

# Questions and Answers

Levels I, II, and III

## Liquid Penetrant Testing Method

Supplement to  
*Recommended Practice*  
No. SNT-TC-1A  
Book D - Revised



pg-1-43

The American Society  
for Nondestructive Testing, Inc.

Compiled by the MT/PT Committee of the T&E Council Methods Division of The American Society for Nondestructive Testing.

This publication contains suggested questions and answers in the Liquid Penetrant Testing method for use in conjunction with *Recommended Practice No. SNT-TC-1A*, available from ASNT.

Published by  
The American Society for Nondestructive Testing, Inc.  
1711 Arlingate Lane  
PO Box 28518  
Columbus, OH 43228-0518

Copyright © 2002, 2003 by The American Society for Nondestructive Testing, Inc. ASNT is not responsible for the authenticity or accuracy of information herein. Published opinions and statements do not necessarily reflect the opinion of ASNT. Products or services that are advertised or mentioned do not carry the endorsement or recommendation of ASNT.

IRRSP, *Level III Study Guide*, *Materials Evaluation*, *NDT Handbook*, *Nondestructive Testing Handbook*, *The NDT Technician* and [www.asnt.org](http://www.asnt.org) are trademarks of The American Society for Nondestructive Testing, Inc. ACCP, ASNT, *Research in Nondestructive Evaluation* and *RNDE* are registered trademarks of The American Society for Nondestructive Testing, Inc.

ASNT exists to create a safer world by promoting the profession and technologies of nondestructive testing.

ISBN 1-57117-100-2

Printed in the United States of America

first printing 1996  
second printing with revisions 02/03

# Table of Contents

|                      |    |
|----------------------|----|
| References           | v  |
| Reference Usage List | vi |
| Level I              |    |
| Questions            | 1  |
| Answers              | 15 |
| Level II             |    |
| Questions            | 17 |
| Answers              | 27 |
| Level III            |    |
| Questions            | 29 |
| Answers              | 37 |



# Recommended Training References

## Liquid Penetrant Testing Method

The following references were used in formulating the questions contained in this book.

- A.\* McMaster, R.C., ed. *Nondestructive Testing Handbook*, first edition, Columbus, OH, American Society for Nondestructive Testing, Inc. 1959.
- B.\* Tracy, Noel A., technical editor, Patrick O. Moore, editor, *Nondestructive Testing Handbook*, third edition: Volume 2, *Liquid Penetrant Testing*, Columbus, OH, American Society for Nondestructive Testing, Inc., 1999.
- C.\* *Liquid Penetrant Testing: Classroom Training Handbook (CT-6-2)* and *Liquid Penetrant Testing Programmed Instruction Handbook (PI-4-2)*, San Diego, CA, General Dynamics/Convair Division. 1978. (Now published by The American Society for Nondestructive Testing, Inc.)
- D.\* *Metals Handbook*, eighth edition, *Nondestructive Inspection and Quality Control*, Volume 11, Metals Park, OH, American Society for Metals. 1976.

\* Available from The American Society for Nondestructive Testing, Inc.

Each question found in this book is followed by letter(s) and page number(s) indicating the specific recommended reference where the answer may be found. For example:

28. The term used to define the tendency of certain liquids to penetrate into small openings such as cracks or fissures is:

  - a. saturation
  - b. capillary action
  - c. blotting
  - d. wetting agent

**D.21**

In this example, the letter "D" refers to Reference D in the list above and "21" is the specific page in Reference D where the answer to the question is located.

# Reference Usage List

Reference A: Total = 83

Level I (70)

Level II (0)

Level III (13)

Reference B: Total = 84

Level I (19)

Level II (27)

Level III (38)

Reference C: Total = 9

Level I (4)

Level II (0)

Level III (5)

Reference D: Total = 69

Level I (22)

Level II (46)

Level III (1)

## Level I Questions

# Liquid Penetrant Testing Method

1. Which one of the following conditions will affect the rate and the extent a liquid penetrant will enter cracks, fissures and other small openings?
  - a. the hardness of the specimen being tested
  - b. the surface condition of the specimen being tested
  - c. the color of the penetrant
  - d. the conductivity of the specimen being tested

**A.6-6**
2. Which of the following is a commonly used classification for penetrant?
  - a. postemulsifiable penetrant
  - b. nonferrous penetrant
  - c. chemical etch penetrant
  - d. nonaqueous penetrant

