Soft-Stretch™ PPE-Hoods

Innovative PPE made in the USA

The Two Safety Issues Related to Conventional PPE

The lack of adequate PPE head covering has continuously endangered our emergency responders and healthcare workers during disasters (9/11, Ebola incident, and the recent Covid-19). Many of them suffered severe health issues or got infected by leaving their head and face exposed even though a N95 or surgical mask was worn. It is commonly understood that infectious or other harmful substances falling on the head, face, and neck creates a fatal situation for emergency responders and healthcare workers in any disaster. When a mask is required, a head covering is needed as well.

As a matter of fact, missing PPE Hoods has been the problem in all industries. Basically, there was no suitable material available for making head coverings that conformed to the contours of the wearer's head and face. Consequently, workers are left (or elect) to expose their heads and faces during their daily jobs.

While working, any debris falling on the head, face or neck causes irritation and distraction that often interrupts work and reduces job efficiency. Further, there is a risk that work and environmental debris often contain harmful substances (lead, asbestos, asphalt, germs, glass fibers, and silica dust) which can cause illness**.** Sun exposure is also a problem causing roofers job inefficiency and skin issues.

Problem 1: Conventional head coverings (such as nonwoven and Tyvek hoods) do not fit properly. Because the materials were stiff, they had to be made baggy to cover different head sizes. Not only did that create too much gapping to provide an effective barrier, they also did not fit well even when incorporated with elastic components.

Coverall hoods are a common alternative; however, they quickly tire the wearer because of restricting head movement and mobility. Because wearing a hooded coverall creates severe difficulty in turning the head and bending the neck, it is strictly prohibited when working in confined spaces or on high structures.

Problem 2: Facemasks are not reliable for respiratory protection. The problem with masks is leakage. Because faces vary in shape and nose-bridge height, there are many gaps between a wearer's face and the edges of a flat facemask. Also, their elastic ear-loops are either too loose or too tight for proper fit. Masks often fall from the nose to cover only wearer's mouth or even hang under the chin protecting nothing. Meanwhile, the elastic straps of the rigid dome-shaped masks have to be uncomfortably tight to seal at all. Even then, the mask moves and leaks when the wearer talks or sweats.

To wear a N95 mask is complicated. Required by CDC and OSHA respectively, the wearer has to be pre-qualified by passing a medical evaluation (for chronic respiratory, cardiac, or other medical conditions), fit test (for selecting model, style, and size), and seal test (for airtight fit). Not only do people not always remember which models/makes of N95 masks fit them best, emergency stocks may not always have all models to meet the demands of every individual.

The airtight fit of a N95 mask is created by two strong elastic straps. Even then, a perfect fit cannot always guarantee against leakage since the mask can move while speaking or sweating. Even worse, the airtight-fit often causes skin pain and bruising in just a short period of time. The discomfort and difficulty in breathing often causes wearers to move (pull away) the mask.

If the risk is low, why go through the hassles required for wearing a N95 mask?
On the other hand, in urgent and lethal environments, why risk life on a N95 mask that uses two simple elastic straps and gives an unreliable seal?

The Long-Awaited Solution:

Latex-free Elastic Nonwovens to Make Innovative Soft-stretch Hoods

Our Latex-free Elastic Nonwoven Fabrics are the breakthrough materials that give a soft and stretchy structure while maintaining the breathability and barrier functionality of nonwovens. When stretched, the intertexture fibers of our elastic fabrics shift position, but do not create pin holes so they continue to block particles and liquids to provide barrier functionality. Meanwhile, the ultrafine gaps between fibers allow air to flow through and vapor to escape.

Our Soft-stretch Hoods were engineered with various combinations of functionalities by combining elastic fabrics with various properties into multi-layer structures to meet the requirements of different industries. The FDA guiding principles for surgical masks were followed throughout the development process to design their barrier properties.

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The Innovative Advantage is Comfort

- **Soft Form-fit to securely cover the head without restricting peripheral vision, head movement, and wearer's mobility.**

  When wearing our soft-stretch hoods, the soft form-fit gives the wearer a sense of security from the feel of an isolation layer next to the skin.

  By covering the entire head, face, and neck, it gives a sense of dignity when the wearer deals with disgusting waste and foul liquids.

- **Easy Breathability to keep the head cool for extended wear. It eases the anxiety in stressful work situations.**

Solution 1- Replacing facemasks: By wearing properly with goggles that fit the wearer's face (seals around the nose and presses firmly on the nose bridge), our Biosafety hoods can provide effective respiratory protection and replace facemasks in general work environments.

If high filtration is desired, they can be worn under or over a mask or full-face respirator to provide an additional layer of barrier and a soft cushion of comfort and to reduce gapping from respirator movement due to work or sweat. In the extreme situation, wearing our Biosafety hood under the PAPR or hazmat hood provides continuous protection after removal of the contaminated suit.

Solution 2- Replacing alternative head coverings: Our Soft-stretch hoods are replacing the conventional head coverings and coverall hoods since they provide more form-fit and comfort with unrestricted head movement and mobility. Owing to the low air-flow resistance of hood structures and ample space inside the hood, they allow for easy breathability and fast dissipation of exhaled air which reduces goggle fogging. **It is more practical and economical to wear our Biosafety hood with an un-hooded coverall suit.**

VitaFlex's Soft-stretch™ PPE-Hoods

Improve Safety, Comfort, and Job Efficiency

1. **Dust Hoods are the basic version for blocking micron-sized particles (asbestos, silica dust, glass fibers, powder), and shielding against some liquid splashes.** They are praised by users in Chemical Compounding, Composite Molding, Drywall/Spackling, Dry Ice Blasting, Pest Control, Dairy Farms, Food Processing, Waste Recycling & Sorting, and many more.
2. **Spray Hoods incorporate a melt-blown layer of microfibers for enhanced blocking efficiency of overspray when powder coating or spraying paint, foam, gel coat, asphalt, etc.**
3. **UV Hoods are Dust Hoods with added UV blocking capability. They are long awaited protective hoods for welders and outdoor workers such as farmers, roofers, bridge/tank/tower painters, and pipeline maintenance and construction workers.**
4. **Biosafety Hoods are designed for safety when handling bio-medical dry or wet substances and fluids. They are engineered to block blood splashes with high efficiency of filtering particles and bacteria. They protect workers in aftermath cleanup, morticians when caring for corpses, restoration technicians when working around bio-hazardous waste or sewage, and healthcare workers in infection prevention.**

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