



## **Face Shield and Goggles: Recommended Guidelines**

Manufactured in the Republic of South Africa by the  
Cosmetics Chemical Pharmaceutical and Plastics Manufacturing Industry for General Public Use

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## 2 Overview

Face shields and Goggles are recommended to be used during COVID-19 pandemic for additional protection of the facial area and associated mucous membranes (eyes, nose, mouth) from droplets, sprays and liquid airborne that would potentially spread COVID-19 infection. Face shields and Goggles are generally not used together but used separately in conjunction with other protective safety equipment, such as a face mask or a respirator.

The World Health Organisation (WHO)<sup>1</sup> indicates that the COVID-19 virus is transmitted between people through close contact and droplets. Airborne transmission may occur during aerosol generating procedures and support treatments (e.g. tracheal intubation, non-invasive ventilation, tracheotomy, cardiopulmonary resuscitation, manual ventilation before intubation, bronchoscopy); thus, WHO recommends airborne precautions for these procedures<sup>2</sup>.

The most effective preventive measures:

- maintaining physical distance, a minimum of 1.5 metre, from other individuals;
- wearing a fabric face mask<sup>3,4</sup> when in public;
- performing hand hygiene frequently with an alcohol-based hand rub if available and if your hands are not visibly dirty or with soap and water if hands are dirty;
- avoid touching eyes, nose and mouth;
- wiping down surfaces with sanitizers/disinfection liquids or washing with soap and water regularly,
- practicing respiratory hygiene by coughing or sneezing into a bent elbow or tissue and then immediately disposing of the tissue;
- wearing a medical mask if you have respiratory symptoms and performing hand hygiene after disposing of the mask;
- routine cleaning and disinfection of environmental and other frequently touched surfaces.
- Closely monitor the National Department of Health and the WHO's website and communications to keep abreast with latest information and updates.

Face shields and Goggles, when used in conjunction with the precautionary measures above and with additional recommended measures such as the wearing of face masks or respirators, have been evaluated to provide an additional potential protection from virus infection and spread<sup>5</sup>.

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<sup>1</sup> [https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public/when-and-how-to-use-masks&publication=rational-use-of-personal-protective-equipment-for-coronavirus-disease-\(covid-19\)-and-considerations-during-severe-shortages](https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public/when-and-how-to-use-masks&publication=rational-use-of-personal-protective-equipment-for-coronavirus-disease-(covid-19)-and-considerations-during-severe-shortages)

<sup>2</sup> [https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public/when-and-how-to-use-masks&publication=rational-use-of-personal-protective-equipment-for-coronavirus-disease-\(covid-19\)-and-considerations-during-severe-shortages](https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public/when-and-how-to-use-masks&publication=rational-use-of-personal-protective-equipment-for-coronavirus-disease-(covid-19)-and-considerations-during-severe-shortages)

<sup>3</sup> [http://www.thedtic.gov.za/wp-content/uploads/Updated\\_Recommended\\_Guidelines\\_Fabric\\_Face\\_Masks\\_May2020.pdf](http://www.thedtic.gov.za/wp-content/uploads/Updated_Recommended_Guidelines_Fabric_Face_Masks_May2020.pdf)

<sup>4</sup> Fabric face masks are not meant to be worn in a medical care environment and should not be a substitute for medical masks.

<sup>5</sup> <https://webcache.googleusercontent.com/search?q=cache:toEMcjjTTCoJ:https://apps.who.int/iris/rest/bitstreams/1274340/retrieve+&cd=1&hl=en&ct=clnk&gl=za>

**The reuse of face shields and goggles, and/or other reusable PPE, without a reprocessing/decontamination/sanitisation/disinfection process is considered inadequate and unsafe.**

These recommended guidelines are intended for use by the general public, including workers in the manufacturing sector, State Owned Enterprises (SOEs), Government procurement: National, Provincial and Municipal levels, as well as local public health officials, leaders in occupational health services and infection prevention and control programs; and other in healthcare settings who are responsible for developing and implementing policies and procedures for preventing pathogen transmission in healthcare environments.

