



Respiratory, Eye and Face Protection and Middle East Respiratory Syndrome Coronavirus (MERS-CoV)

Frequently Asked Questions (FAQs)

5 May 2014

3M has received a number of inquiries regarding the appropriate respiratory, eye and face protection for potential exposures to the Middle East respiratory syndrome coronavirus (MERS-CoV) (previously referred to as a novel coronavirus (nCoV)). Following are responses to many of the most commonly asked questions. It is important to note this FAQ is not a substitute for the guidance of the United States Centers for Disease Control and Prevention (CDC), World Health Organization (WHO), the European Centres for Disease Prevention and Control (ECDC) and your local health authority. Please frequently consult their websites for the most current information and infection control procedures regarding MERS-CoV.

US CDC <http://www.cdc.gov/coronavirus/mers/index.html>

WHO http://www.who.int/csr/disease/coronavirus_infections/en/index.html

http://www.who.int/csr/disease/coronavirus_infections/faq/en/index.html

ECDC <http://www.ecdc.europa.eu/en/publications/Publications/Middle-East-respiratory-syndrome-coronavirus-risk-assessment-25-April-2014.pdf>

For further information on 3M personal protective equipment please contact 3M Technical Service in the U.S. at 1-800-243-4630 or consult the website at www.3M.com/PPESafety.

What is the MERS coronavirus (MERS-CoV)?

Coronaviruses can cause illness in humans and animals. In people, coronaviruses can cause illnesses ranging from the common cold to Severe Acute Respiratory Syndrome (SARS). This novel coronavirus is a new strain that has not been seen before. The name “Middle East respiratory syndrome CoV” has been adopted by the WHO for this virus. Although the virus is genetically related to a virus found in bats and antibodies to the MERS-CoV have been found in camels, the WHO has stated that this is not enough information to determine if either of these animals is the source of the virus. Therefore, the source of the MERS-CoV and the method of transmission are still unknown. However, the WHO has stated that this virus has been passed between people. This has only occurred between close contacts including between family members, patients and healthcare workers and coworkers. No sustained community transmission has been observed.

RESPIRATORY PROTECTION

What do the United States (U.S.) CDC, WHO, and European CDC recommend for respiratory protection against MERS-CoV?

The U.S. CDC, WHO and ECDC have issued guidance for *individuals in health care settings* who may be potentially exposed to MERS-CoV. Users should monitor the U.S. CDC, WHO, ECDC and their local health authority websites in order to ensure that they receive the latest guidance from those organizations.

As of August 9, 2013, the WHO has stated that health care workers are at risk of infection with MERS-CoV and transmission has occurred in health care facilities.

http://www.who.int/csr/disease/coronavirus_infections/faq/en/index.html

As of April 18, 2014, the U.S. CDC states that “Standard, contact, and airborne precautions are recommended for management of hospitalized patients with known or suspected MERS-CoV infection based on CDC's case definition for [patient under investigation](#). These recommendations are consistent with those recommended for the coronavirus that caused severe acute respiratory syndrome (SARS).” The personal protective equipment recommended for health care personnel includes gloves, gown, eye protection (goggles or face shield) and respiratory protection that is at least as protective as a fit-tested NIOSH-certified disposable N95 filtering facepiece respirator.

<http://www.cdc.gov/coronavirus/mers/infection-prevention-control.html>

In “Infection prevention and control during health care for probable or confirmed cases of novel coronavirus (nCoV) infection” published on May 6, 2013 (which remains the most current WHO guidance as of April 17, 2014), WHO states that at a minimum a NIOSH-certified N95, EU FFP2 or equivalent particulate respirator is required for health care workers performing aerosol-generating procedures on suspect or confirmed MERS-CoV patients.

http://www.who.int/csr/disease/coronavirus_infections/IPCnCoVguidance_06May13.pdf

