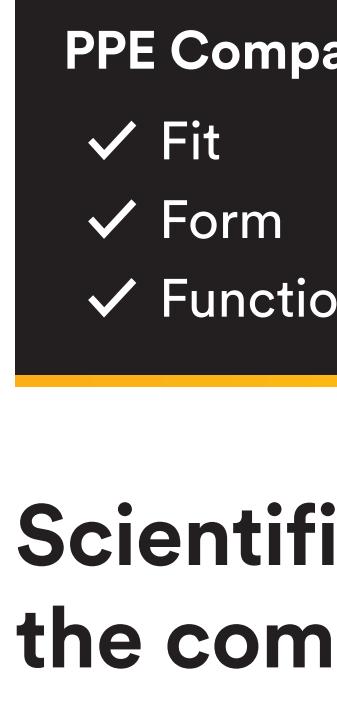


# Working together: The importance of integrated protection

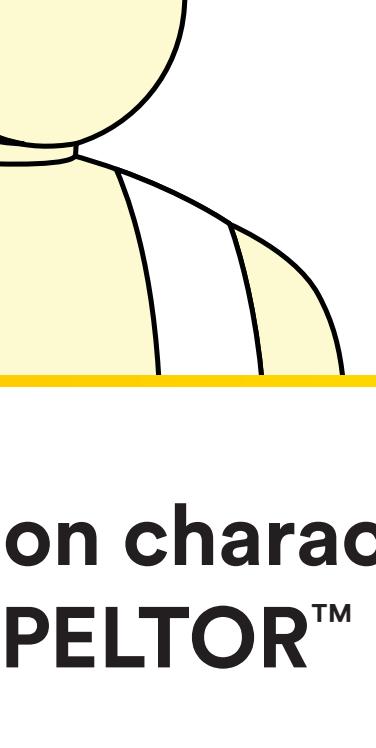


## Occupational noise exposure and hearing loss

Occupational noise exposure and noise induced hearing loss (NIHL) are significant workplace problems globally.



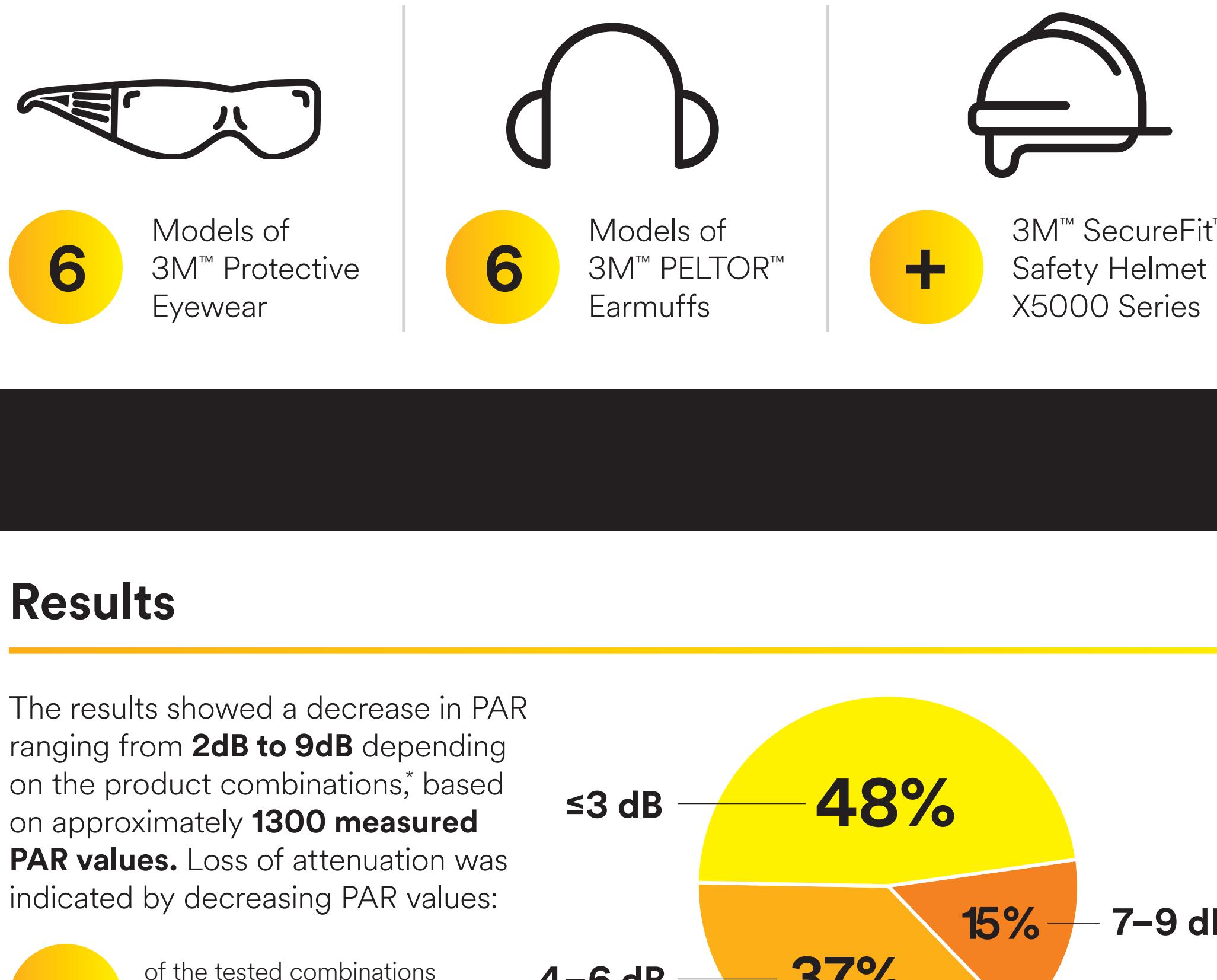
1/3 of Europe's workforce is exposed to high levels of workplace noise, **25% of the time**.<sup>1</sup>



