



## PROTECTING WORKERS FROM AIRBORNE HAZARDS

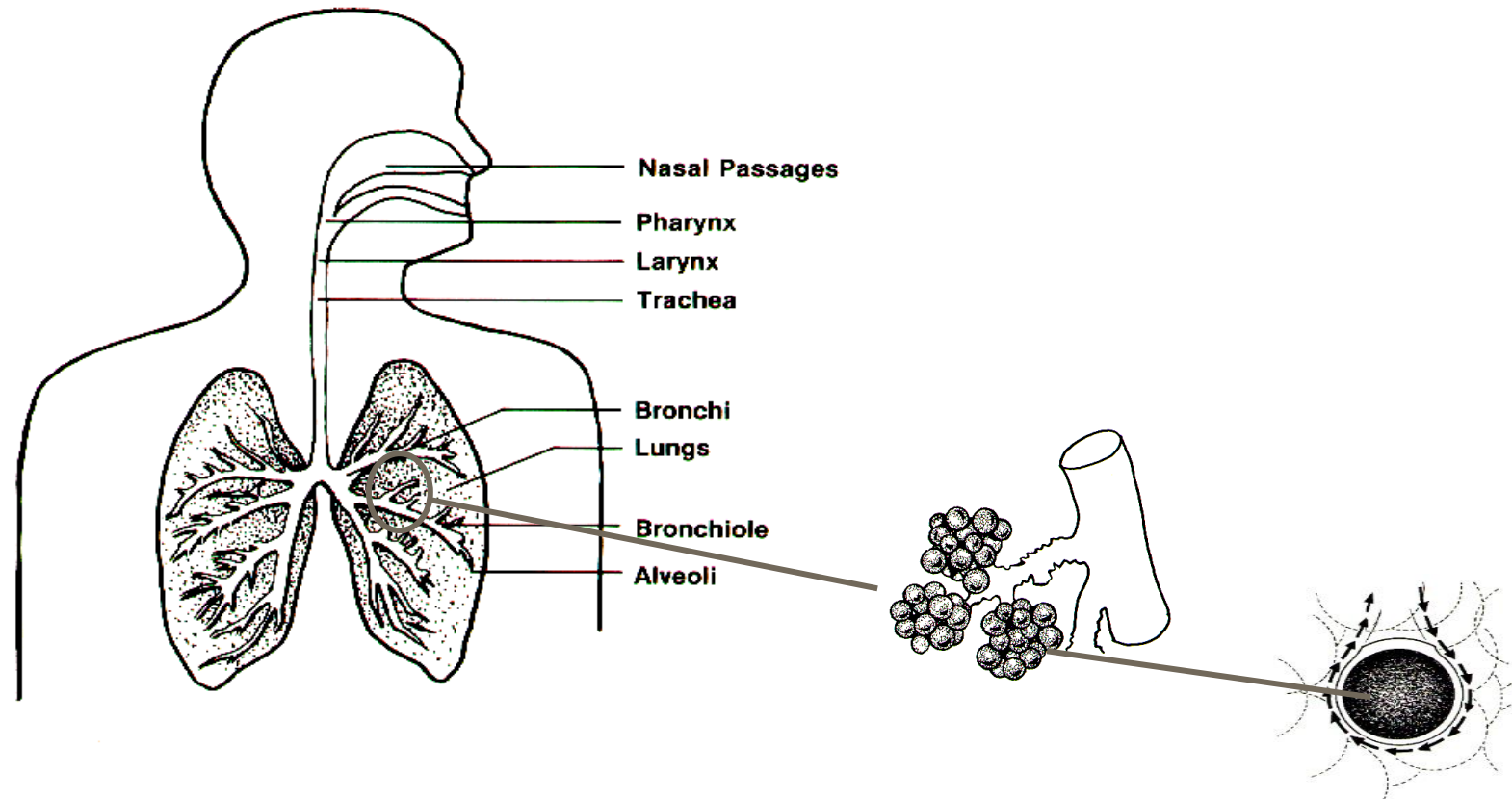
### Respirator Fit Test and Fit Check: 101

