Eye Protection

The portfolio of 3M™ Eye Protection products promises quality eyewear that provides an optimal balance of comfort, protection and design. 3M™'s Engineers have worked hard to ensure that the level of comfort and style matches the standard of protection offered. The 3M™ portfolio offers the highest level of optical class. A broad range of eyewear products include durable anti-scratch and convenient anti-fog coatings.

About the range.

Eye Protection products are used in many industries to protect against flying particles, liquids, chemicals, molten metals, radiated head and glare. The 3M™ range of safety spectacles and goggles offer the user protection from eye hazards including medium impact flying fragments.

Our 3M™ safety spectacles and goggles can be used in conjunction with other Personal Protective Equipment products to give you added protection in different situations.

The 3M™ eye protection portfolio offers an unrivalled range of products for companies looking for comfortable and high-quality solutions to meet a variety of industrial applications.

Style.

Style is a critical factor when it comes to raising the acceptance of the user to wear personal protective equipment (PPE). 3M™'s range of eyewear gives you a variety of modern and stylish products from which to choose.

Protection.

The 3M™ range of eyewear offers high quality optics. Most of the 3M™ glasses and goggles offer reliable UV protection and all are tested and comply with AS/NZS1337.1

Comfort.

Many of our products come with adjustable features and soft materials in points of contact in order to improve fit and comfort to accommodate different face sizes and shapes.

Compatibility.

Eye protection often needs to be worn in conjunction with other protective equipment and it is essential that comfort and fit with other PPE is maintained. Most of the eyewear and goggle ranges can be used in combination with respiratory and hearing protection by 3M™. Compatibility with other PPE will be subject to a number of variable factors which requires the employer and end user to determine an appropriate selection depending on individual needs.

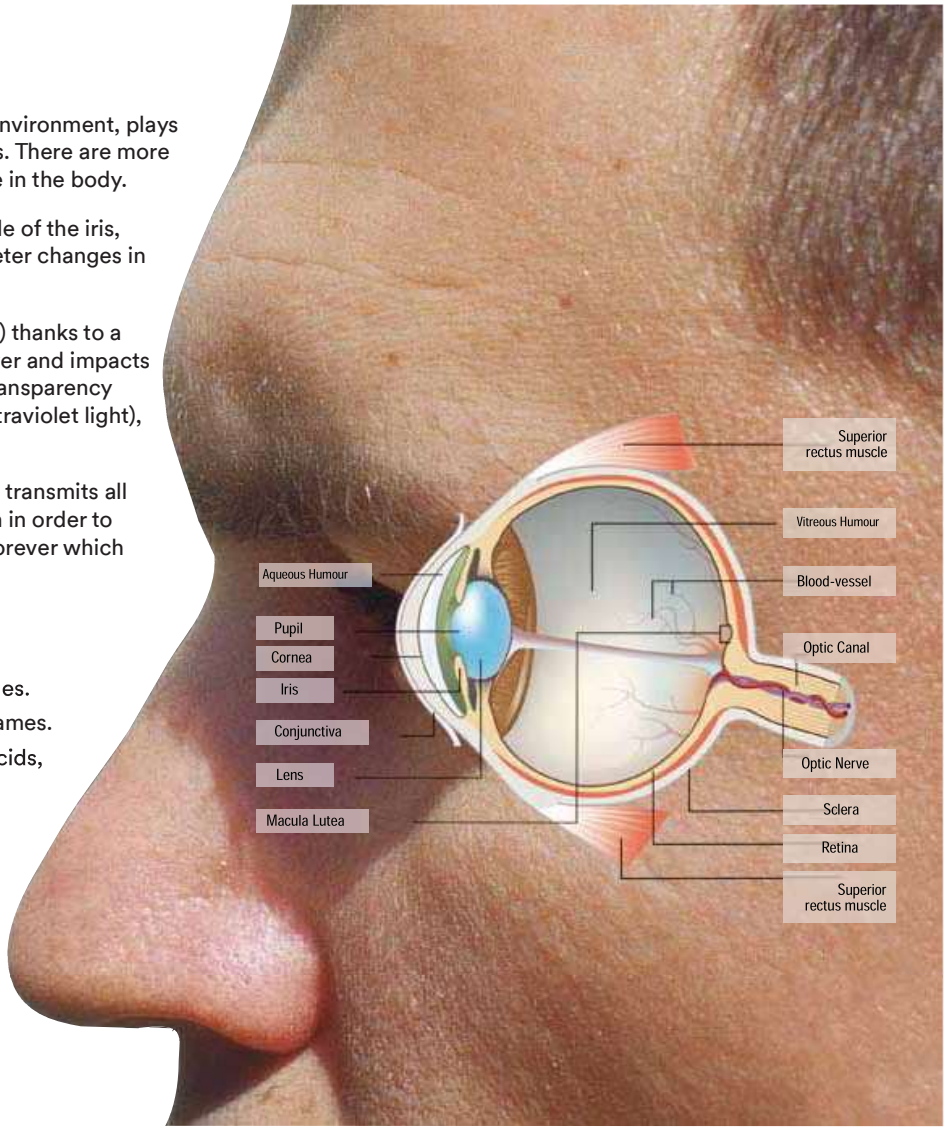
Human eye.