**A.6-2**
3. A generally accepted method for removing excess nonwater washable penetrant is:
  - a. repeatedly dipping the test specimen in a cleaner
  - b. soaking the test specimen in hot detergent water
  - c. blowing the excess penetrant off the surface of the part with compressed air
  - d. wiping and cautiously cleaning the test specimen with a cleaner-dampened cloth

**A.6-19**
4. All of the following parts can be tested by the liquid penetrant method except:
  - a. an iron casting
  - b. an aluminum forging
  - c. a part made from a porous plastic material
  - d. a part made from a nonporous material

**A.6-1**
5. Which of the following discontinuities can be found by the penetrant test method?
  - a. a surface crack
  - b. a subsurface crack
  - c. an internal inclusion
  - d. none of the above

**A.6-1**
6. Which of the following is generally the more acceptable method for cleaning parts prior to penetrant testing?
  - a. sand blasting
  - b. wire brushing
  - c. grinding
  - d. vapor degreasing

**A.6-6**
7. All of the following methods are commonly used to clean parts prior to penetrant testing except:
  - a. vapor degreasing
  - b. liquid solvent
  - c. power wire brushing
  - d. alkaline cleaner

**A.6-6**
8. Cutting oils may be effectively removed from parts before penetrant testing by:
  - a. preheating
  - b. vapor degreasing
  - c. washing with water
  - d. all of the above

**B.169**
9. The most common type of contaminant in fluorescent penetrant fluid is:
  - a. metal filings
  - b. oil
  - c. detergents (from cleaning)
  - d. water

**A.7-33**

## ***Liquid Penetrant Testing Method, Level I***

10. Ultraviolet light, with a proper functioning filter in place, used for fluorescent penetrant inspection can cause permanent damage to:
- a. human tissues
  - b. human eyes
  - c. human blood cells
  - d. none of the above
- A.7-35**
11. All of the following basic inspection principles apply to the visible penetrant methods except:
- a. the penetrant must enter the discontinuity in order to form an indication
  - b. indications glow when illuminated with an ultraviolet light
  - c. a longer penetration time is required for smaller discontinuities
  - d. if the penetrant is washed out of the discontinuity, an indication will not be formed by that discontinuity
- A.6-5**
12. Subsurface discontinuities can be best detected by:
- a. the postemulsification penetrant method
  - b. the visible dye penetrant method
  - c. the fluorescent, water washable penetrant method
  - d. none of the above
- A.6-1**
13. Water washable penetrants may be applied by:
- a. brushing
  - b. spraying
  - c. dipping
  - d. all of the above
- D.32**
14. The first step in conducting a liquid penetrant test on a surface that has been painted is to:
- a. carefully apply the penetrant over the surface
  - b. completely remove the paint
  - c. thoroughly wash the surface with a detergent
  - d. wire brush the surface to roughen the smooth surface coating of paint
- A.6-6**
15. When using a postemulsification penetrant, it is necessary to apply the emulsifier:
- a. before applying the penetrant
  - b. after the water wash operation
  - c. after the dwell time has elapsed
  - d. after the development time has elapsed
- A.6-9**
16. When conducting a water washable liquid penetrant test, the wet developer is applied:
- a. immediately after the penetrant has been applied
  - b. immediately before the penetrant is applied
  - c. after removal of the penetrant
  - d. after removal of the emulsifier
- D.33**
17. The term used to describe the action of a particular developer in soaking up the penetrant in a discontinuity, so as to cause the maximum bleedout of the liquid penetrant for increased contrast and sensitivity, is known as:
- a. blotting
  - b. capillary action
  - c. concentration
  - d. attraction
- D.25**
18. Using an ultraviolet light lamp with a cracked filter or without the filter in place can cause damage to human eyes because the lamp emits:
- a. black light
  - b. ultraviolet light
  - c. infrared light
  - d. none of the above
- A.7-17**
19. The term used to define the period of time in which the test part is covered with penetrant is:
- a. waiting time
  - b. soak time (drain time)
  - c. penetration time (dwell time)
  - d. bleed in time
- A.6-3**

## *Liquid Penetrant Testing Method, Level I*

20. Usually, the most desirable method of removing excess water washable penetrant after the dwell time is by using:

- a. a low pressure coarse water spray
- b. water and brush
- c. a solid stream of water
- d. water and clean rags