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# Why use respiratory protection? Human Respiratory System



## We need to protect our lungs

- ★ **Large quantities of dust (particles, smoke, fumes, aerosols, mist)**
  - ★ Overwhelm body's defences
- ★ **Toxic or poisonous dust particles, gases, vapors**
  - ★ Damage lungs; other parts of the body
- ★ **Very small airborne dust particles, gases, vapors**
  - ★ Reach the deep lungs WHERE WE BREATHE



# I feel OK Now

- Delayed effects



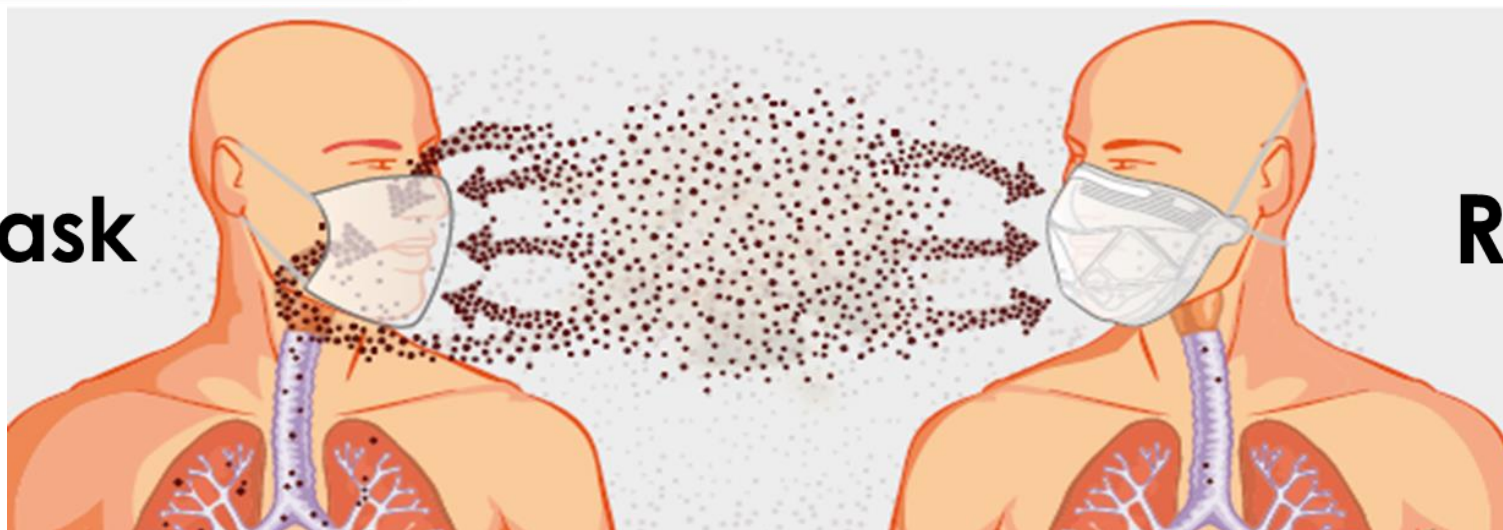
## Certified Particulate Respirator

- ★ **The most effective respiratory protection**
  - ★ a well-fitting certified respirator (NIOSH is typical)
- ★ **N95, FFP2 or FFP3 or DS2 or CA-N95 or CA-N99**
- ★ **Certification on the respirator**
- ★ **Highly efficient at filtering particles**
- ★ **Designed to fit adult faces**
  
- ★ **This presentation addresses airborne particulate matter (and not gases or vapors)**

# What is **NOT** a Respirator



Face mask



Respirator



## What is a Face Mask or Surgical Mask?

- ✦ Prevents droplets from the wearer spreading to others
- ✦ No electrostatically charged filter material
- ✦ Not designed to seal tightly - air leakage around the edges is likely