The Cornea in direct contact with an external environment, plays an essential part in the transmission of light rays. There are more nerve endings in the cornea than anywhere else in the body.

The Pupil (light controller), situated in the middle of the iris, works like the diaphragm of a camera. Its diameter changes in accordance with the light levels.

The Lens allows focusing (near vision, far vision) thanks to a control muscle. With age this muscle loses power and impacts near vision (presbyopia). The lens can lose its transparency due to exposure to IR (infrared light) and UV (ultraviolet light), resulting in loss of vision (cataract).

The Retina is where all light beams converge; it transmits all information through the optic nerve to the brain in order to create your vision. Burned retina cells are lost forever which causes irreversible loss of vision.

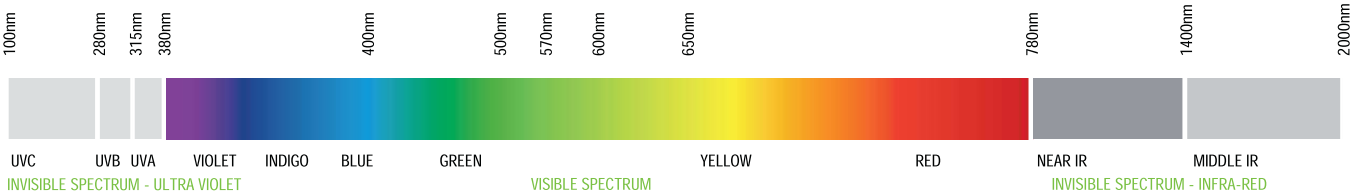


Industrial hazards for the eyes:

- Mechanical hazards: dust, shock, solid particles.
- Thermal hazards: hot liquid, molten splash, flames.
- Chemical or Biological hazards: splashes of acids, solvents, alkalis, infected blood.
- Radiation hazards: ultraviolet, infrared, visible light, laser.
- Electrical hazards: direct contact, short-circuit electric arc.

Facts on eye damage:

Every day worldwide more than 600 workers suffer from eye injury simply because they do not wear protective eyewear.



Potential Effects from Exposure to Light and other Radiation.

	UVC 100 to 280nm	UVB 280 to 315nm	UVA 315 to 380nm	BLUE LIGHT 380 to 480nm	VISIBLE LIGHT 380 to 780nm	NEAR IR 780 to 1400nm	MIDDLE IR 1400 to 2000nm
Cornea	Conjunctivitis Partial Blindness	Conjunctivitis Partial Blindness	Conjunctivitis Partial Blindness				
Lens	Conjunctivitis	Cataract Premature Ageing	Cataract Premature Ageing			Cataract	Conjunctivitis Partial Blindness
Retina	Conjunctivitis			Partial Blindness Photoretinitis	Vision Problems Discontinous Vision	Retinitis Pigmentosa	

Protection all the way.

Eyewear injuries happen when you least expect them. Be prepared.

We believe that health and safety are the priorities in any working environment, and that greater comfort and modern styles improve worker compliance with regulatory requirements for protective eyewear.

Therefore, we take care in adding comfort features where they are needed most, such as heavy contact areas like nose bridges and temple tips. The materials we choose to provide better comfort are designed to be durable to last and soft to the touch. We are also continually working on new coatings, new materials and new designs to bring the latest technology, innovation and fashion into our protective eyewear line.

What contributes to eye injuries at work?

- **Not wearing eye protection.** Nearly three out of every five workers injured are not wearing eye protection at the time of the accident.
- **Wearing the wrong kind of eye protection for the job.** 40% of the injured workers were wearing some form of eye protection when the accident occurred. However, these workers were most likely to be wearing protective eyeglasses with no side shields.

What causes eye injuries?

- **Flying particles.** Almost 70% of accidents resulted from flying or falling objects or sparks striking the eye. Injured workers estimated that nearly three-fifths of the objects were smaller than a pinhead. Contact with chemicals caused one-fifth of the injuries.