**A.6-7**

21. When conducting a liquid penetrant test using a postemulsifiable visible dye penetrant, the generally accepted method for applying the wet developer is by:

- a. brushing
- b. swabbing
- c. dipping
- d. spraying

**A.6-17**

22. Which of the following characteristics does not apply to liquid penetrant testing?

- a. this method can accurately measure the depth of a crack or discontinuity
- b. this method can be used for on-site testing of large parts
- c. this method can be used to find shallow surface discontinuities
- d. this method can be made more or less sensitive by using different penetrant materials

**A.8-2**

23. Which of the following discontinuities is most likely to be missed due to improper rinse techniques?

- a. a forging lap
- b. deep pitting
- c. shallow and broad discontinuities
- d. the rinse technique will not affect the detection of discontinuities

**A.6-5**

24. When conducting a fluorescent penetrant test, a commonly used technique for assuring that the excess penetrant has been removed prior to the application of a developer is to:

- a. blow compressed air over the surface
- b. chemically etch the surface
- c. blot the surface with absorbent paper
- d. scan the surface with an ultraviolet light

**A.6-7**

25. Which of the following surface conditions could have a detrimental effect on a liquid penetrant test?

- a. a wet surface
- b. a rough weld
- c. an oily surface
- d. all of the above

**A.6-6**

26. Liquid penetrant testing is capable of detecting:

- a. subsurface intergranular stress corrosion cracking discontinuities
- b. discontinuities open to the surface
- c. subsurface discontinuities
- d. lack of fusion (subsurface)

**D.20**

27. Ultraviolet light equipment is required when penetrant testing by:

- a. the fluorescent penetrant method
- b. the visible dye penetrant method
- c. the nonfluorescent penetrant method
- d. all of the above

**A.6-24**

28. The term used to define the tendency of certain liquids to penetrate into small openings such as cracks or fissures is:

- a. saturation
- b. capillary action
- c. blotting
- d. wetting agent

**D.21**

29. Excess penetrant (all penetrant except that which is in discontinuities) is removed from the specimen:

- a. after the required penetrant dwell time has elapsed
- b. before the application of an emulsifier if a postemulsifier penetrant is used
- c. by means of a steam cleaner
- d. only when water washable penetrants are used

**D.21**

## ***Liquid Penetrant Testing Method, Level I***

30. When using a postemulsifiable penetrant, the emulsifier time should be:
- a. as long as the penetrant dwell time
  - b. half the penetrant dwell time
  - c. the same as the developer time
  - d. only as long as necessary to remove the interfering background
- D.35**
31. When an inspector is working in a darkened area, he/she should become adjusted to the dark before inspecting parts. The generally accepted minimum time period for becoming accustomed to the dark is:
- a. 1 to 5 min
  - b. 5 to 10 min
  - c. 10 to 15 min
  - d. no waiting period is necessary
- B.114**
32. When applying penetrant by dipping, heating the penetrant prior to dipping:
- a. will not increase the sensitivity of the test
  - b. will not increase the capillary action of the penetrant
  - c. will increase the stability of the penetrant
  - d. is not generally recommended
- A.7-34**
33. Liquid penetrant inspection cannot find:
- a. surface porosity
  - b. surface cracks
  - c. an internal cavity
  - d. a surface forging lap
- A.6-1**
34. All of the following materials can be tested by the usual liquid penetrant tests except:
- a. unglazed porous ceramic
  - b. titanium
  - c. high alloy steel
  - d. cast iron
- A.6-1**
35. Liquid penetrant testing can be used to detect:
- a. discontinuities 1.6 mm (0.06 in.) below the surface
  - b. internal discontinuities
  - c. discontinuities open to the surface
  - d. all discontinuities
- A.6-1**
36. Which of the following are commonly accepted methods for applying penetrant?
- a. dipping the part in penetrant (dipping)
  - b. pouring the penetrant over the test specimen (flowing)
  - c. spraying the penetrant on the test specimen (spraying)
  - d. all of the above
- D.32**
37. A solvent used to clean the surface of a test specimen must possess all of the following characteristics except that the:
- a. cleaner must be capable of dissolving oils and greases commonly found on the surface
  - b. cleaner must not be flammable
  - c. cleaner must be free of excessive contaminants
  - d. cleaner must leave a minimal residue on the surface
- B.171-172**
38. Which of the statements below best states the danger of sandblasting (without subsequent chemical etching) for cleaning surfaces to be penetrant tested?
- a. the discontinuities may be peened over and closed
  - b. oil contaminants might be sealed in the discontinuities
  - c. the sand used in the sandblasting operation may be forced into the discontinuity
  - d. the sandblasting operation may introduce discontinuities
- A.8-5**