## How does a respirator work?

Removes particles from the air:

- Form a good seal between face and respirator
- Force the air to pass through the filter material
- Filter material “captures” the dust
- Gaps between face and respirator allow particulate matter to be inhaled





## Fit Test Factors Affecting Fit

- ✿ Facial Hair: stubble, beards, moustache, bushy sideburns or any hair around the seal area (need to be clean shaven)
- ✿ Glasses or goggles
- ✿ Change in facial structure, dentures, weight loss or gain

# Facial Hairstyles and Filtering Respirators

RESPIRATOR SEALING SURFACE

Hairstyle	Compatibility	Notes
CLEAN SHAVEN	✓	
STUBBLE	✗	
LONG STUBBLE	✗	
FULL BEARD	✗	
FRENCH FORK	✗	
DUCKTAIL	✗	
VERDI	✗	
GARIBALDI	✗	
BANDHOLZ	✗	
SOUL PATCH	✓	
GOATEE	✗	(Careful! Chin hair may easily cross the seal)
CHIN CURTAIN	✗	
EXTENDED GOATEE	✗	
CIRCLE BEARD	✗	
ANCHOR	✗	(Careful! Chin hair may easily cross the seal)
BALBO	✗	
VAN DYKE	✗	
IMPERIAL	✗	
SIDE WHISKERS	✓	
MUTTON CHOPS	✗	
HULIHEE	✗	
HORSESHOE	✓	(Careful not to cross the seal)
ZAPPA	✓	
WALRUS	✓	
PAINTER'S BRUSH	✓	
CHEVRON	✓	
HANDLEBAR	✓	
PENCIL	✓	
LAMP SHADE	✓	
ZORRO	✓	
VILLAIN	✗	(Careful not to cross the seal)
WET NOODLE	✗	
ENGLISH	✗	
DALI	✗	

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# SUMMARY

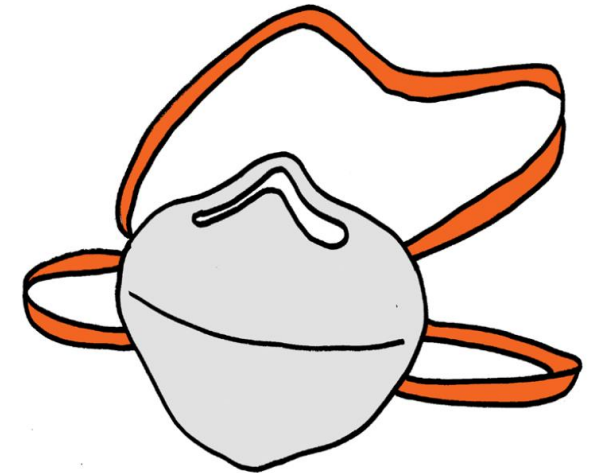
- Breathing particles can **HARM** your health
- A certified respirator will filter out particles
- **Check and fit** your respirator
- When dirty, damaged or breathing becomes difficult - Replace