Hearing loss caused by hazardous noise affects ~5% of population worldwide – about **380 million people**.<sup>2</sup>

## Why does PPE compatibility matter?

For hearing protection devices (HPDs) to provide adequate protection, they must fit properly and be comfortable to wear for a whole work shift. Many activities require using HPDs together with other personal protective equipment (PPE) such as protective eyewear. If not compatible, protection may be affected.



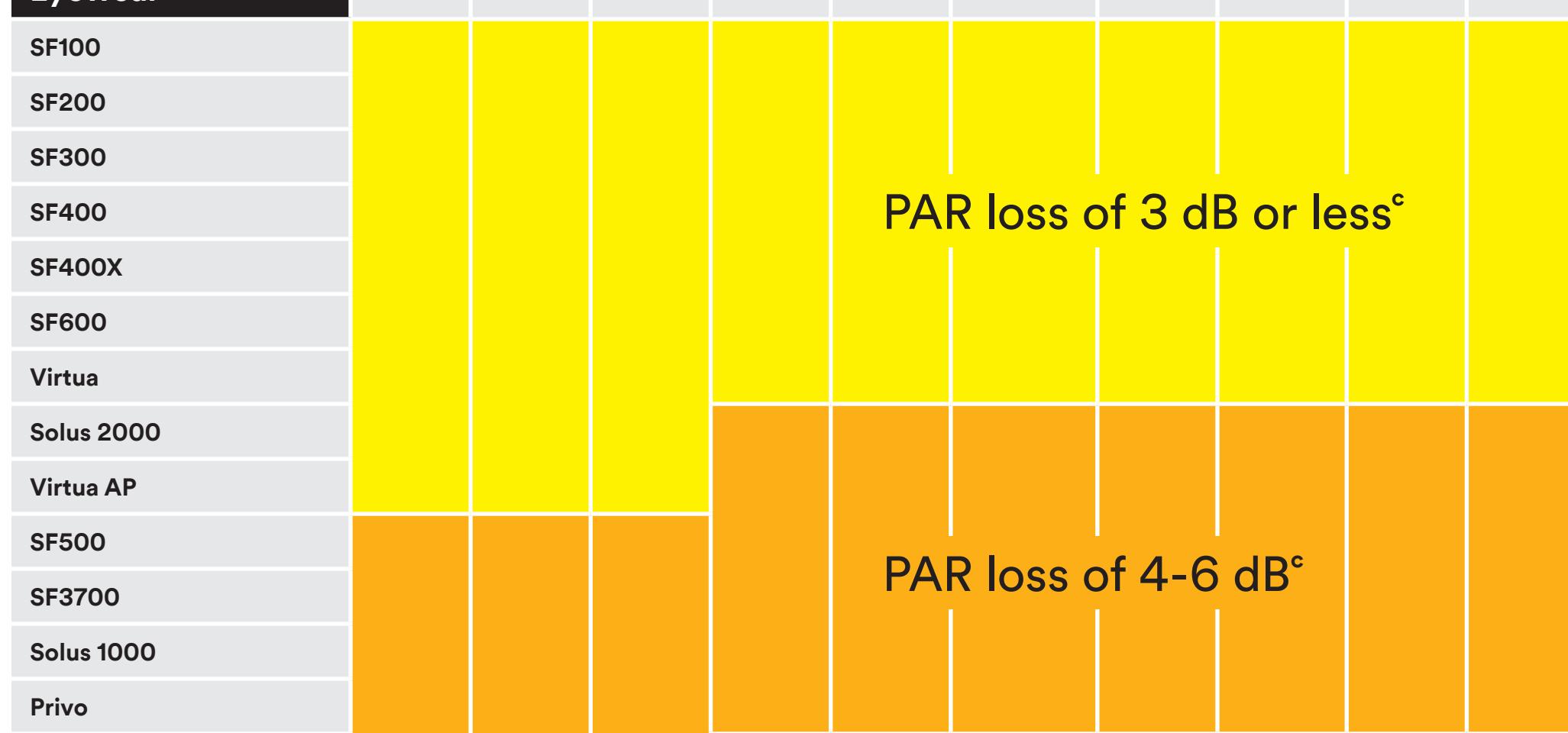
## Scientific study: Attenuation characteristics with the combined use of 3M™ PELTOR™ Earmuffs and 3M™ Protective Eyewear