## ***Liquid Penetrant Testing Method, Level I***

39. The penetrant applied to the surface of a test specimen:
- a. seeps into discontinuities
  - b. is absorbed by discontinuities
  - c. is drawn into discontinuities by capillary action
  - d. is drawn into discontinuities by gravity
- D.21**
40. Which of the following statements concerning liquid penetrant testing is correct?
- a. fluorescent penetrants will produce red against white discontinuity indications
  - b. nonfluorescent penetrants require the use of ultraviolet lights
  - c. fluorescent indications will be seen when exposed to ultraviolet light
  - d. nonfluorescent discontinuities glow in the dark for easy viewing and interpretation
- A.6-2**
41. When removing excess penetrant from the surface of a test specimen:
- a. the penetrant removal operation must not remove the penetrant from discontinuities
  - b. sufficient excess penetrant must be removed to eliminate an interfering background
  - c. the use of a solvent-dampened cloth is a common method of penetrant removal
  - d. all of the above
- D.23-24**
42. The most widely accepted method for removing excessive water washable penetrant from the surface of a test specimen is by:
- a. using a wet rag
  - b. using a water spray rinse
  - c. washing the part directly under water running from a tap
  - d. immersing the part in water
- A.6-7**
43. The final inspection of a test specimen for discontinuities should take place:
- a. immediately after the developer has been applied
  - b. any time after the developer has been applied
  - c. after the developer has been on the test specimen for the proper development time
  - d. immediately after the rinse operation
- D.33**
44. Which of the following is an advantage of visible dye penetrants over fluorescent penetrants?
- a. visible dye penetrants do not require ultraviolet light
  - b. visible dye penetrants are more sensitive than fluorescent penetrants
  - c. visible dye penetrants are superior in penetrating characteristics
  - d. visible dye penetrants are not toxic while fluorescent penetrants are toxic
- D.31**
45. The terms *dry*, *aqueous wet* and *nonaqueous wet* are used to describe three different types of:
- a. emulsifiers
  - b. cleaners
  - c. developers
  - d. penetrants
- D.26**
46. Which of the following is not a generally accepted method for applying penetrants?
- a. rubbing the penetrant over the surface
  - b. brushing the penetrant on the part
  - c. spraying the penetrant on the part
  - d. dipping the part in the penetrant
- A.6-2, 7, 13, 19**
47. Which of the following is the most commonly used method for removing nonwater washable visible dye penetrant from the surface of a test specimen?
- a. dipping in a solvent
  - b. spraying
  - c. hand wiping
  - d. blowing
- A.6-19**
48. Which of the following is an acceptable method for applying wet developers?
- a. application with a soft brush
  - b. application with a hand powder bulb
  - c. rubbing with a saturated cloth
  - d. spraying or dipping
- A.6-17, 15**

## ***Liquid Penetrant Testing Method, Level I***

49. When using solvent removable penetrants, the excess penetrant may be removed by:
- dipping the part in solvent
  - spraying the part with water and a solvent
  - rubbing the part with a wet rag
  - wiping the part with a rag or cloth that has been lightly moistened with solvent
- A.6-19**
50. While conducting a penetrant test, all of the following health precautions should be applied except:
- keeping the work area clean
  - washing any penetrant from skin with soap and water as soon as possible
  - keeping penetrant off clothes
  - washing any excess penetrant from skin using gasoline
- A.7-35**
51. Which of the following surface contaminants cannot be removed by cleaning parts in a vapor degreaser?
- grease
  - rust
  - heavy oil
  - soluble oil
- A.6-6**
52. Before conducting a liquid penetrant test, it is important to ensure that the surface of the part is free of:
- oil or grease
  - acids or chromates
  - traces of water
  - all of the above
- A.6-6**
53. When performing a penetrant test using a postemulsification penetrant, which of the following is the most critical with respect to proper timing?
- dwell time
  - developing time
  - emulsification time
  - drying time
- A.6-12**
54. Which of the following is the most likely result of an excessive emulsification time when penetrant testing with postemulsification penetrants?
- a large number of nonrelevant indications could appear on the part
  - shallow discontinuity indications could be lost
  - excess penetrant could remain after the wash operation
  - the emulsifier could harden, preventing the developer from blotting the penetrant in discontinuities
- A.8-8**
55. In penetrant testing, developers should be able to perform all of the following functions except:
- blotting penetrant from discontinuities
  - aiding in providing an image of a discontinuity
  - adding fluorescence to penetrants
  - helping control bleedout
- A.6-5**
56. Which of the following is the primary limitation of liquid penetrant testing?
- penetrant testing cannot be used on ferromagnetic material
  - penetrant testing cannot locate shallow surface discontinuities
  - penetrant testing cannot be used on nonmetallic surfaces
  - penetrant testing cannot locate subsurface discontinuities
- B.8**
57. In penetrant testing, the time period from developer application to inspection is often referred to as the:
- emulsification time
  - development time
  - dwell time
  - none of the above
- A.6-15**