As of May 4, 2014 the most recent infection control guidance from the ECDC was published in “Severe respiratory disease associated with Middle East Respiratory Syndrome Coronavirus (MERS-CoV),” 9th update, 24 April 2013. The ECDC states that “Healthcare workers caring for patients under investigation for MERS-CoV or confirmed cases should exercise standard precautions (including hand hygiene) as well as contact and airborne precautions. This entails the use of personal protective equipment (PPE) consisting of a well-fitted single use FFP2 or FFP3 respirator, gloves, eye protection and gown.” Additionally, they state “It should be noted that the EU recommendation specifying a FFP2 or FFP3 mask to be used when caring for patients under investigation differs from the WHO recommendation (medical/surgical mask). Further information on infection control can be obtained from a WHO interim guidance document. A recent study demonstrated MERS-CoV viability in experimentally aerosolized particles. Therefore, medical procedures require particular protection measures, particularly aerosol-generating procedures and all airway management, such as tracheal intubation, bronchoalveolar lavage, manual ventilation, and other diagnostic airway procedures. The number of persons in the room should be limited to a minimum during such procedures; all persons present should wear: a well-fitted FFP3 respirator; tight-fitting eye protection; and gloves and long-sleeved impermeable protective gowns.”

<http://www.ecdc.europa.eu/en/publications/Publications/Middle-East-respiratory-syndrome-coronavirus-risk-assessment-25-April-2014.pdf>

Can the general public use respirators to help reduce exposure to MERS-CoV?

At this time, 3M is not aware of any official regulatory recommendations for respiratory protection to help reduce exposure to MERS-CoV outside of health care and laboratory settings. Therefore the choice to use a respirator is a personal one. A respirator is just one of several preventative measures that can be used to help reduce exposure to the MERS-CoV. In general, thorough and frequent hand washing, close attention to hygiene and not sharing food utensils or towels with others is recommended to help reduce exposures to viruses.

Can respirators protect you from biological agents such as bacteria or viruses?

Bacteria and viruses may be spread from person to person in different ways. Therefore, a respirator is just one of several preventative measures that can be used to help reduce exposure to biological agents. Specifically, respirators are designed to help reduce exposures of the wearer to airborne hazards. Biological agents, such as bacteria or viruses, are particles and can be filtered by particulate filters with the same efficiency as non-biological particles having the same physical characteristics (size, shape, etc.). However, unlike many industrial particles, there are no exposure limits, such as Occupational Exposure Limits (OELs), Permissible Exposure Limits (PELs) or Threshold Limit Values (TLVs), established for biological agents. Respirators may help reduce exposures to airborne biological contaminants such as MERS-CoV, but they do not eliminate the risk of exposure, infection, illness, or death.

What is a type N95 respirator?

N95 is the simplest of the U.S. NIOSH classifications of negative pressure filtering facepiece disposable particulate respirators.

What do N, R, and P stand for?

NIOSH designates negative pressure particulate respirators and filters as N (Not Resistant to oil), R (Resistant to oil) or P (oil Proof).

Can medical facemasks be used to help reduce exposures to biological agents?

Medical, surgical and patient care masks are not designed to protect the wearer from inhaling airborne hazards; therefore, 3M recommends that they not be used for this purpose, or in place of an approved respirator. Facemasks are sometimes recommended by health authorities to help reduce the spray generated when the wearer coughs and sneezes.

What is the difference between a government-certified respirator and a surgical mask?

Respirators are designed to help reduce the wearer's exposure to airborne particles. The primary purpose of a surgical facemask is to help prevent biological particles from being expelled by the wearer into the environment. Surgical masks are also typically designed to be fluid resistant to splash

and splatter of blood and other infectious materials and not necessarily for filtration efficiency. Surgical facemasks are not necessarily designed to seal tightly to the face, and therefore the potential of air leakage around the edges exists. Even some masks that appear similar to respirators may have not been designed to protect the wearer from airborne hazards; therefore, they should not be considered an equivalent substitute to government-approved respirators.

Some approved respirators are designed to have the characteristics of both an approved respirator and a surgical mask. In the U.S., these products, typically referred to as “Surgical Respirators” are both approved by NIOSH and cleared by the U.S. Food and Drug Administration (FDA) for use in surgery.

For additional information, please refer to 3M Technical Data Bulletin #231.

Are there any medical restrictions for wearing a respirator?

Individuals with a compromised respiratory system, such as asthma or emphysema, or people with a history of heart disease should consult a physician before wearing a respirator. When personal protective equipment, including respirators, is used in a professional environment, its use must comply with applicable workplace standards, regulations and policies including medical clearance where required.

