



Brighter and safer
The growing appeal of

high-vis apparel

2,500 injuries per year are visibility-related

By DAVE SHUTT

Nearly 100 road construction workers are killed and more than 20,000 are injured in highway and street construction accidents each year, according to NIOSH. The U.S. Bureau of Labor Statistics estimates that 2,500 of those 20,000 injuries are visibility-related.

Hi-vis apparel acts as a first line of defense to protect workers from being injured or killed in these visibility-related accidents. Brighter and safer: that's the thinking behind the new standards and the products being produced to meet them.

Introducing hi-vis gloves

Hi-vis apparel is also important in work situations where being seen is not necessarily a life or death question. In these instances that do not call for the use of reflective vests, the addition of hi-vis protective gloves can be a key safety enhancement.

For this reason, hand protection manufacturers have begun to introduce specialized as well as general purpose hi-visibility gloves over the past few years — even though there is not yet a specific ANSI rating for these gloves.

Hi-vis gloves are being manufactured in the fluorescent colors (yellow, green, orange and red) known to provide contrast with prevailing ambient backgrounds found in daytime urban and rural situations. Fluorescent materials contain certain pigments that are activated by ultraviolet and short wavelength visible light for enhanced daytime contrast. The maximum effect of fluorescent materials is apparent during twilight and

overcast conditions.

Some of these hi-vis gloves have special sponge nitrile palm coatings to provide oil and grease absorption in oily, slippery conditions. Research continues to make these gloves more and more comfortable and utilitarian.

Already hi-vis gloves are providing extra visibility on construction sites and in warehouses. They may also prove to be the answer for workers who only occasionally need extra visibility. For example, a truck driver could carry them in case he needs to step out of the truck on the roadway. A maintenance worker might have a pair of hi-vis gloves at the ready for those occasions where visibility is lessened.

Hi-vis lingo

The following seven terms are key to the discussion of hi-visibility materials:

▲ **Hi-visibility material** is any material or device that generates its own light in an active or primary light source format to a brightness level that allows it to be seen easily. In a passive (or secondary light source) format, high-visibility materials reflect light generated by an active light source.

▲ **Reflectivity** is the measure of a material's ability to reflect light in an efficient manner. Hi-vis materials absorb less of the radiant energy that falls on them, and thus reflect a greater

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degree back.

▲ **Fluorescent materials** are materials containing certain pigments activated by ultraviolet and short wave-

length visible light.

▲ **Candlepower** is a term used in the brightness measurement of retro-reflective materials, and one that is useful in comparing products. One candlepower is a brightness level approximately 2.5 times greater than the brightness of white cotton fabric.

▲ **Decision sight distance** is a term used in traffic engineering that assumes a 2.5-second reaction time, followed by a deceleration of a vehicle under human operation.

▲ **Angularity** pertains to the ability of a material to act in a retroreflective manner when light is striking it at angles. A high degree of retroreflectivity is desired at angles of 30 degrees or greater.

▲ **Observation angle** is the angle created by your line of sight to the reflective material, and the line from the reflective material to the light source.

The importance of being seen on the job extends well beyond highway and road construction occupations.

What do you need?

If you are wondering what hi-vis apparel is appropriate for your workplace, ANSI/ISEA 107-2004 provides requirements for jobs that fit into one of the following three performance classes:

▲ **Performance Class 1** - For occupational activities that permit full and undivided attention to approaching traffic with vehicle and moving equipment speeds not exceeding 25 mph.

▲ **Performance Class 2** - For occupational activities where employees are performing tasks that divert attention from approaching vehicle traffic with vehicle and moving equipment speeds exceeding 25 mph, or work activities taking place in a close proximity to traffic.

▲ **Performance Class 3** - For occupational activities where workers are exposed to significantly higher vehicle speeds and/or reduced-sight distances, and the wearer must be conspicuous through the full range of body motions at a minimum of 390m, and must be identified as a person.

Smart business

For every dollar spent on safety, a company can save money on workers' compensation, lost-time due to accidents and lower insurance premiums. In short, investment in hi-vis gloves and other apparel is smart business for most companies. As with most workplace safety initiatives, investing in preventative measures such as high-visibility

apparel is significantly cheaper than losing workers to injury or even death.

Research continues to make hi-visibility gloves more and more comfortable and utilitarian.

While no product makes a wearer inherently safe, hi-vis apparel enhances the wearer's visibility. In the end, the user's behavior remains the key to safety.

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