These recommended guidelines have been developed through engagements with publicly available research and recommendations from authorities including the World Health Organisation (WHO), colleagues from the Southern African Protective Equipment Marketing Association (SAPEMA)<sup>6</sup>, South African Plastics Association (Plastics SA)<sup>7</sup>, Industry Specialists, staff at the National Department of Health and the Department of Trade, Industry, and Competition<sup>8</sup>.

Generally, Personal Protective Equipment (PPE) forms an integral part of the preventive and therapeutic intervention worldwide to tackle COVID-19 used worldwide by healthcare staff and workers to protect against getting infected. Even as the entire world is presently battling its worst ever healthcare crisis in the form of COVID-19, substandard Personal Protective Equipment (PPE) continue to find its way into the healthcare system and general public use.

Some companies have begun supplying sub-standard products to satisfy runaway demand on a range of PPEs that remain in short supply and manufacturers struggle to keep up. In considering the scenario above, the recommended guidelines are developed in order to attain consistency in product design and development with the view to curb the practice.

These recommended guidelines are to provide support to local market and public within the Republic of South Africa for the manufacture and use of face shields and goggles and in the prevention of the spread and infection of COVID-19 virus. The Use of face shield and goggles, in addition to wearing a mask or respirator is recommended, especially for those who are in close proximity to other people and are not able to maintain social distancing measures of a least 1.5 metres.

Face shields and goggles offer a number of added advantages. While some face masks have limited durability and little potential for reprocessing, face shields and goggles have a higher durability, can be reused much more often (when manufactured for this purpose) and are easily cleaned with soap and water, or common household disinfectants. They should be comfortable to wear over an extended period of time, protect the portals of viral entry,

<sup>6</sup> Deleane Luzzatto, <https://www.sapema.org/>

<sup>7</sup> Annabe' Pretorius , Anton Hanekom ,Plastics SA , <https://www.plasticsinfo.co.za/>

<sup>8</sup> Chemical Cosmetics Plastics and Pharmaceuticals Chief Directorate, [www.thedtic.gov.za](http://www.thedtic.gov.za)

and reduce the potential for autoinoculation by preventing the wearer from touching their face. Eye protectors should be free from projections, sharp edges or other defects, which are likely to cause discomfort or injury during use.

Within the Republic of South Africa (RSA) there exist extensive capability and capacity to manufacture face shields and goggles using local materials. Interested parties should reach out the Department of Trade, Industry and Competition's Cosmetics Chemical Pharmaceutical and Plastics should they require additional information to support their face shields and goggles localisation efforts<sup>9</sup>.

### **3 South Africa's Localisation and Economic Growth Objectives**

- a. In line with the Republic of South Africa's Re-imagined Industrial Strategy<sup>10</sup> and the Plastics Strategy Document<sup>11</sup> objectives it is highly recommended that face shield and goggle manufacturers source raw materials from within local industry. This will contribute to our localisation efforts to boost our economic development and job creation. It must be stated that the use of imported materials in the manufacture of face shields and goggles is strongly discouraged. For the public sector procurement process attention must be brought to the designated products legislation.<sup>12</sup>
- b. The raw material recommendations for making face shield and goggles, found within this document, are properties found in materials that can be locally sourced within the Republic of South Africa.
- c. It is imperative that face shields and goggles manufacturers ensure that efforts to manufacture these products are done within the broader context of supporting South Africa's local Industry/ies, and our government's efforts to ensure localisation of value-chains and broader economic prosperity – in keeping with our country's developmental objectives and Industrial Policy.
- d. Manufacturers and suppliers of face shields and goggles are recommended to contact the Department of Trade, Industry and Competition to ensure compliance with our Laws and Regulations, especially when supplying products to any public entity/authority or during an exemption application for materials not locally available.
- e. The Republic of South Africa's Preferential Procurement Policy Framework Act (PPPFA) regulations, which came into effect on the 7 December 2011, empower the Department of Trade, Industry, and Competition (the dtic) to designate industries, sectors and sub-sectors for local production at a specified level of local content. For a list of Designated Industries and reference to legislation please refer to:

<http://www.thedtic.gov.za/sectors-and-services-2/industrial-development/industrial-procurement/> . As custo-

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<sup>9</sup> It is also important to note that most technical descriptions and reference to related standards of eye and face protection have locally been taken from industrial applications where they are mainly used and some of the requirements may not be applicable, however is pertinent to the specifications and standards requirements to which they are manufactured.