Can a European or Australian/New Zealand “P1” respirator be used for MERS-CoV in a healthcare setting?

Certain respirators, such as those approved as a European or Australian/New Zealand “P1” respirator, are not considered equivalent to those specified in the CDC and WHO guidances. Therefore, 3M does not recommend “P1” respirator use in health care settings to help reduce exposures to MERS-CoV.

What are the limitations of using respirators for potential exposures to MERS-CoV?

Respirators are not a guarantee that the user will not develop infection with MERS-CoV. If you choose respirators as part of your efforts to help reduce exposures to MERS-CoV, the following items need to be carefully read and understood.

- Respirators must be used in the proper manner, in accordance with all manufacturer instructions and directions and local regulations.
- Respirators may help reduce exposure to airborne biological contaminants, but they do not eliminate the risk of exposure, infection, illness, or death.
- For greatest effectiveness, respirators need to be properly worn before and during the entire exposure period.
- Respirators may help protect your lungs; however, some biological contaminants may be absorbed through the skin or eyes, and other protective equipment may be required.
- The wearer must be clean-shaven to wear tight-fitting respirators that seal tightly to the face (such as an N95, FFP2 or FFP3 filtering facepiece respirator). Beard, stubble or long mustaches may cause large leaks into the respirator. Respirator users with facial hair must use powered air purifying respirators with loose fitting facepieces, hoods or helmets.

- Fit of the respirator to the face is very important. If it does not fit properly (e.g. the wearer has facial hair) airborne contaminants will penetrate (enter underneath) the facepiece seal and you will not receive the intended benefit of wearing the respirator.
- All users must perform a user seal check (fit check) each time the respirator is used. In the U.S. and certain other countries workers are also required to pass a fit test, prior to use of the respirator in a contaminated area. Where not required by law, 3M recommends that all workers pass a fit test prior to use of a respirator in a contaminated area.
- Training on proper use and limitations, including practice putting the respirator on and wearing it, is required.
- Individuals with a compromised respiratory system, such as asthma or emphysema, should consult a physician before wearing a respirator.

Each facility or individual should use the best available information to determine appropriate respiratory protection for exposures to MERS-CoV.

Are multiple sizes of respirators needed?

Multiple sizes of respirators are not mandatory. Multiple sizes or alternative facepiece designs can provide the individual with additional options for obtaining a good fit and seal. What is important is that the respirator fit the wearer. As a result, all users must follow the manufacturer's instructions and directions, and perform a user seal check (fit check). In the U.S. and certain other countries, workers must pass a fit test prior to use of a respirator in a contaminated area. Where not required by law, 3M recommends that workers pass a fit test prior to use of a respirator in a contaminated area.

How important is fit?

Fit is very important. If a respirator does not seal tightly to the face, airborne hazards can penetrate or enter underneath the facepiece seal and into the breathing zone. It is very important to always follow the donning instructions and do a user seal check (fit-check) before entering the contaminated environment. With a tight-fitting respirator, such as an N95, FFP2 or FFP3, a good fit can only be obtained if the face is clean-shaven in the area where the respirator seals against the face. Beards, long mustaches, and stubble may cause leaks into the respirator. For workplace environments, such as health care facilities, you must follow local government standards and regulations concerning respirator use such as training and fit testing. In the U.S., the Occupational Safety and Health Administration (OSHA) requirements for respiratory protection (1910.134) must be followed including medical evaluation, training, and fit testing for employees required to use respirators in the workplace. Fit testing must be done before wearing a tight fitting respirator for the first time, and repeated at least annually or sooner if changes to facial structure occur that may affect respirator fit. A user seal check cannot be used as a substitute for the fit test.

In countries where the OSHA standards do not apply, health care workers and other employees required to wear a respirator should follow applicable national workplace standards, regulations and policies concerning use, fit-testing/checking and training.

What if I have a beard or stubble and want to wear a respirator for MERS-CoV exposures?