***NO LEAKS - YOUR HEALTH DEPENDS ON IT!***

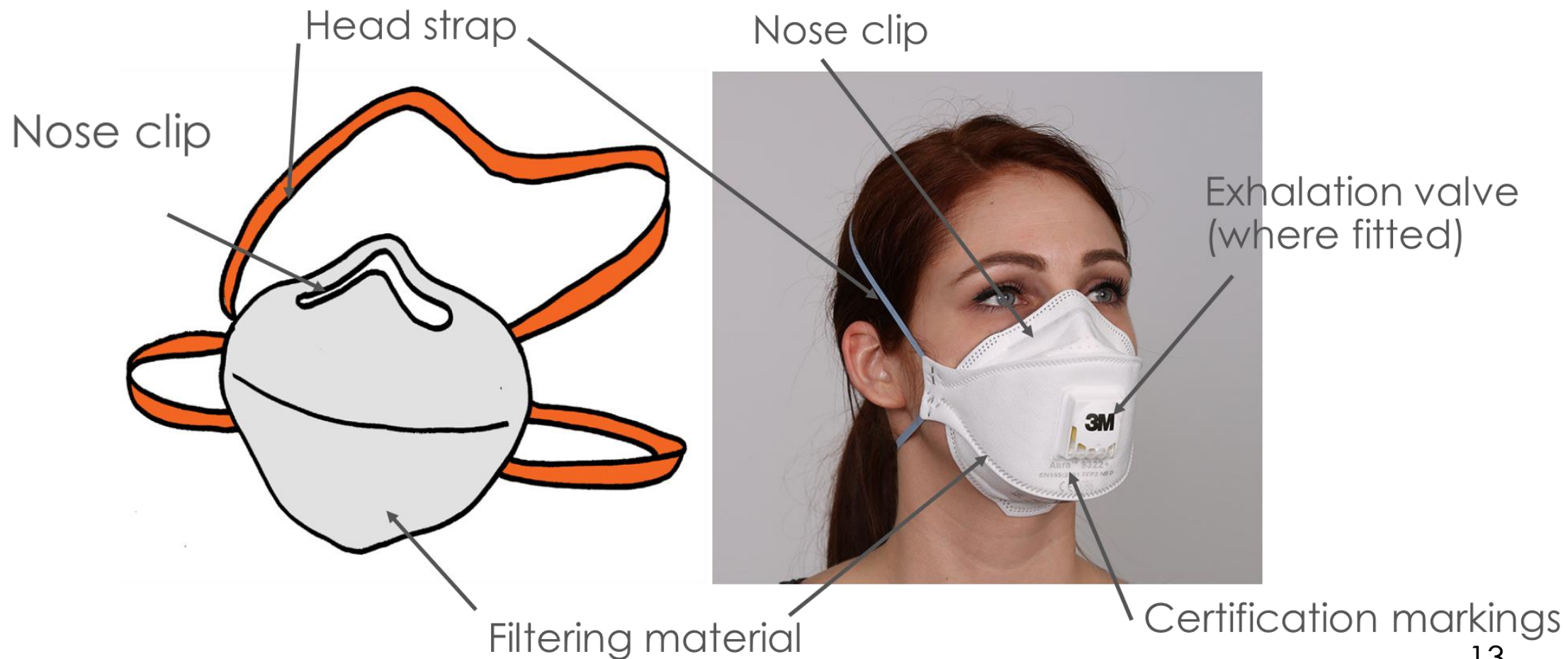


# HOW to use your respirator

KNOW your respirator



## COMPONENTS of your respirator

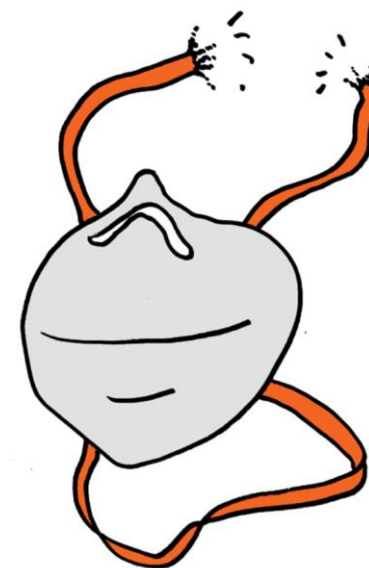


## CHECK before use



## Don't use if:

- Damaged
- Dirty
- Straps intact
- Hard to breathe through





## WHEN to change your mask



**Wrong!**



## Respirator Fit Test

# Qualitative Vs. Quantitative

- ✦ A fit test is used to assess whether a specific type, model and size of respirator can adequately fit a specific individual.



