

# FOG FORUM

## Key Questions and Answers

### 1 - Are glycol/water-based fog fluids safe?

Yes. There is a body of respected research and government analyses, including studies of the use of fog fluids in theatrical settings by Mt. Sinai Hospital in NYC and the National Institute of Occupational Safety and Health, to establish safe inhalation exposure levels to several glycols. The EPA has concluded that no adverse reactions were seen in toxicity studies below the 1000 mg/m<sup>3</sup> range. Given this, exposure limits set by the film industry over 20 years ago have significant safety thresholds built in: the eight-hour average exposure limit in most fog fluid deployment is set at 10mg/m<sup>3</sup>, with peak exposures set at 40mg/m<sup>3</sup>. EPA's safety profile on triethylene glycol also explicitly concludes that the material is equally safe for infants, children, and adults. Yes, there are some people who have higher sensitivities to exposure, but these instances are very rare. The primary symptom resulting from extended or heavy exposure is some temporary drying of mucous membranes and eyes, easily remedied by drinking water and moving to fresh air. Triethylene glycol is also a common ingredient in asthma inhalers, nebulizers, eye drops, soaps, shampoos, personal lubricants, and pharmaceuticals.

### 2 - Does glycol fog aid the transmission of airborne viral particles?

The experts generally agreed that there are no scientific studies to suggest use of fog fluids increases the risk of transmission of viruses, but they cautioned that no research has specifically looked at the question. Some of the experts speculated that use of a fog fluid could very well hinder transmission simply by providing a physical barrier to the movement of viral particles, as well as by combining with viral particles to make the airborne droplets heavier so that they fall out of the air sooner.

### 3 - Do glycol/water-based fog fluids inhibit a body's ability to fight disease?

There is no evidence that glycols diminish a body's ability to fight disease. There are no toxicities or physiological stressors presented by the glycols when used within proper exposure guidelines. Any changes detected in respiratory vigor are so small that they are clinically insignificant.

### 4 - Does TEG/PG fog inactivate viruses?

Respected studies over the last seventy-plus years confirm that TEG/PG can inactivate a wide range of viruses. Research initiated by Theodore Puck in the 1940's proved the rapid lethal properties of triethylene glycol (TEG) and propylene glycol (PG) against numerous pathogens, including influenza, due to the glycols' hygroscopic (water-absorbing) characteristic that disrupts the viral envelope.

**Related applications:** The research led to the deployment of TEG widely used as a bactericidal air sanitizer in hospitals, bathrooms, and other public spaces, as well as in consumer air sanitizing foggers.

**Specific application to inactivate the coronavirus:** Recent studies commissioned by companies including Grignard have confirmed the virucidal effectiveness of certain glycols to inactivate viral particles - in the air where they are most dangerous. This application requires special formulation and governmental approval of the product for distribution and use in occupied spaces. Grignard is in the process of securing regulatory approval from the EPA for its Grignard Pure technology. You can learn more at [www.grignardpure.com](http://www.grignardpure.com).

#### KEY TAKEAWAYS:

1. When used within proper exposure guidelines, glycol/water-based fogs and hazes are safe.
2. There is no research to suggest that glycol/water-based fogs and hazes increases the risk of Coronavirus transmission.
3. Studies commissioned by Grignard Company confirm that specially-formulated glycols have virucidal properties that inactivate more than 98% of airborne virus particles in 30 seconds. The product is under review at the EPA for approval.