As noted above, at this time 3M is not aware of any recommendations for respiratory protection to help reduce exposure to MERS-CoV outside of health care settings. Therefore the choice to use a respirator is a personal one, with a respirator serving as just one of several preventative measures that can be used to help reduce exposure to the MERS-CoV. If you do choose to use a respirator to help reduce exposure to MERS-CoV, you should be aware that a tight sealing respirator (one where the sealing surface contacts the face) will not provide an adequate seal when placed over facial hair. A bearded worker will typically require a powered air-purifying respirator (PAPR) or supplied air respirator with a loose-fitting facepiece, hood or helmet in order to attain a proper seal.

How do I put on the respirator and check for proper fit?

The User Instructions for a 3M respirator contain the proper procedures for putting on the respirator and checking for fit and seal. It is very important to read and follow the donning instructions very carefully and to conduct a user seal check (fit check) every time the respirator is put on. The User Instructions are provided with the original packaging of the respirator. If you need instructions or have questions, please contact 3M Technical Service in the U.S. at 1-800-243-4630 or consult the website at www.3M.com/PPESafety.

How is a user seal check/fit check performed on a disposable filtering facepiece respirator?

To perform a user seal check on a 3M non-valved, cup shaped disposable filtering facepiece respirator, place both hands completely over the respirator and exhale. The respirator should bulge slightly. If air leaks between the face and the facepiece of the respirator, reposition it and readjust the nose clip for a more secure seal. If air leaks around the respirator edges, adjust the position on the face and the straps along the sides of the head and recheck fit. If a proper fit cannot be achieved, do not enter the area requiring respiratory protection. See specific product User Instructions for the most current user seal check/fit check instructions.

To perform a user seal check on a 3M valved, cup shaped disposable respirator, place both hands completely over the respirator and inhale. The respirator should collapse slightly. If air leaks between the face and the facepiece of the respirator reposition it and readjust the nose clip for a more secure seal. If air leaks around the respirator edges, adjust the position on the face and the straps along the sides of the head and recheck fit. If a proper fit cannot be achieved, do not enter the area requiring respiratory protection. See specific product User Instructions for the most current user seal check/fit check instructions.

What if I notice air leaking in during the user seal check?

If, during the user seal check (fit check), you notice air leakage around the edges of the respirator you should readjust the respirator. If you still notice air leakage, you should remove the respirator (in a clean area only). Review the instructions if necessary to make sure that you are putting it on correctly. Inspect the respirator to make sure that there is no damage to the respirator. You must be clean-shaven. Be sure that there is no hair, clothing or jewelry between your skin and the edge of the respirator. Put the respirator on again, according to the manufacturer's directions. Do a user seal

check (fit check). If you still cannot achieve a proper seal, do not enter the contaminated area. You may need to obtain a different size, make or model respirator.

In the U.S. and certain other countries, workers need to pass a fit test before wearing a tight-fitting respirator for the first time. In countries where fit testing is not required, 3M recommends that workers pass a fit test prior to use of a respirator in a contaminated environment. If you do not pass a fit test on the first try, you should remove the respirator. Reread the instructions and put it on again. Conduct a user seal check (fit check). If you do not feel any air leakage around the respirator edges, then you should try the fit test again. If you fail the fit test on the second try, do not enter the contaminated area. You should obtain a different size, make or model of respirator and conduct a fit test on that respirator.

Can disposable respirators, such as an N95 respirator be shared between people?

Disposable respirators should never be shared.

What is BFE, and what does it measure?

BFE stands for Bacterial Filtration Efficiency. This test evaluates how well a surgical or medical respirator or surgical mask can prevent biological particles from being expelled by the wearer into the environment. Bioaerosol particles generated during the BFE test are “large,” on the order of 1 to 5 microns in size. For comparison, particles used for respirator filter efficiency tests are much smaller, approximately 0.3 microns in size. The BFE test is a relative indicator of the performance of a medical, surgical or patient care mask but the results cannot be compared to respirator certification filtration efficiency.

Are government-certified respirators tested for BFE?

Particulate respirators are not necessarily tested for Bacterial Filtration Efficiency (BFE). The BFE result has little meaning for particulate respirators because more stringent filter efficiency tests are used for government certification. The manufacturers of combination approved respirator/surgical masks may publish BFE results. However, BFE results are not necessarily useful for applications outside of the health care industry.

Which 3M government certified respirators have been tested for BFE?