**Personal Attenuation Rating (PAR)** measurements were taken with the 3M™ E-A-Rfit™ Dual-Ear Validation System and used to assess attenuation levels. A PAR is achieved through hearing protector fit testing which measures the amount of noise reduction, or attenuation, of a selected hearing protection device while it is worn by a specific individual.

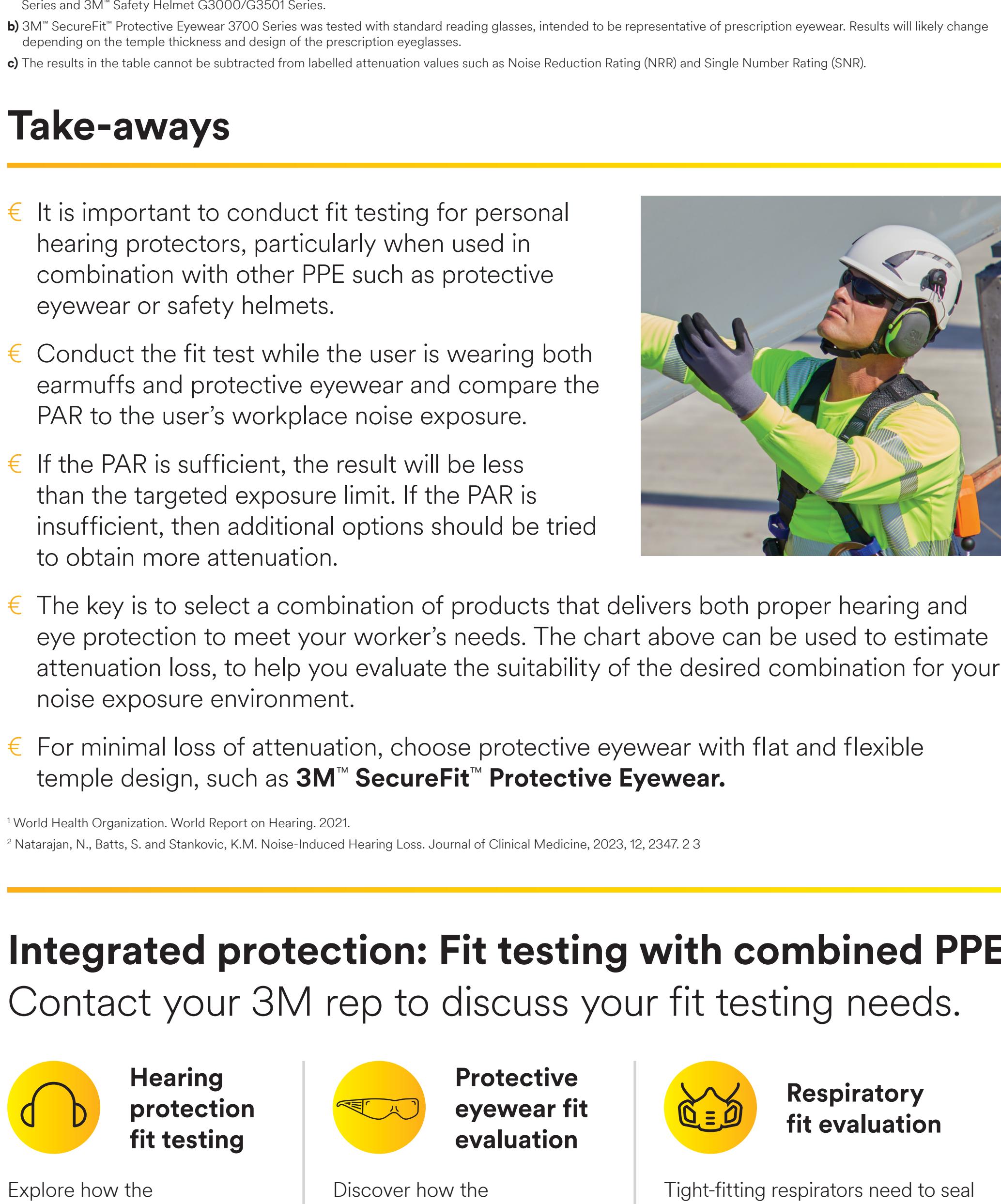
**30 volunteers** (with a wide range of head and face sizes) underwent hearing protection fit testing while wearing various styles of 3M™ Protective Eyewear in combination with various 3M™ PELTOR™ Earmuffs (both headband and mounted models). Each volunteer was tested with **42 combinations** (which extends to 160 possible combinations) of earmuffs with and without protective eyewear in a random order.