<sup>10</sup> <http://www.thedtic.gov.za/wp-content/uploads/Re-imagining-Industrial-Strategy-FINAL-13-June-2019.pdf>

<sup>11</sup> [http://www.thedtic.gov.za/wp-content/uploads/DTI-Plastic-strategy-plastic-convertors-study\\_17062014.pdf](http://www.thedtic.gov.za/wp-content/uploads/DTI-Plastic-strategy-plastic-convertors-study_17062014.pdf)

<sup>12</sup> [http://www.thedtic.gov.za/wp-content/uploads/the-dti-Local\\_Content.pdf](http://www.thedtic.gov.za/wp-content/uploads/the-dti-Local_Content.pdf)

dian of the legislation, regulations and policy the dtic may and can request to review public sector procurement at any time, especially in relation to designated local content products.

## 4 Recommended Guidelines

- Face Shield and Goggles Manufacturers must take cognisance of the diversity of the South African population and the variations that would impact the user negatively.
- Clear instructions must be provided how to use, take off, clean, reuse, discard, and recycle of product/s.

### 4.1 Goggles

- a. Must have a functional seal with the skin of the face
- b. Recommended to be made from flexible PVC frame to easily fit with all face contours with even pressure.
- c. Must enclose eyes and the surrounding areas
- d. Accommodate wearers with prescription glasses.
- e. Must be of a clear non-toxic material that serves as lens with fog and scratch resistant treatments as added optional extras and must be specified by the end user as requirements.
- f. Must have an adjustable band, made from non-toxic (preferably sustainable) material to secure firmly so as not to become loose during activity.
- g. Must have indirect venting to avoid fogging.
- h. May be disposable or re-usable (provided appropriate arrangements for decontamination are in place)
- i. May be made as disposable product (must be clearly indicated that it should be disposed after single use or number of uses).

#### 4.1.1 Direct vent goggles

- a. The direct vent goggle consists of a clear/transparent frame/lens housing with perforations directly through the sides, top and bottom fitted with a clear/transparent lens, and an adjustable elastic headband.
- b. The goggle frame is directly vented around the surfaces of the frame with small (+/-1mm) perforations to allow the flow of air into the inner frame areas to reduce fogging and moisture droplets forming on lens and frame surfaces.
- c. Perforations are of a size to restrict foreign objects from penetrating through the perforations.
- d. The frame should be designed and manufactured from flexible /soft material to fit all.
- e. These should be adapted to fit the South African population's demographic facial contours and provide a seal between the frame and face.
- f. Materials should be durable to cleaning, disinfection and sanitation (bearing in mind the impact of cleaning products on the materials).
- g. Cleaning of the goggles should not diminish its functionality.
- h. The depth of the goggle frame must be able to accommodate the wearing of prescription spectacles within the frame with no contact with the goggle lens or frame.

#### 4.1.2 Indirect Vent Goggles

- a. The indirect vent goggles consist of a frame fitted with indirect circular vents on top and sides, usually two vents on top and one on each side, and in some cases also two on the bottom of the frame.
- b. Other goggles have indirect slotted vent positioned on the top of the goggle frame that runs parallel to the lens.
- c. Both these venting systems allow venting of the inner frame and lens with the venting system reducing the ingress of dust particles into the inner housing and onto the inner lens surface, which can cause an irritation to both the eyes and the lens surface with the exception of the venting system all other specifications, design and performance requirements are the same as the direct vent goggles in all respects.<sup>13</sup>

