

Eye Protection for Infection Control

US CDC/NIOSH Recommendations

The US National Institute for Occupational Safety and Health (NIOSH) is part of the US Centers for Disease Control and Prevention (CDC) and has provided the following information concerning the use of goggles, face shields, safety glasses, and full face respirators for infection control purposes in their publication *Eye Protection for Infection Control*.¹

CDC/NIOSH recommends eye protection for a variety of potential occupational exposure settings where workers may be at risk of acquiring infectious diseases via ocular (eye) exposure. Eye protection is intended to provide a barrier to infectious materials entering the eye and is often used in conjunction with other personal protective equipment (PPE) such as gloves, gowns, and respirators.

Goggles

Goggles are designed to fit snugly, but not necessarily seal around the wearer's eyes. CDC/NIOSH has stated¹: "appropriately fitted, indirectly-vented goggles* with a manufacturer's anti-fog coating provide the most reliable practical eye protection from splashes, sprays, and respiratory droplets. However, to be effective, goggles must fit snugly, particularly from the corners of the eye across the brow. While highly effective as eye protection, goggles do not provide splash or spray protection for other parts of the face.

* Directly-vented goggles may allow penetration by splashes or sprays; therefore, indirectly-vented or non-vented goggles are preferred for infection control."

Face Shields

Face shields are designed to help protect portions of the wearer's face to certain exposures. While goggles help protect a wearer's eyes from splashes, sprays, and droplets, a face shield can help reduce exposure to both the eyes and other facial areas.** Face shields, whether disposable or reusable, should cover the front and sides of the face. This will help reduce the possibility of splash, sprays and droplets from going around the edges of the shield and reaching the eyes or other facial areas.

**Per CDC/NIOSH - Disposable face shields for medical personnel made of light weight films that are attached to a surgical mask that are relatively flat or fit loosely around the face should not be relied upon as optimal protection.

Safety Glasses

Safety glasses provide impact protection, but do not provide the same level of splash or droplet protection as goggles and generally should not be used for infection control purposes. Per CDC, "gaps between glasses and the face likely do not protect eyes from all splashes and sprays."²

Full Face Respirators

In the event respiratory protection along with eye protection is needed, a full facepiece reusable respirator or powered air purifying respirator (PAPR) may be selected in lieu of goggles and half face respirators. A full facepiece respirator or PAPR can be used as primary eye protection for splashes, sprays, and droplets that may be encountered in an infection control situation. A PAPR hood or headcover does not provide impact protection.

Infection Control Information Sources

Please refer to the latest information from sources such as the World Health Organization ([WHO](#)), the US Centers for Disease Control and Prevention ([US CDC](#)), and the European Centres for Disease Prevention and Control ([ECDC](#)) regarding selection, use, maintenance and cleaning of personal protective equipment for infection control.

In the “Interim Infection Prevention and Control Recommendations for Patients with Suspected or Confirmed Coronavirus Disease 2019 (COVID-19) in Healthcare Settings”, last reviewed July 31, 2020, the CDC states the following regarding eye protection:²

- “Eye Protection
 - Put on eye protection (i.e., goggles or a face shield that covers the front and sides of the face) upon entry to the patient room or care area, if not already wearing as part of extended use strategies to optimize PPE supply.
 - Protective eyewear (e.g. safety glasses, trauma glasses) with gaps between glasses and the face likely do not protect eyes from all splashes and sprays.
 - Ensure that eye protection is compatible with the respirator so there is not interference with proper positioning of the eye protection or with the fit or seal of the respirator.
 - Remove eye protection before leaving the patient room or care area, unless implementing extended use.
 - Reusable eye protection (e.g., goggles) must be cleaned and disinfected according to manufacturer’s reprocessing instructions prior to re-use. Disposable eye protection should be discarded after use unless following protocols for extended use or reuse.”

3M Protective Eyewear Options

Unvented and indirectly vented goggles, when properly selected and used, help provide eye protection from splashes, sprays, and droplets.

3M splash goggle series/models (some series/models may not be available in all areas of the globe):

- 1621AF
- 1623AF
- Fahrenheit Splash
- Goggle Gear (GG) 500
- Goggle Gear (GG) 2890
- Goggle Gear (GG) 6000
- 334 Splash Goggle
- Centurion Splash Goggle
- Lexa Goggle Gear Splash Goggle
- Maxim Splash Goggle

Some healthcare settings have elected to use reusable faceshields in lieu of disposable faceshields. If a determination is made to use a reusable faceshield the following are options that could be considered.

3M headgear and face shield series/models (some series/models may not be available in all areas of the globe):

3M Headgear: 3M™ Ratchet Headgear H8A, 82501-00000 or 3M™ Pinlock Headgear H4, 82500-00000 may be used with any of the following faceshields.