The following 3M respirators have been tested for Bacterial Filtration Efficiency (BFE). These 3M products all provide greater than 99% BFE against wearer-generated microorganisms.

3M™ N95 Health Care Particulate Respirator and Surgical Mask 1860 and 1860S

3M™ N95 Health Care Particulate Respirator and Surgical Mask 1870+

3M™ N95 Health Care Particulate Respirator and Surgical Mask 1870

3M™ N95 Health Care Particulate Respirator and Surgical Mask 1805 and 1805S

3M™ Particulate Respirator 8210, N95

3M™ Particulate Respirator 9210, N95

3M™ Particulate Respirator 9210+*, N95

3M™ EN149:2001 FFP2 Respirators 9320+*, 1862+ (Type IIR), 1802 (Type II) and 1802S (Type II).

3M™ EN149:2001 FFP3 Respirators 1863+ (Type IIR), 1883+ (Type IIR).

* Testing conducted on a model with similar construction.

Can a valved respirator be used by health care workers to help reduce exposures to the MERS-CoV?

A valved respirator is designed to allow for easy exhalation through a one-way exhalation valve. However, use must be in accordance with national guidelines. For example, in some countries such as the U.S. and Canada, it is not recommended that healthcare workers wear a valved respirator in a situation requiring a sterile environment, such as the operating room.

Should a patient with a MERS-CoV infection wear a respirator?

Typically respirators should not be worn by a person whose respiratory system has been compromised or who may have trouble breathing through a respirator, unless otherwise advised by their personal physician.

Is fluid resistance in a surgical respirator important?

It is up to the health care facility to determine the need to provide fluid resistant respirators or masks to their health care workers. In the U.S., OSHA has specific provisions under the Bloodborne Pathogen Standard that specifically details the “appropriateness” of personal protective equipment used by health care workers. Fluid resistance is the ability of a respirator’s or mask’s material construction to minimize fluids from traveling through the material and potentially coming in contact with the user of the facemask. Fluid resistance helps reduce exposure to blood or bodily fluids caused from splash, spray or splatter. If the mask or respirator comes in contact with blood or body fluids of a patient, it is recommended the respirator be changed as soon as possible. Respirators should only be removed when the wearer is in an area that is considered free of airborne hazards, including patients with confirmed or suspected infection with MERS-CoV.

Can I clean or wash a disposable respirator?

Under no circumstances should an attempt be made to clean or wash a disposable respirator.

If I use the disposable respirator in areas (i.e. healthcare settings) with suspect or confirmed patients with MERS-CoV infection should I discard the respirator after use?

As of April 18, 2014, the U.S. CDC states that “Upon exit from the patient room or care area, PPE should be removed and either discarded, or for re-useable PPE, cleaned and disinfected according to the manufacturer’s reprocessing instructions <http://www.cdc.gov/coronavirus/mers/infection-prevention-control.html> .

What is the risk of inhaling biological particles that have been collected by the respirator filter?

The risk of inhaling particles that have been collected by a filter is low, particularly in very clean areas (such as a patient care setting or a home). When particles are collected on a filter they are strongly held to the filter. Breathing through a filter has not been shown to dislodge the particles collected in that filter. However, it is important to note viruses may be spread by touching contaminated objects. Based on the U.S. CDC recommendations for SARS, a respirator worn in an area with a suspect or confirmed patient is considered potentially contaminated with infectious material.

Can particles, such as bacteria or viruses, be reaerosolized from the respirator filter?

Particles are collected on a filter are strongly held to the filter. Proper and normal use of a respirator has not been shown to reaerosolize the particles collected in that filter. However, just because particles may not reaerosolize, does not mean that a respirator can be reused. It is important to note that some viruses may be spread by touching contaminated objects. Based on the U.S. CDC recommendations for SARS, a respirator worn in an area with a suspect or confirmed patient is considered potentially contaminated with infectious material.

Do 3M disposable respirators contain natural rubber latex?

None of 3M NIOSH approved N95, N100, R95, P95, or P100 disposable respirators contain components made from natural rubber latex. Many other 3M respirators sold outside the U.S. do not contain components made from latex. However, there are some that contain natural rubber latex components, and these respirators carry a statement on the primary packaging similar to the following: "This product contains components which contain natural rubber latex which may cause allergic reaction." If you require information on which 3M products contain natural rubber latex components, please contact your local 3M office.