## 4.2 Face Shields

- a. Face shields<sup>14</sup> are to serve as an added protection and should be used in conjunction with other preventative mechanisms to reduce the transmission of viruses, such as regular washing of one's hands, wearing of masks and practicing social distancing of a minimum 1.5 metres space between people.
- b. A face shield is, on the most basic level, a transparent screen that covers the face of the user and helps in the prevention of infectious droplets, splashes, sprays, and spatter of body fluids from entering the eyes, nose and/or mouth – reducing the transmission and infection of viruses.
- c. A face shield can be worn, and is recommended to be worn in conjunction with a face mask or respirator.
- d. In a health care setting a Face Shield **MUST** be worn only as a secondary protective barrier and not as a primary protective barrier.
- e. The intention of using a face shield is to block liquid splashes and sprays from reaching the face and also stopping the user from constant touching of one's face.
- f. An added advantage of a face shield is that by design it should be more durable and be able to be worn multiple times – after disinfection– without losing its functionality, durability and comfort to user.
- g. A face shield should cover one's entire face, which includes all the portals of entry to one's body on one's face such as one's eyes, the nose, and the mouth, and be able to be worn for extended periods of time safely and securely.
- h. A face shield should be comfortable and provide added protection in the fight against viruses.
- i. A face shield must/should be designed to also cover the sides of the face and below the chin, there should be no exposed gap between the forehead and the shield's headpiece/attachment.
- j. The face shield must be labelled accurately to describe the product as a face shield, list of the materials used in its production, care and cleaning procedures, the number of washes it can withstand with soap and water, and when to discard a face shield (a defined period its functionality has been compromised).

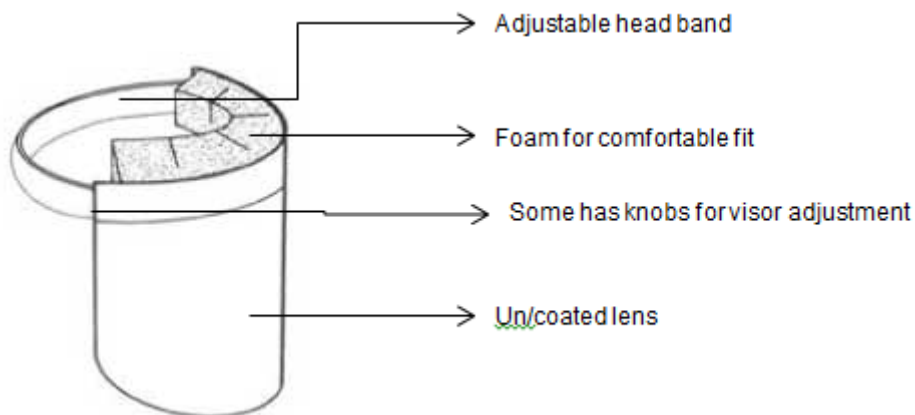
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<sup>13</sup> Mike Freemantle, <https://www.sapema.org/> technical inputs cited from REF. MJF/SAPEMA/TECH/01 document prepared for SAPEMA.

<sup>14</sup> a. The National Standard for Eye and Face protection is the South African National Standard (SANS) 50166.

- k. The face shield, when sold and distributed, must include a description that the product is intended for either a single use and/or for multiple uses by the same user, and includes instructions for recommended cleaning and/or disinfection materials and processes and guidelines how to dispose it correctly.
- l. It is recommended that recyclable materials be used and to be indicate on the product to inform consumers of the need to recycle the product after its expiration and loss of function.
- m. The face shield is not intended for any use that would create an undue risk in light of the public health emergency.
- n. The labelling must state that correct use of a face shield and its secondary protective barrier functionality.
- o. One size should fit all adults, with size variation for children.
- p. If size variation exists, taking cognisance of the South Africa population, this must be clearly indicated on the product.
- q. The visor should provide for complete protection for the entire face (from flying drops and sprayed liquids).
- r. Must be light weight clear (see through) face shield and comfortable to user.
- s. Easy to reuse after sterilisation, cleaning and disinfection, if reusable product.
- t. Easy to wear and remove and clean.
- u. Headband should be ergonomic in design/material for comfort and durability of use.
- v. Material must be sourced locally in the Republic of South Africa<sup>15</sup>.