## *Liquid Penetrant Testing Method, Level I*

58. Liquid penetrant testing is a nondestructive test that can be used for:
- a. locating and evaluating all types of discontinuities in a test specimen
  - b. locating and determining the length, width, and depth of discontinuities in a test specimen
  - c. determining the tensile strength of a test specimen
  - d. locating discontinuities open to the surface
- A.6-1**
59. When conducting a penetrant test using fluorescent penetrant, ultraviolet light equipment is required to:
- a. cause the penetrant to fluoresce
  - b. aid the normal capillary action characteristics of a penetrant
  - c. neutralize excess penetrant on the surface
  - d. decrease the surface tension of the part
- A.6-2**
60. The method used to remove excess visible dye penetrant from a test specimen is primarily determined by:
- a. the surface roughness of the specimen
  - b. the type of material being tested
  - c. the length of penetration time
  - d. all of the above
- A.6-19**
61. Which of the following is a type of developer used in penetrant inspection?
- a. dry
  - b. aqueous particulate
  - c. nonaqueous particulate
  - d. water soluble
  - e. all of the above
- D.26**
62. When penetrant testing parts, the temperature of the parts should be near room temperature. If the part is at a low temperature when tested, the:
- a. penetrant may become viscous
  - b. penetrant may evaporate very rapidly
  - c. color intensity of the penetrant will decrease
  - d. penetrant will tend to adhere to the surface of the part
- A.8-7**
63. If a part to be penetrant tested is hot, the penetrant:
- a. may become viscous
  - b. may reduce sensitivity to small defects
  - c. may lose some of its color brilliance
  - d. will show small discontinuities better
- A.8-7**
64. Penetrants may be classified or subdivided by the method used to remove excess penetrant. Which of the following is a proper classification in accordance with this statement?
- a. nonsolvent removable
  - b. vapor degreased
  - c. brush removable
  - d. water washable
- A.6-2**
65. The problem with retesting a test specimen with fluorescent penetrants that has been previously tested using visible dye liquid penetrant is that:
- a. the penetrant may form beads on the surface
  - b. the penetrant left in discontinuities may be misleading when the specimen is retested
  - c. the penetrant will lose a great deal of its color brilliance
  - d. residue can diminish or destroy fluorescent indication brightness
- B.165**
66. Which of the following conditions will decrease the life of an ultraviolet light bulb?
- a. line voltage fluctuations
  - b. dust on the face of the bulb
  - c. changes in room temperature
  - d. all of the above
- A.7-16**
67. Which of the following statements does not apply to developers used during penetrant testing?
- a. developers are normally highly fluorescent
  - b. developers often furnish a contrasting background during inspection
  - c. developers absorb or blot the penetrant that remains in discontinuities after the rinse operation has been completed
  - d. developers may be either wet or dry
- A.6-2**