Do any 3M disposable respirators contain fiberglass material?

No. All 3M disposable respirators have filter media made from polypropylene and coverings made from a combination of polypropylene and polyester.

Is a fit test hood system safe from contamination?

The fit test hood used in the 3M™ Qualitative Fit Test Apparatus FT-10 and FT-30 is a closed environment. The following precautions apply:

1. All individuals with suspect or confirmed infection with MERS-CoV should be eliminated from fit testing.
2. All subjects should thoroughly wash their hands.
3. The subject should not touch the test hood with his or her hands, and should wear protective gloves and/or practice proper hand hygiene following any contact with the fit test hood. The test administrator handles the placement of the hood.

4. If the subject coughs or sneezes during the test, the hood should be disinfected with typical disinfectant such as dilute solution of common bleach. (The U.S. CDC has made recommendations with regards to the SARS virus. They recommend that EPA-registered disinfectants or 1:100 dilution of household bleach and water should be used for surface disinfection and disinfection on noncritical patient-care equipment.
http://www.cdc.gov/hicpac/Disinfection_Sterilization/3_2contaminatedDevices.html)

EYE AND FACE PROTECTION

What do the U.S. CDC, WHO and ECDC recommend for eye or face protection against MERS-CoV?

The U.S. CDC, WHO and ECDC have issued guidance for *individuals in health care settings* who may be potentially exposed to MERS-CoV. Users should monitor the U.S. CDC, WHO, ECDC and their local health authority websites in order to ensure that they receive the latest guidance from those organizations.

As of April 18, the U.S. CDC states that “Standard, contact, and airborne precautions are recommended for management of hospitalized patients with known or suspected MERS-CoV infection based on CDC's case definition for [patient under investigation](#). These recommendations are consistent with those recommended for the coronavirus that caused severe acute respiratory syndrome (SARS).” The personal protective equipment recommended for health care personnel includes gloves, gown, eye protection (goggles or face shield) and respiratory protection.
<http://www.cdc.gov/coronavirus/mers/infection-prevention-control.html>

In “Infection prevention and control during health care for probable or confirmed cases of novel coronavirus (nCoV) infection” published on May 6, 2013 (the most current WHO guidance as of April 17, 2014), WHO recommends that goggles or faceshield should also be worn when performing aerosol-generating procedures. Furthermore, health care workers and visitors should wear goggles or face shield or when in close contact (within 1 meter) of patients with probably or confirmed MERS-CoV infection. In addition WHO recommends that all individuals, including visitors and HCWs, when in close contact (within 1 meter) or upon entering the room or cubicle of patients with probable or confirmed MERS-CoV infection should always wear eye protection (goggles or faceshield).

http://www.who.int/csr/disease/coronavirus_infections/IPCnCoVguidance_06May13.pdf .

As of May 4, 2014 the most recent infection control guidance from the ECDC was published in “Severe respiratory disease associated with Middle East Respiratory Syndrome Coronavirus (MERS-CoV),” 9th update, 24 April 2013. The ECDC states that “Healthcare workers caring for patients under investigation for MERS-CoV or confirmed cases should exercise standard precautions (including hand hygiene) as well as contact and airborne precautions. This entails the use of personal protective equipment (PPE) consisting of a well-fitted single use FFP2 or FFP3 respirator, gloves, eye protection and gown.” Additionally, they state “It should be noted that the EU recommendation specifying a FFP2 or FFP3 mask to be used when caring for patients under investigation differs from the WHO recommendation (medical/surgical mask). Further information on infection control can be obtained from a WHO interim guidance document. A recent study demonstrated MERS-CoV viability in experimentally aerosolized particles. Therefore, medical procedures require particular

protection measures, particularly aerosol-generating procedures and all airway management, such as tracheal intubation, bronchoalveolar lavage, manual ventilation, and other diagnostic airway procedures. The number of persons in the room should be limited to a minimum during such procedures; all persons present should wear: a well-fitted FFP3 respirator; tight-fitting eye protection; and gloves and long-sleeved impermeable protective gowns.”