#### 4.2.1 Figure 1: Basic face shield design with foam<sup>16</sup>



<sup>15</sup> Unless necessary authorities have provided guidance for materials being sourced outside the Borders of South Africa.

<sup>16</sup> Source: <http://www.unimedcorp.com/PPE/splashshieldoriginal.htm>





## 4.3 Materials

### 4.3.1 Goggles

The goggle frames

- It is recommended that goggles could be manufactured from Polyvinyl chloride (PVC) or similar material that is pliable enough to seal against the facial contours and maintain rigidity to hold the lens securely in position.
- The grade of material used in the frame must not cause irritation or allergic reaction when in contact with the skin of the user and allows the penetration of light and vision through the frame.

*The goggle lenses*

- Made from clear and impact-resistant material, e.g. clear polycarbonate or any other compliant material that allows one to see clearly – without allowing any droplets or liquids to pass through and/or enter.
- Must be clear lens with minimal tinting and provide a clear field of vision, be optically correct with no blemishes or inconsistencies in the lens or surfaces.
- The lenses must be securely mounted in the goggle frames and not easily dislodged by bumps.
- Anti-fogging properties and scratch resistant.

*Securing headband*

- To be a minimum of 15mm width braided elastic to provide a secure positioning of goggle frame.
- The headband must be adjustable to resize and be comfortable for extended periods for the wearer.
- Made from material that are sustainable and non-toxic or cause irritation to the user.
- Taking cognisance of the diversity of the South African population.

#### 4.3.2 Face Shield

- a. Potential Materials that could be used: Polyethylene terephthalate (PET), polycarbonate (PC), polyvinyl chloride (PVC), and any other appropriate materials. Manufacturers should strive at all times to use locally manufactured materials and/or sheeting and if materials totally not available locally one must apply for exemption from **the dtic** to import the material.
- b. Can be disposable but preferably made to be reusable.
- c. The face shield should have anti-glare, anti-static, and, ultraviolet light (UV) protection, and scratch resistance properties.

#### *Forehead Strap/Band*

- a. Could be manufactured from Textiles/Foam (preferably closed cell foam) or similar material that is durable and can be cleaned easily with warm water and soap (with visor or separately).
- b. It is recommended that the material used is non-toxic and made from material that does not cause discomfort and irritation to the user.
- c. The adjustable headband/frame is used to secure the shield during use and should not cause discomfort or lose its functionality during use.
- d. It should be durable and be easy to clean with warm water and soap.
- e. Headband/frame should have a long life span, will not damage and/or be needed to be replaced often.
- f. Attachment should be able to be washed with the visor or separately without damage and loss of properties/functionality.
- g. Adjustable to support comfortable fit, stability and functionality.

## 5 Criteria Guide

- Face Shield and Goggles must meet basic quality and performance measures, the South African Bureau of Standards<sup>17</sup> may and shall publish standards to support industry. It is obligatory on local industry to ensure adherence to best practices, basic quality and performance measures – as indicated in these guidelines and with latest information as published.
- A Facial Shield, in a healthcare setting is a secondary barrier and medical masks remain the primary barrier.
- Google Direct Venting should allow for openings/gaps on the frame to allow air-flow to prevent lenses from fogging.

Indirect Venting is achieved by designing the goggle frames to limit “direct airflow” (each manufacturer has their own method of achieving this).