### Product lines tested

The protective eyewear, earmuffs and helmets tested are representative of additional models of 3M PPE. Download the full study for details.



<sup>a</sup>All earmuff/eyewear combinations revealed a decrease in PAR when compared to earmuff alone.



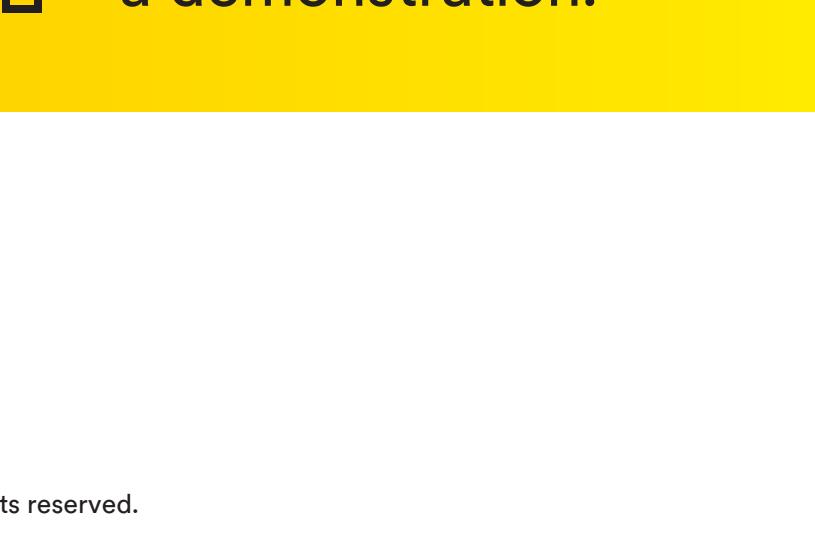
<sup>a</sup>Tested on 3M™ SecureFit™ Safety Helmet G3000/G3500 Series. This helmet also represents 3M™ SecureFit™ Safety Helmet X5500 Series, 3M™ SecureFit™ Hard Hat H-700/H-700T.

<sup>b</sup>3M™ SecureFit™ Protective Eyewear 3700 Series was tested with standard reading glasses, intended to be representative of prescription eyewear. Results will likely change depending on the temple thickness and design of the prescription glasses.

<sup>c</sup>The results in the table cannot be subtracted from labelled attenuation values such as Noise Reduction Rating (NRR) and Single Number Rating (SNR).

### Take-aways

- It is important to conduct fit testing for personal hearing protectors, particularly when used in combination with other PPE such as protective eyewear or safety helmets.
- Conduct the fit test while the user is wearing both earmuffs and protective eyewear and compare the PAR to the user's workplace noise exposure.
- If the PAR is sufficient, the result will be less than the targeted exposure limit. If the PAR is insufficient, then additional options should be tried to obtain more attenuation.
- The key is to select a combination of products that delivers both proper hearing and eye protection to meet your worker's needs. The chart above can be used to estimate your noise exposure environment.
- For minimal loss of attenuation, choose protective eyewear with flat and flexible temple design, such as 3M™ SecureFit™ Protective Eyewear.



3M Personal Safety Division products are occupational use only.

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### Learn more



Download the  
full study



Scan to learn more  
about hearing protection  
fit testing or to request  
a demonstration.

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