3M Faceshields: (Note – you must also order the 3M™ Ratchet Headgear H8A or the 3M™ Pinlock Headgear H4)

- 3M™ Clear Polycarbonate Faceshield WP96, 82701-00000
- 3M™ Clear Propionate Faceshield W96, 82700-00000
- 3M™ Clear Polycarbonate Faceshield WP98, 82543-00000

- 3M™ Polycarbonate Clear Faceshield Window WCP96 82600-00000
- 3M™ Wide Clear PETG Faceshield WE96X 82581-00000, Flat Stock
- 3M™ Wide Clear Polycarbonate Faceshield WP96X 82582-00000, Flat Stock
- 3M™ Short Clear PETG Faceshield WE96S 82580-00000, Flat Stock

3M Faceshield/Headgear Kits:

- 3M™ Ratchet Headgear H8A, 82782-00000, with 3M™ Clear Propionate Faceshield W96
- 3M™ Ratchet Headgear H8A, 82783-00000, with 3M™ Clear Polycarbonate Faceshield WP96
- 3M™ Pinlock Headgear H4, 82781-00000, with 3M™ Clear Polycarbonate Faceshield WP96
- 3M™ Ratchet Headgear 82521-10000, with 3M™ Clear Chin Protector HCP8, Visor Not Included (Note: Also need to order the 3M™ Clear Polycarbonate Faceshield WP98, 82543-00000)

Protective Eyewear Cleaning and Disinfection Options when used for Infection Control

NOTE: The guidance in this Technical Bulletin may exceed the directions found in certain 3M Eye and Face Protection products User Instructions and is therefore intended only for cleaning and disinfecting the specified products following potential exposure to coronaviruses. Note that components of eye and face protection products may experience detrimental effects over time with prolonged or extended use of cleaners and disinfecting products. As discussed in the product User Instructions, users must inspect their eye and/or face protective equipment prior to each use. If you discover any signs of damage, remove the eye or face protective product from service and either replace components or replace the entire product as appropriate, following the guidance in the product User Instructions. A best practice is not to share these personal protective equipment products between users. Your facility should review this information thoroughly and conduct a risk assessment prior to selecting a cleaning and disinfecting process for your equipment and specific applications.

Cleaning

Definition: Removal of all soil (organic and inorganic) and foreign material from objects and surfaces. This is typically accomplished with water and mechanical action. Mild soap or detergents may be used to assist the process.

NOTE: Failure to remove foreign material (soil, face oils, etc.) from an object can make the disinfecting process ineffective.^{1,2}

1. Cleaning is recommended after each use for eyewear and face shields. Nitrile or vinyl gloves should be worn during cleaning as well as other personal protective equipment (PPE) as indicated by your facility.
2. The following may be removed to help facilitate cleaning and drying of components: foam gaskets and/or straps from eyewear and goggles; face shields from their brackets; brow pads/sweatbands from headgear.
3. Clean components as directed by your facility by immersing in warm water, temperature not to exceed 120 °F (49 °C), mild soap or detergent may be added to assist the process, and scrub with soft cloth until clean. Do not use cleaners containing lanolin or other oils.
4. Air dry all components in a non-contaminated area if not proceeding with disinfecting step.

Disinfecting

Definition: A process of inhibiting or destroying disease-producing microorganisms (but may not kill bacterial spores). It usually involves the use of chemicals, heat, and/or ultraviolet light and is divided into three categories: high, intermediate and low-level disinfection.^{1,2}

This Technical Bulletin specifically addresses use of disinfectant chemicals. The following references are being included and may be useful. The United States Environmental Protection Agency (EPA) published List N: Disinfectants for Use Against SARS-CoV-2. It is a list of EPA's registered antimicrobial products for use against novel coronavirus SARS-CoV-2, the cause of COVID-19, as a reference for specific disinfectants that can be used against coronaviruses. In Canada, Health Canada has a database of Drug Identification Number (DIN) approved disinfecting agents for use against novel coronavirus SARS-CoV-2, the cause of COVID-19. Consult applicable local guidance for your region as it is related to disinfection for coronaviruses.

NOTE: 3M relies on the expertise of the CDC, EPA and other applicable regulatory authorities with respect to microbiological efficacy and has not evaluated the effectiveness of these agents with regards to inactivating viruses on 3M equipment. It is important to note that many disinfectant products on the EPA List N are for application to hard, non-porous surfaces and some head, eye and face products contain other surface types. Follow the hygiene and infection control practices established by your employer for the targeted organisms, including for coronavirus.

EPA List N and Health Canada approved disinfecting chemicals containing the following may be an option, however your facility should review this information thoroughly prior to selecting a disinfecting product for your equipment and specific application.

While the following two types of disinfectants are believed to be generally compatible with the hard surface materials of 3M eye and face protection products, testing per the ANSI Z87.1 Eye Protection Standard has NOT been performed after use of these disinfectants. Use of other disinfectant types is not recommended. Users must inspect their eye and face protective equipment prior to each use. If you discover any signs of damage or discoloration; remove the eye or face protective product from service and either replace components or replace the entire product as appropriate.