## Fit Testing

**Qualitative (QLFT)** - wearer responds to a challenge agent. Test relies on wearer response.

- odour, taste, nasal irritation

**Quantitative (QNFT)** - instrument provides a numeric value (Fit Factor) of level of fit.

- Testing is computerized & does not rely on wearer response.

## Fit Testing – Qualitative Fit Test (QLFT)



4 types of QLFT currently accepted:

- Isoamyl Acetate (banana oil)
- Sodium Saccharin
- Bitrex
- Irritant Smoke (not recommended)

- QLFT test is a **pass/fail test** relying on subject's voluntary or involuntary response to a challenge agent; i.e., taste, smell or irritation.
- If the subject detects challenge agent at any time during the test, the subject fails the test.
- When the fit test is passed, person is deemed to have a fit factor that is at least as high as the QLFT was designed to determine.

## Fit Testing – Quantitative Fit Test (QNFT)



- All fit test protocols require the test subject to perform a series of exercises meant to simulate workplace motions. Typically 7-8 30-second exercises:
  - 1 Normal breathing      2 Deep breathing
  - 3 Head side to side      4 Head up & down
  - 5 Talking out loud      6 Grimace
  - 7 Bend & touch toes      8 Normal breathing

Final result of a QNFT is computed as a **weighted average of individual exercise fit factors**. It is called the **Overall Fit Factor**.

## Fit Testing

- **Respirator leakage is a reality**
- **Studies show lack of fit-testing that**
  - Reduced protection against atmospheric hazards
  - Resulted in adverse health effects from over exposures
- **Fit test to minimize leakage**
  - Attempts to select respirator most suitable for user
  - Demonstrates user ability to properly don/doff
  - Determines ability of user to obtain satisfactory fit & effective seal with tight fitting face-piece



# HOW TO CHECK your respirator

## Step 1



- ✦ With clean hands, take the mask out of the packaging.
- ✦ Avoid contaminating the inside of the mask.

## Step 2



Open up any flaps  
and prepare the strap  
for placing around  
the head

## Step 3



- ✦ Fit the mask over the nose and mouth.
- ✦ Fit any straps to the head, with the top strap around the top of your head, above your ears.

## Step 4



- ✦ Make sure the lower strap is below your ears
- ✦ Stretch the straps/ loops until the mask makes a seal around your face and is comfortable.

## Step 5



- ✦ With both hands, gently press nose clip so it fits well across the nose and onto the face below the eyes. Do not pinch the clip.
- ✦ Using two fingers from both hands, shape nose clip around your nose working from bridge of your nose down both sides and under your eyes



## Step 6 – Fit Check



- You should **check** the fit every time you use your respirator
- Cover the mask and exhalation valve (if fitted) with both hands, try not to change the fit.
- Breathe out sharply (like if you are blowing out candles on a birthday cake) to check for air leakage around the mask edges.
- Adjust fit if there are leaks.

## SUMMARY

- ❖ Always use a clean, intact, functional respirator
- ❖ Replace your respirator as necessary
- ❖ Never share respirators
- ❖ Verify your respirator before each use
- ❖ Wear your respirator 100% of time while in a dusty area
- ❖ Know how to **fit** the respirator properly
- ❖ **Check** for leakage before every use



# Respirator leakage is a reality – was there exposure?

- ✦ Many of us (occasionally or often) wear a respirator in the course of work, protecting against exposure to specific or potential airborne contaminants.
- ✦ Do you know when to wear a respirator? .... communicated by SOP or Health & Safety Plan (HASP)?
- ✦ Have you received Respiratory Protection Training?
- ✦ Does your company have an RPP – Respirator Protection Program?
- ✦ When was your last respirator fit test?
- ✦ If fit test >2 years old, how can you be sure that your respirator still fits?
- ✦ Need a separate fit test for each type of respirator worn.

Examples of respirators:



**Receive instruction/training on selection, use, & care of respirators.  
Responsible for maintenance & storage of their respirators.  
If the mask is damaged, don't wait ... replace it!**

# Thank you!



**Questions?**

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