

Safety

# Anti-Fog Eye Protection Technology: How MCR Safety's MAX6 Coating Keeps Workers Safe

Roland Jones | Jul 01, 2021

Safety eyewear like glasses and goggles are vital for preventing worker injury in manufacturing settings, but the possibility of fogging can leave your workers unprotected. Here's how MCR Safety's MAX6 anti-fog lens coating is wiping away the problem of fogged-up lenses at work.

Eye protection that fogs up while you're wearing a mask is an issue that manufacturing workers know all too well, particularly over the past year as the COVID-19 pandemic has swept across the globe, forcing more workers to wear masks and deal with foggy protective eyewear.

*The solutions to this problem have been diverse*, ranging from strips of tissue paper inserted at the top of a mask to taping your mask down or applying anti-fog coating.

The issue is not simply an annoyance. It can have serious safety repercussions. Studies show that workers often refuse to wear their required safety eyewear because of fogging, leaving them open to possible injury.

**"We are doing our customers a service by moving all of our regular market anti-fog lenses to the UV-AF standard to give them a better anti-fog game while keeping their costs the same."**

David Smith  
MCR Safety

Thankfully, MCR Safety has developed a better solution for fog-free safety glasses.

The company's protective eyewear now carries a MAX6 coating that is built into the lens during the manufacturing process, meaning workers are no longer required to stop work to apply fog-resistant wipes, which is not only time-consuming and unproductive, it could also expose your eyes to potential hazards.

## Why Do Safety Glasses Fog Up?

Fogging is a leading cause of workers not wearing eye protection.

## Fogging Danger Zones

There are distinct situations when fogging can occur, making eyewear unsafe in industrial environments. These situations include:

- Excessively hot or humid environments increase the likelihood of fogged safety eyewear. Humidity increases the amount of moisture in the air, while heat increases a worker's perspiration. Both add moisture to a worker's lenses.
- Large temperature changes, such as moving from a very cold environment to a warmer one, cause eyewear to fog up. For example, a food industry worker may move from a cold food storage area to a warmer room, or a manufacturing industry worker could move from a very warm shop floor to a cooler area outside a facility.
- Wearing full-body PPE can lead to fogged-up lenses. A worker wearing arc flash PPE that does not allow the moisture that leads to fogging to vent away may face this problem. This kind of heavy equipment can increase body heat, leading to greater perspiration. This may also happen to workers wearing closed safety goggles or full-face face shields without venting.

When a change in temperature affects a worker's ability to see clearly through their eyewear, the natural reaction is to remove the eyewear to deal with the fogging. This might mean wiping it clear, applying anti-fog wipes or waiting until the fog clears on its own.

Fogging can occur when moving from a cold environment to a warmer one, for instance, or when working in a hot and humid setting. Changes in body temperature when performing certain types of work or wearing heavy personal protective equipment (PPE) may also lead to lenses fogging.

When safety eyewear is removed to wipe it clean, the worker becomes exposed to the hazards that eyewear is designed to mitigate. To help prevent this problem, workers may use anti-fog wipes, but these wipes can rub off after several cleanings or fog up again after only a few seconds. A far better solution is eye protection that includes lenses that have been treated with an effective anti-fog coating.

### Anti-Fog: The Solution for Safety Glasses

The most effective anti-fog coatings are applied to safety eyewear during the manufacturing process, which means the anti-fog properties of the lens can last for several minutes, giving the eyewear long enough for temperature variances to equalize. A normal pair of glasses with no anti-fog coating will usually fog up after a few seconds.

There are two main types of anti-fog coatings for lenses:

- Hydrophobic coatings that repel water so that it beads up and runs off the lens.
- Hydrophilic coatings that create a surface that attracts water, and then disperses it.

For many years there was essentially only one standard anti-fog coating on safety eyewear, notes David Smith, senior product manager at MCR Safety, with some additional midgrade coatings entering the market around 2010. Those anti-fog lenses would take a minimum of two minutes to dissipate lens moisture when the wearer moved from a cold to a warm location, for example, which was still not fast enough for most industrial applications.



An "X" marking on the lens denotes whether a pair of safety glasses has passed the anti-fog test and can resist fogging (image courtesy of MCR Safety)

In 2016, MCR introduced its "premium" MAX6 superior anti-fog coating, which took the two-minute wait down to 10 seconds, Smith says.

"You can now keep your safety glasses on, go from one temperature extreme to the other, maybe stand there for a maximum of 10 seconds, and then the lens is going to defog itself, and so you can go about your task and not have to put yourself at risk by removing your eyewear," Smith says.

In 2019, MCR launched a new standard coating called UV-AF® that is UV cured. The curing process takes under a minute instead of the two hours for prior coating processes, cutting down on the electricity and chemicals used.

"And on top of that, the lens performance falls right in between the regular market anti-fog performance and the premium-level coatings, so you actually do get a much better anti-fog performance than the regular market lens," Smith says.

"We were able to keep our cost the same based on the efficiencies and time it took to produce the lenses versus curing them in an oven for two hours and using fewer chemicals in the process to coat the lenses."



The curing process takes under a minute instead of the two hours for prior coating processes, cutting down on the electricity and chemicals used (image courtesy of MCR Safety)

## Meeting Safety Standards

The UV-AF coating is a differentiator for MCR Safety, which is one of the few remaining companies in the safety space that manufactures its own eyewear.

Doing so allows the company to control the quality of the application of the raw materials to the lenses and how they are cured, and it allows the company to pass on efficiencies and cost savings to the customer. MCR is now moving all its anti-fog eyewear to the UV-AF coating to give customers all the cost benefits, Smith says.

"I live in Memphis, and during the summer if I put our regular market anti-fog glasses on and mow my yard it's going to fog up in the 95-degree Memphis heat and humidity, and that's not even a temperature swing," Smith says. "So, we are doing our customers a service by moving all of our regular market anti-fog lenses to the UV-AF standard to give them a better anti-fog game while keeping their costs the same."

Another benefit is the fact that the MAX6 premium anti-fog coating meets the ***most recent edition of the American National Standards*** Institute's regulation for safety glasses, safety goggles, side shields, and other eye and face protection. The standard now includes testing, performance and marking criteria for lenses with anti-fog properties, since, as ANSI says, "fogging can impede a wearer's ability to perform work safely."

***An "X" marking on the lens*** denotes whether a pair of safety glasses has passed the anti-fog test and can resist fogging.

It's important to provide your workers with safety eyewear, and even more important to ensure those workers keep wearing it so they remain safe. By ensuring you have the best anti-fog coating possible, you can make sure safety eyewear stays on your workers and isn't removed to wipe away moisture, leaving them susceptible to injury in the workplace.

***How are you making sure your employees keep wearing eye protection at work? Share your thoughts in the comments below.***

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