application.

STEP 3

LOOK FOR THE AUTHORIZATION TO TEST (ATT) LETTER IN THE MAIL

- Letter includes: candidate identification number, scheduling information, the process-specific version of the exam you have selected, and an expiration date.
- You must have this letter to schedule your exam.

STEP 4

SCHEDULING YOUR EXAM

- After you have received your ATT letter, call Sylvan Technology Center at 1-800-774-1292 to schedule your NCP Certified Operator exam.
- Be sure to write down the confirmation number, date and location of where you have been scheduled to take the exam. You will not receive a confirmation letter.

STEP 5

TAKING THE EXAM

- Arrive at the test center 30 minutes before testing begins.
- A 15 minute computer tutorial is given prior to the exam to allow you to become familiar with the computer.
- A maximum of 2½ hours is allotted to complete the 150 question exam.
- After the exam, you will be asked to complete a 15 minute exit survey.

STEP 6

GETTING EXAM RESULTS

- The administrator will give you an unofficial report indicating whether or not you have achieved certification.
- If you did not achieve certification, you will receive a "feedback" report indicating what areas you need to work on.
- You must wait six months before retaking the exam.
- Use that time to work on weak areas identified in the feedback report.
- Call NCP Infoline at 1-800-NCP-3637 to re-register (payment required).

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STEP 7

GETTING CERTIFIED

- Congratulations! You will soon receive your NCP Certified Operator packet (certificate, complimentary decal, wallet identification card, etc.).

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