Can the general public use eye or face protection to help reduce exposure to MERS-CoV?

At this time, 3M is not aware of any recommendations for eye or face protection to help reduce exposure to MERS-CoV outside of health care and laboratory settings. Therefore the choice to use eye or face protection is a personal one. Eye or face protection is just one of several preventative measures that can be used to help reduce exposure to the MERS-CoV. In general, thorough and frequent hand washing, close attention to hygiene and not sharing food utensils or towels with others is recommended to help reduce exposures to viruses.

Can eye or face protection protect you from biological agents such as bacteria or viruses?

Bacteria and viruses may be spread from person to person in different ways. Therefore, eye or face protection is just one of several preventative measures that can be used to help reduce exposure to biological agents. The U.S. National Institute for Occupational Safety and Health (NIOSH) has provided 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 (Sept. 2004 <http://www.cdc.gov/niosh/topics/eye/eye-infectious.html>). Eye protection is intended to help 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. Eye or face protection may help reduce exposures to airborne biological contaminants such as MERS-CoV, but they do not eliminate the risk of exposure, infection, illness, or death.

Please also consult page 1 of the 3M Technical Data Bulletin #192 — Eye Protection for Infection Control

<http://multimedia.3m.com/mws/mediawebserver?mwsId=66666UF6EVsSyXTtNxMa5XfEEVtQEVs6EVs6EVs6E666666-->

What are safety glasses?

Safety glasses can help provide eye protection from impact hazards; however, they do not provide the same level of splash or droplet protection as goggles and generally should not be used for infection control purposes.

What are goggles?

Goggles are designed to fit snugly, but not necessarily seal around the wearer’s eyes. NIOSH states:

“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 efficacious, 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.”

Goggles are designed to form a close fit around the wearer’s eyes and hence help provide greater protection compared to safety spectacles. The performance characteristics of goggles approved under European standards are shown by their ‘field of use’ marks. This is a numeric system defined by the protective eyewear standard EN166, which informs the user about the product’s capabilities. The following marks should be used to match suitable products to specific hazards:

3 – Protection against liquid droplets

4 – Protection against large dust particles ($>5\mu\text{m}$)

5 – Protection against gasses, vapors and fine dust particles ($<5\mu\text{m}$)

What are face shields?

Faceshields are designed to help shield portions of the wearer’s face. Face shields can be a useful complement to goggles for infection control. Goggles are designed to contact the face and help protect a wearer’s eyes from direct contact with splashes, sprays, and droplets. Face shields can help prevent splashes, sprays and droplets from reaching the face including the eye area and can help prevent contamination of PPE worn on the face. Face shields should have crown and chin protection and wrap around the face to the point of the ear. 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.

NIOSH states “disposable face shields for medical personnel made of light weight films that are attached to a surgical mask or fit loosely around the face should not be relied upon as optimal protection.”

What are full facepiece respirators?

Full facepiece respirators are designed to help seal against the face from below the chin to above the eyes. In the event respiratory protection along with eye protection is needed, a full facepiece respirator may be selected. A full facepiece respirator can be used as primary eye protection for splashes, sprays, and droplets that may be encountered in an infection control situation.

Can corrective eyeglasses or contact lenses be used to help reduce exposures to biological agents?

Corrective eyeglasses or contact lenses alone are not considered eye protection. Therefore, they should not be used to help reduce exposure to biological agents.

How important is fit?

Fit is very important. If the eye or face protection does not fit, it will not function properly.

How should I clean or wash eye and face protection that has been exposed to biological agents?

According to CDC, the front of a mask, goggles and face shield are considered contaminated. Although 3M is not aware at this time of any specific recommendations for cleaning and disinfecting of eye and face protection that has been exposed to MERS-CoV, CDC had reported several methods for disinfection of devices exposed to the SARS coronavirus. (www.cdc.gov/hicpac/Disinfection_Sterilization/3_2contaminatedDevices.html). Please consult with the facility's Infection Control Practitioner and the eye or face protection manufacturer regarding which cleaning and disinfection agents may be appropriate. Note, however, that any washing or disinfection of eyewear must occur within parameters set in the manufacturers User Instructions, and that repeated washing or disinfection of eyewear may diminish anti-scratch or anti-fog coatings.