Where do accidents occur most often?

- **Craftwork.** Potential eye hazards can be found in nearly every industry, more than 40% of injuries occurred among craft workers, like mechanics, repairers, carpenters and plumbers.
- **Industrial equipment operation.** Over a third of the injured workers were operators, such as assemblers, sanders, and grinding machine operators. Almost half of these injured workers were employed in manufacturing.

How can eye injuries be prevented?

- **Always wear effective eye protection.** AS/NZ standards require that employers provide workers with suitable eye protection. To be effective, the eyewear must be of the appropriate type for the hazard encountered and properly fitted.
- **Better training and education.** Workers injured while not wearing protective eyewear most often said they believed it was not required by the situation. Even though the vast majority of employers furnished eye protection at no cost to employees, about 40% of the workers received no information on where and what kind of eyewear should be used.
- **Maintenance.** Eye protection devices must be properly maintained. Scratched and dirty devices reduce vision, cause glare and may contribute to accidents. Scratched or damaged eyewear should be replaced immediately.

How to pick the right tinted safety glasses for your job.

Safety glasses come in numerous shapes and styles, but do you know how to choose the right tinted safety glasses for your job? Safety glasses are available in many different tints that serve many different purposes, depending on the job at hand and your environment. Tinted safety glasses can help reduce glare, reflect bright light, absorb harmful light, including UV and infrared (IR), and even increase contrast in your field of vision. We're discussing the reasons why selecting the right lens for your specific application is so important and sharing what you need to know about popular lens tints.

Why does choosing the right lens matter?

Safety

The top reason why lens tint matters comes down to safety. When you're wearing the right colour of tinted lenses, not only will this help protect your eyes from the hazards of the job at hand, your eyes can feel less fatigued from strain that can result from different working conditions. This can result in fewer instances of workers removing eyewear from their face due to discomfort, thereby keeping them safer. It's also important to look for eyewear that meets AS/NZS 1337.1:2010, which means it has passed impact testing and other safety requirements that can help protect your eyes.

Health

The right eyewear can help reduce light sensitivities, eye strain and headaches for wearers. Polycarbonate lenses contain UVA and UVB coatings, which help protect eyes from light conditions that can damage them and increase a wearer's risk of developing eye disease, including cataracts. Different people have different needs, and choosing the right lens tints can be beneficial to a worker's health.

Productivity

Certain lens tints provide contrast and can help workers see fine details better and more easily. This can help workers complete certain tasks more accurately and more quickly.

Comfort

This is one of the most important considerations when choosing a lens tint – and personal protective equipment (PPE) in general! When PPE is comfortable, workers are more likely to wear it and keep it on. This is why 3M produces so many different styles of safety eyewear and encourages sampling different pairs of safety glasses to see what will work for a worker's individual face size and shape. To help objectively measure comfort and fit, we specially developed the 3M™ Eyewear Fit Testing System to help measure gaps and fit around the eyes to promote optimal protection and comfort.

3M™ Protective Eyewear Lens Tints.

Clear

It likely isn't a surprise that clear safety glasses are the most popular choice of safety glasses. Luminance transmittance is the highest with clear safety glasses, at 93%. This means that a clear lens allows for the maximum amount of light to pass through the lens, which is beneficial for tasks requiring well-lit environments. Safety eyewear lenses made with polycarbonate will naturally absorb approximately 99% of UVA and UVB light, which provides additional protection to the user. All 3M polycarbonate lenses have been tested to the newest AS/NZS 1337.1:2010 to ensure compliance and safety. Safety glasses with clear lenses are best for everyday use and are appropriate for a wide variety of applications and uses.

Protective eyewear.

Polycarbonate lens selection guide

This Polycarbonate Lens Selection Guide will help you understand the need for different colour lenses and lens types for industrial applications. It will also help you determine what type of lens is best for your application and environment. There are many lens options other than Clear, Grey and Mirror. When choosing a lens, the basic “rule of thumb” is to consider colour opposites.

