

Required Procedures for Respiratory Protection Program

Chapter 296-842 WAC

Rule

Table 17
Controlled Negative Pressure (CNP) Test Procedure

Important:

- This is a quantitative fit-test (QNFT) procedure.
- This method determines respirator fit by measuring how much the facepiece leaks when it is subject to a slight negative pressure **after** various premeasurement activities.
- Instruments used must have a nonadjustable test pressure of 15.0 mm water pressure.
- Measurements occur while employees remain still **and** hold their breath for 10 seconds.
- No test aerosols are used. Respirator cartridges are not needed for this test. Sampling manifolds that replace the filter cartridges are available from the instrument manufacturer, and allow fit testing of an employee's own respirator.

Test Preparations

1. Make sure the individual conducting the fit test is thoroughly trained to perform this test.
 2. Obtain a CNP test instrument such as a FitTester 3000 •™. Make su
 - Defaults are set at:
 - 15mm (-0.58 inches) of water test pressure
and
 - A modeled inspiratory flow rate of 53.8 liters per minute
 - It has an effective audio warning device that signals when employees fail to hold their breath

Note:

 - You are not required to obtain test recording and printing equipment such as computers **or** printers. Hand recording results is acceptable.
 - To see default settings, check the instrument's "REDON protocol" to see default settings.
 3. Obtain facepiece adapters appropriate for each test respirator.
- Note:**
- Adapters are either a one-piece (for SCBA facepieces), **or** 2-piece (for dual cartridge facepieces) device providing a manifold and breathing valve system. For positive pressure respirators, you will need to obtain an additional fitting, available from the respirator manufacturer, to convert the facepiece to negative pressure.
 - To obtain adapters, contact the CNP instrument's distributor, Occupational Health Dynamics, **or** the respirator manufacturer.



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Table 17 (Continued) Controlled Negative Pressure (CNP) Test Procedure
Test
<p>Important:</p> <p>The respirator must not be adjusted once the fit-test exercises begin. Any adjustment voids the test and the test must be repeated.</p> <p>After the test, you must ask the employee about the comfort of the respirator and if the respirator has become unacceptable, another size or model must be chosen and tested.</p> <ol style="list-style-type: none"> 4. Explain the test procedure to the employee. 5. Train the employee on how to hold a breath for at least 10 seconds. 6. Prepare the respirator for the fit test as follows: <ul style="list-style-type: none"> • Remove or prop open the inhalation valves. If a breathing tube is present, disconnect it. • Replace cartridges, if present, with the manifold and breathing valve adapter <ul style="list-style-type: none"> - For positive pressure facepieces, mount the manufacturer's additional fitting followed by the manifold-breathing valve attachment. • Connect the respirator to the CNP device according to the CNP instrument manufacturer's directions. 7. Have the employee put on, adjust, and seal check the respirator without assistance. 8. Turn on the instrument and have the employee stand and perform the fit test exercises in Table 19. 9. Once test exercises are completed ask the employee about facepiece comfort. If the employee states the respirator is unacceptable, repeat the fit test using another model. 10. Determine the overall fit factor for each employee by calculating the harmonic mean of the fit-testing as follows: <ul style="list-style-type: none"> • Overall fit factor = $\frac{n}{1/ffE1 + 1/ffE2 + 1/ffE3 + \dots + 1/ffEn}$ • The test is passed if the overall fit factor obtained is at least 100 for a half facepiece, or at least 500 for a full facepiece. • The test has failed if the fit factor is less than 100 for a half facepiece; 500 for a full facepiece. <ul style="list-style-type: none"> - If the test has failed you must have the employee select another respirator model or size following the steps in Table 11 and repeat this procedure, starting at Step 6.