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<sup>17</sup> <https://www.sabs.co.za/>

## 6 Design and Properties

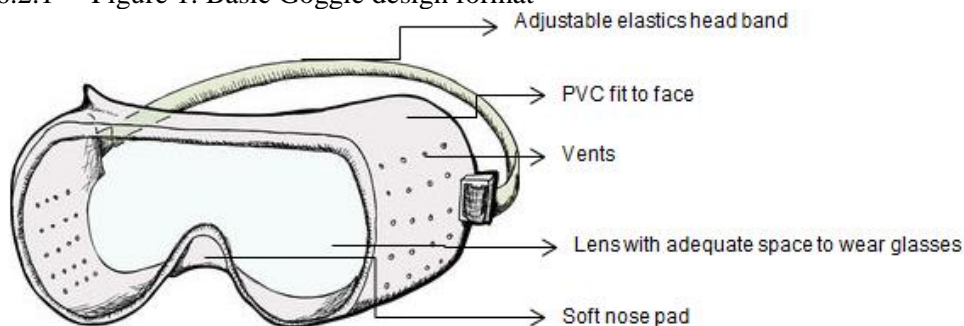
### 6.1 Face shield

- Face shields are either reusable if disinfected and also disposable depending on the type of material used which can withstand disinfectant or cleaning processes.
- They vary in lens thickness and generally the thinner the lens the more disposable the face shield is and thicker lens of above 400um (micron) the most reusable the face shield.
- Face shield also can come different sizes and it is recommended that manufactured Face Shields cover the entire face and a portion of the neck of the user, taking the South African population into consideration when manufacturing face shields.

### 6.2 Goggles

The goggles are recommended to be reusable, fitted with polycarbonate un/coated lens, venting and adjustable head band padded with closed cell foam made from any inert polymeric materials like Polyethylene or injection moulded solid plastics part but in surgical context, the injection-moulded plastic is recommended or similar materials.

6.2.1 Figure 1: Basic Goggle design format<sup>18</sup>



## 7 Instructions for Using and Care

### 7.1 Goggles

- a. Fit goggles over eyes and pull elastic strap over the back of your head.
- b. Strap can be adjusted by pulling the ends of the material through the sides of the goggles frame.
- c. To clean the goggles, use a warm soapy solution or sanitiser with min 70% alcohol content, with a soft cloth.
- d. Goggles may be washed in mild soft soap solution and lens cleaned in the solution with a clean soft cloth taking care not to scratch the lens surfaces or use appropriate disinfectant.
- e. Storage must be in a clean dry environment not exceeding 25-degree C° out of direct sunlight.
- f. Recommended to clean directly after use and re-clean prior to use with a warm soapy solution or sanitiser with min 70% alcohol content, with a soft cloth.
- g. To not be touched during use.

<sup>18</sup> Source: <https://www.canstockphoto.com/>

## 7.2 Face Shield

- a. Place headgear on head with the attachment facing the back.
- b. The user should be able to see and speak without being radically hindered when using the face shield.
- c. Ensure the face shield and attachments have been cleaned before use.
- d. Do not touch the Face Shield when in use.
- e. Do not touch the front of the Face Shield.
- f. Ensure the Face Shield is comfortable to be worn over extended period of time.
- g. Use a face mask or respirator with a face shield.
- h. Disinfect/clean/sanitise after each use.
- i. A face shield should fit comfortably on the users face, and not cause discomfort during use.
- j. If reusable: Wash and clean after each use.

## 8 Note

- Children and physical or other applicable vulnerable persons must, at all times, be supervised when wearing goggles or face shields.
- It is recommended to please stay informed of additional resources and preventative methods in the response to viruses by monitoring the National Department of Health and the World Health Organisation's websites and communication channels.
- All goggles and face shields must be packaged with care, use and storage instructions for reusable products.
- All disposable products must be marked as such.
- Size variation of product should be clearly displayed, if one size fits all this should also be visible if applicable. Sizes should take into consideration the South African demographic.
- Materials used and location of source must be displayed on packaging.
- Province within the Republic of South Africa where product is manufactured must be displayed on packaging.
- Product must be clearly marked as recyclable and non-toxic, information to be provided for recycling.
- The Proudly South Africa<sup>19</sup> mark/branding to promote locally made product, using local materials and local workers, is recommended to be displayed on products.

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<sup>19</sup> <https://www.proudlysa.co.za/>

## 9 Enquiries

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