## ***Liquid Penetrant Testing Method, Level I***

68. Which of the following statements is true?
- a. sandblasting is a generally accepted method for cleaning a surface that is to be penetrant tested
  - b. parts should be heated prior to the application of a penetrant
  - c. if the dryer is too high, the heat may degrade the effectiveness of water washable penetrants
  - d. development time should be at least twice the penetration time
- B.42**
69. When using a wet developer:
- a. a thick layer of developer is better than a thin layer for showing very fine cracks
  - b. compressed air should be used to remove excess developer
  - c. a black developer will show better contrast than a white developer
  - d. a thin layer of developer is better than a thick layer for showing very fine cracks
- A.8-8**
70. Which of the following statements is false?
- a. sandblasting is not a recommended method for preparing for a penetrant test
  - b. it is not necessary to remove a film of oil from a part prior to penetrant testing because the penetrant is basically an oil
  - c. vapor degreasing is a very good method for removing oil from the surface of the part to be penetrant tested
  - d. a voltage regulator should be used with an ultraviolet light if the line voltage fluctuates
- A.6-6**
71. A red against white background discontinuity image is most likely to be seen when:
- a. dry developers are used
  - b. visible dye penetrants are used
  - c. fluorescent postemulsification penetrants are used
  - d. wet developers are used
- A.6-2**
72. Which of the following can be removed from the surface of a test specimen by vapor degreasing?
- a. oil
  - b. paint
  - c. phosphate coatings
  - d. oxides
- A.6-6**
73. The purpose for using a developer on a test specimen is to:
- a. promote penetration of the penetrant
  - b. absorb emulsifier residues
  - c. provide a blotting action to draw penetrant from discontinuities and to provide a contrasting background
  - d. help to dry the surface for better observation
- B.38**
74. Which one of the following statements is an incorrect use of crack panels (blocks)?
- a. to establish a standard size of crack that can be reproduced as needed
  - b. to determine the relative sensitivities of two different penetrants
  - c. to determine if a penetrant has lost or has reduced brilliance on fluorescent penetrants because of contamination
  - d. to determine the degree or method of cleaning necessary to remove penetrant on the surface without removing it from the cracks
- A.7-24**
75. Which of the following is generally accepted as the most important precaution when using water washable penetrants?
- a. be sure that the part is washed thoroughly during the rinse operation
  - b. be sure that the recommended dwell time is not exceeded
  - c. avoid overrinsing the part
  - d. avoid overapplication of emulsifier
- D.33**

## *Liquid Penetrant Testing Method, Level I*

76. Which of the following is generally accepted as the most important precaution when using solvent removable penetrants?
- a. do not apply an excessive amount of emulsifier
  - b. do not apply an excessive amount of solvent
  - c. do not use an insufficient rinse pressure
  - d. be sure to use an ultraviolet light to determine if the excess penetrant has been rinsed away
- D.25**
77. Insufficient rinsing of fluorescent penetrants will result in:
- a. subsequent corrosion of the surface
  - b. difficulty in the application of developer
  - c. excessive bleedout
  - d. excessive background fluorescence
- D.32**
78. Which of the following safety precautions does not apply when handling penetrant materials?
- a. prolonged contact of penetrant with skin should be avoided because the oil or solvent base may cause skin irritation
  - b. excessive amounts of developer powders should not be inhaled
  - c. air line respirators and complete protective clothing must be worn at all times
  - d. because the solvents used with the visible penetrant process are flammable, this material should be kept away from open flames
- D.26**
79. How long must a part be kept wet with penetrant before the removal process is started?
- a. it varies depending on the type of penetrant used, the type of material to be tested, the sensitivity desired, and the type of discontinuities to be detected
  - b. since the penetrant will penetrate a discontinuity of any size in a matter of seconds, the removal process should start as soon as possible after the penetrant has been applied
  - c. 3 min
  - d. 10 min
- D.32**
80. Which of the following factors will affect resolution of penetrant indications?
- a. the sensitivity of the penetrant materials used
  - b. the surface condition of the part
  - c. the temperature of the part and or/penetrant
  - d. all of the above
- A.8-5, 6, 7**
81. A serious loss of water in a wet developer mix or an excessive overconcentration of developer powder can cause:
- a. a loss of fluorescence during the inspection operation
  - b. nonrelevant indications
  - c. cracking of the developer coating during the drying operation
  - d. none of the above
- B.115**
82. What could happen if a person looks directly into an ultraviolet light?
- a. it will cause permanent damage to the eyes
  - b. it will possibly cloud the vision of the person looking into the light for a short period of time
  - c. it will cause temporary total blindness
  - d. none of the above
- A.7-17**
83. When using dry developer, the drying operation is performed:
- a. immediately after removal of excess penetrant
  - b. before the inspection step
  - c. thoroughly
  - d. all of the above
- B.42**
84. The failure to completely remove acid materials from a part before fluorescent penetrant is applied will result in:
- a. contamination of the penetrant materials
  - b. a need to double the penetrating time
  - c. a permanent stain on the part
  - d. all of the above
- B.168**