- Water based bleach products or wipes - Sodium hypochlorite (at a free chlorine concentration of 5,000 ppm (0.5%) – typically 1:10 ratio of bleach to water)
- Isopropyl Alcohol (IPA) based products or wipes at a concentration of 60 to 70% IPA*

*Please note that these products may affect the anti-fog properties of certain 3M Eyewear and Goggles and the 3M™ Polycarbonate Clear Face shield Window WCP96 82600-00000 more quickly than the other disinfectants due to the high alcohol content.

1. These disinfection instructions are for hard surface components of the eye and face protection products. Neoprene goggle straps may also be disinfected.
2. The following should be removed: foam gaskets and/or fabric straps from eyewear and goggles; brow pads/sweat-bands from headgear.
3. With any disinfecting agent, follow the User Instructions and/or EPA label in regard to PPE needed, usability, application and contact time.
4. Disinfect by soaking or wiping the hard surface components such as eyewear, goggles, or face shield according to the User Instructions for the selected disinfectant chemical. When using spray solutions – 3M recommends spraying on the paper towel and wiping the product down rather than spraying directly onto the PPE components.
5. 3M strongly recommends that a water rinse/wipe down occur after disinfection to thoroughly remove disinfection chemicals and reduce the possibility of user irritation and premature degradation of equipment.
6. Air dry in a non-contaminated area.
7. Reassemble per User Instructions.

IMPORTANT NOTE

Eyewear and face shield coatings and components may become damaged over time with prolonged or extended use of disinfecting products. Users must inspect the eyewear or face shield in accordance with the User Instructions following each disinfecting cycle and prior to re-use. If you discover any signs of damage, remove the eyewear or face shield from service and either replace components or replace the entire product as appropriate.

Before using any of the products or information detailed herein, you must evaluate it and determine if it is suitable for your intended use. You assume all risks and liability associated with such use. 3M makes no warranties relating to the efficacy of any of the products detailed herein in preventing the spread and/or contraction of coronavirus. 3M will not be liable for any loss or damage arising from any information contained herein, whether direct, indirect, special, incidental or consequential, regardless of the legal or equitable theory asserted, including warranty, contract, negligence or strict liability.

Technical information provided by 3M is based on experience and/or test data believed to be reliable, but the results may not be relevant to every user's application. For this reason, 3M does not accept any responsibility or liability, direct or consequential, arising from reliance upon any information provided. The user should determine the suitability of any disinfectant product for compatibility for use with 3M products.

If you have any questions or concerns, please contact your local 3M representative.

References

1. US Centers for Disease Control and Prevention/National Institute for Occupational Safety and Health (NIOSH). Eye Safety Infection Control – Archived Document, page last reviewed by NIOSH July 29, 2013. Viewed January 2020 <https://www.cdc.gov/niosh/topics/eye/eye-infectious.html>
2. Interim Infection Prevention and Control Recommendations for Patients with Suspected or Confirmed Coronavirus Disease 2019 (COVID-19) in Healthcare Settings. United States Centers for Disease Control. Last reviewed by CDC April 1, 2020. <https://www.cdc.gov/coronavirus/2019-ncov/infection-control/control-recommendations.html>
3. Guideline for Disinfection and Sterilization in Healthcare Facilities, 2008; updated 2009. United States Centers for Disease Control. William A. Rutala, Ph.D., M.P.H., David J. Weber, M.D., M.P.H. and the Healthcare Infection Control Practices Advisory Committee (HICPAC). 2008. <https://www.cdc.gov/infectioncontrol/pdf/guidelines/disinfection-guidelines-H.pdf>
4. Interim Infection Prevention and Control Recommendations for Patients with Suspected or Confirmed Coronavirus Disease (COVID-19) in Healthcare Settings. Coronavirus Disease (COVID-19). <https://www.cdc.gov/coronavirus/2019-ncov/infection-control/control-recommendations.html>
5. List N. EPA's Registered Antimicrobial Products for Use Against Novel Coronavirus SARS-CoV-2, the Cause of COVID-19. United States Environmental Protection Agency. 03/03/2020. <https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2>
6. Hard-surface disinfectants and hand sanitizers (COVID-19): List of hard-surface disinfectants. Health Canada, Government of Canada. <https://www.canada.ca/en/health-canada/services/drugs-health-products/disinfectants/covid-19/list.html>

Personal Safety Division

3M Center, Building 235-2W-70
St. Paul, MN 55144-1000

3M PSD products are
occupational use only.

In United States of America

Technical Service: 1-800-243-4630
Customer Service: 1-800-328-1667
3M.com/workersafety

In Canada

Technical Service: 1-800-267-4414
Customer Service: 1-800-364-3577
3M.ca/Safety

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