

# Mitigating the Risks of Noise-Induced Hearing Loss

By AMANDA MILLER

Over 30 million U.S. workers are exposed to noise levels high enough to cause irreversible hearing loss, according to the National Institute of Occupational Safety & Health (NIOSH). This exposure costs employers significantly, with U.S. Workers' Compensation for Occupational Hearing Loss exceeding \$242 million annually. Beyond financial losses, hearing loss leads to social isolation, dementia, mental health issues, and even premature death. The Bureau of Labor Statistics estimates that 18 million workers are at risk from harmful noise levels, resulting in 14,500 cases of work-related hearing loss each year.

Occupational hearing loss is preventable with the right controls and proper hearing protection. Despite this, hearing loss is often overlooked in industrial environments, where more immediate hazards like slips and falls take precedence. Hearing loss oc-

curs gradually, so it's often less recognized, but it is irreversible—unlike other injuries. Repeated exposure to high noise levels, such as working near heavy machinery, can lead to permanent hearing damage or tinnitus. The U.S. Occupational Health and Safety Administration (OSHA) mandates hearing protection for noise exposure exceeding 85 dB(A) over an 8-hour time-weighted average (TWA).

Noisy environments not only pose a risk to hearing but also reduce productivity and increase stress levels. Workers struggle to communicate in high-noise settings, often resorting to shouting or removing hearing protection, both of which are ineffective and dangerous. Inadequate communication increases the likelihood of accidents. Providing workers with effective hearing protection that enhances speech and maintains situational aware-

ness is crucial—not just for hearing protection but for overall safety.

## Key Considerations for Effective Communication and Hearing Protection

In high-noise industrial environments, several factors must be considered to ensure worker safety:

- **Noise Levels:** Workers exposed to noise above 85 dB(A) are at risk for Noise-Induced Hearing Loss (NIHL). Knowing the decibel levels in the work environment helps determine the necessary Noise Reduction Rating (NRR) for hearing protection.
- **Hazardous Locations:** In explosive environments, workers need Intrinsically Safe devices certified for hazardous areas. Industries like oil & gas, mining, steel milling, paper & pulp, grain and more often require equipment that meets specific certifications (e.g., ATEX, IECEx, UL, etc.).



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- **Communication Modes:** Different work environments may require various communication methods, such as face-to-face, two-way radios, or Bluetooth-enabled devices. In some cases, workers need multiple communication channels.
- **Situational Awareness:** Workers must stay aware of other hazards, such as alarms or approaching vehicles. Maintaining 360° situational awareness is critical for safety.
- **Durability of Technology:** In harsh environments, equipment must be durable, with IP ratings for protection against dust or moisture. This ensures consistent performance.

Additionally, the comfort and practicality of hearing protection are essential:

- **Form Factor:** Workers may prefer in-ear plugs or headsets, depending on temperature or comfort considerations.
- **Compatibility with Other Gear:** Hearing protection needs to work seamlessly with other equipment like hard hats or respirators.
- **Battery Life:** Devices must offer adequate battery life to last through a full work shift.

#### Hearing Protection Device Considerations

When selecting hearing protection, ensure devices meet international standards and can address various types of noise:

- **Broadband Noise:** Random noise ranging from speech to machinery frequencies.
- **Impulse Noise:** Sharp, brief noise increases that can cause temporary or permanent hearing loss.
- **Tonal Noise:** Noise at a single frequency.

For high-noise environments, dual-protection headsets—combining in-ear protection with over-the-ear muffs—can reduce noise exposure to safe levels below 85 dB(A).

#### Situational Awareness and Safety

Situational awareness is the ability to detect and interpret critical environmental cues. In high-risk settings, this skill is essential for maintaining safety and productivity. Traditional hearing protection, such as earmuffs and earplugs, may reduce noise effectively but also block important auditory signals like alarms or instructions. This isolation can be dangerous when workers need to respond quickly to auditory cues.

#### Dual Protection Headsets

Dual Protection Headsets, which combine in-ear and over-the-ear protection, are ideal for extreme noise environments (110-120+ dB(A)). These headsets should

provide a high NRR, up to 36 dB, without sacrificing situational awareness. Workers using both in-ear plugs and over-the-ear muffs, without smart technology, may lose their ability to detect environmental cues, increasing the risk of accidents.

#### Hearing Loss Is Preventable

While hearing loss is irreversible, it is preventable with proper protection. By consulting a reputable hearing protection manufacturer, companies can reduce the risks of noise-induced hearing loss and maintain communication and situational

awareness for their workers. **FSM**

**Amanda Miller** is chief executive officer of Sensear. She has proven success as a strategic business development professional, with a track record of success in global sales. Her ability to drive high-growth impact makes her an ideal leader for Sensear. With her expertise in operational and product management, as well as her passion for sales and marketing, Amanda consistently shines in her interactions with employees, distributors, and customers.

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