Lens Colour/ Type	Lens Properties/Use	Suggested Applications/Environments
Clear	Maximum amount of light reaches the eye for good vision and acuity.	General everyday eye protection.
Grey, Bronze	Reduces brightness and glare from the sun.	Mainly for outdoor daytime use as in typical sunglass use.
Mirror & Coloured Mirror	Reduces brightness and glare from the sun.	Mainly for outdoor daytime use as in typical sunglass use.
Indoor/Outdoor	Reduces brightness and glare when working both indoors and outdoors.	For tasks requiring frequent movement indoor to/from outdoor. Loading docks, forklift drivers, construction or similar jobs.
Photochromic	Reduces brightness and glare from the sun and indoor lighting.	Lens darkens when outside and lightens when inside. Do not use for frequent indoor to/from outdoor movement.
Polarized	Reduces brightness and glare from the sun.	Exceptional for reducing reflective glare. Mainly for outdoor use.
Yellow/Amber	Increases contrast, reduces haze from blue lighting, excellent UV protection.	Good for inspection tasks and hazy, overcast or foggy days. Never use for night driving.
Filter Shades, Green & Grey	Reduces ultraviolet, visible and infrared radiation.	Predominately used for gas welding, cutting, brazing and soldering, metal making, furnace work and open flames.


Mirror & Coloured Mirror


Indoor/Outdoor


Photochromic


Yellow/Amber


Clear


Polarized


Filter Shades Grey & Green


Grey, Bronze

Lens markings.

Markings on eye protectors are a requirement for certification. It assists users in identifying their intended use.

They are identified by the following:

Standard	Lens Marking	Explanations
AS/NZS 1337.1:2010	I = Medium Impact O = Outdoor/Indoor (untinted or amber)	OUTDOOR UNTINTED (FOR INDOOR AND OUTDOOR USE) These protectors are intended for indoor and outdoor use where no optical radiation hazards exist other than solar radiation.
	I = Medium Impact (outdoor tinted, smoke, brown or photo chromatic)	OUTDOOR TINTED These protectors are intended for outdoor use where no optical radiation hazards exist other than solar radiation. They are intended to provide adequate protection against sun glare and ultraviolet radiation from the sun.
	Filter Lenses (green shade 3)	These filter lenses are intended for welder assistant use and provide limited protection against ultraviolet. Infrared and visible radiation. Not suitable for electrical welding.

Impact protection is determined by the metres per second in which a projectile travels. A ballistic test rig fires either a 6.00mm or a 6.35mm projectile ball at speeds from 12m, up to 190m per second dependent on which size projectile is used.

Standard	Rating	Ball Speed 6.00mm	6.35mm	Impact Protection Situations	Type of Protector
AS/NZS 1337.1:2010	Low Impact	12m/sec	12m/sec	Hammering, handling wire, brick chipping by hand	Spectacles
AS/NZS 1337.1:2010	Medium Impact	40m/sec	40m/sec	Grinding, machining metals, woodworking	Spectacles, Eyeshields or lightweight visor systems
AS/NZS 1337.1:2010	High Impact	120m/sec	110m/sec	Concrete cutting, high speed disc grinding, metal cutting	Visor systems only
AS/NZS 1337.1:2010	Extra High Impact	190m/sec	175m/sec	Abrasive shot blasting, ballistic, military, electrical maintenance	Visor systems only

Australian/New Zealand Standards AS/NZS 1336:2014 is an excellent reference document and provides assistance.
Medium impact safety spectacles provide protection from medium energy flying particles. For more information on tinted lenses and compliance testing to AS/NZS 1067 (sunglass standard) contact 3M.

Features selection guide.

	Lens Tints or Shades											
	Medium Impact	Clear	Grey	Smoke	Brown	Green	Amber	Sunset	Blue	Shade 3	Shade 5	
SAFETY EYEWEAR												
3M™ SecureFit™ Protective Eyewear 400 Series	✓	✓	✓									
3M™ SecureFit™ 200 Series	✓	✓	✓									
3M™ Solus™ 1000 Series	✓	✓	✓									
3M™ Helios Series	✓	✓		✓	✓		✓	✓				
3M™ CrackerJack	✓				✓							
3M™ Wasp Series	✓	✓		✓				✓				
3M™ Savanah Series	✓	✓		✓	✓							
3M™ Wolf Series	✓	✓		✓			✓		✓			
3M™ Ecko Series	✓	✓		✓								
3M™ Buster Series	✓	✓		✓			✓		✓	✓	✓	
3M™ Bark Hut Series	✓	✓		✓		✓						
3M™ Virtua™AP Classic Line Series	✓	✓	✓				✓					
3M™ 2700 Series	✓	✓										
3M™ 2720 Series	✓	✓										
3M™ Lexa™ Series	✓	✓	✓									

	Lens Coatings							Comfort				Adjustability		
	Blue Blocker	I/O Mirror	Anti-Scratch Lens	Anti-Fog Lens	Polarized	UV Protection	Scotchgard™ Coated	Anti-Static	Soft Nose Bridge	Soft Temple Tips	Pressure Diffusion Temple Technology	Dust Guard	Gasket	Replacement Strap
		✓							✓	✓	✓		✓	
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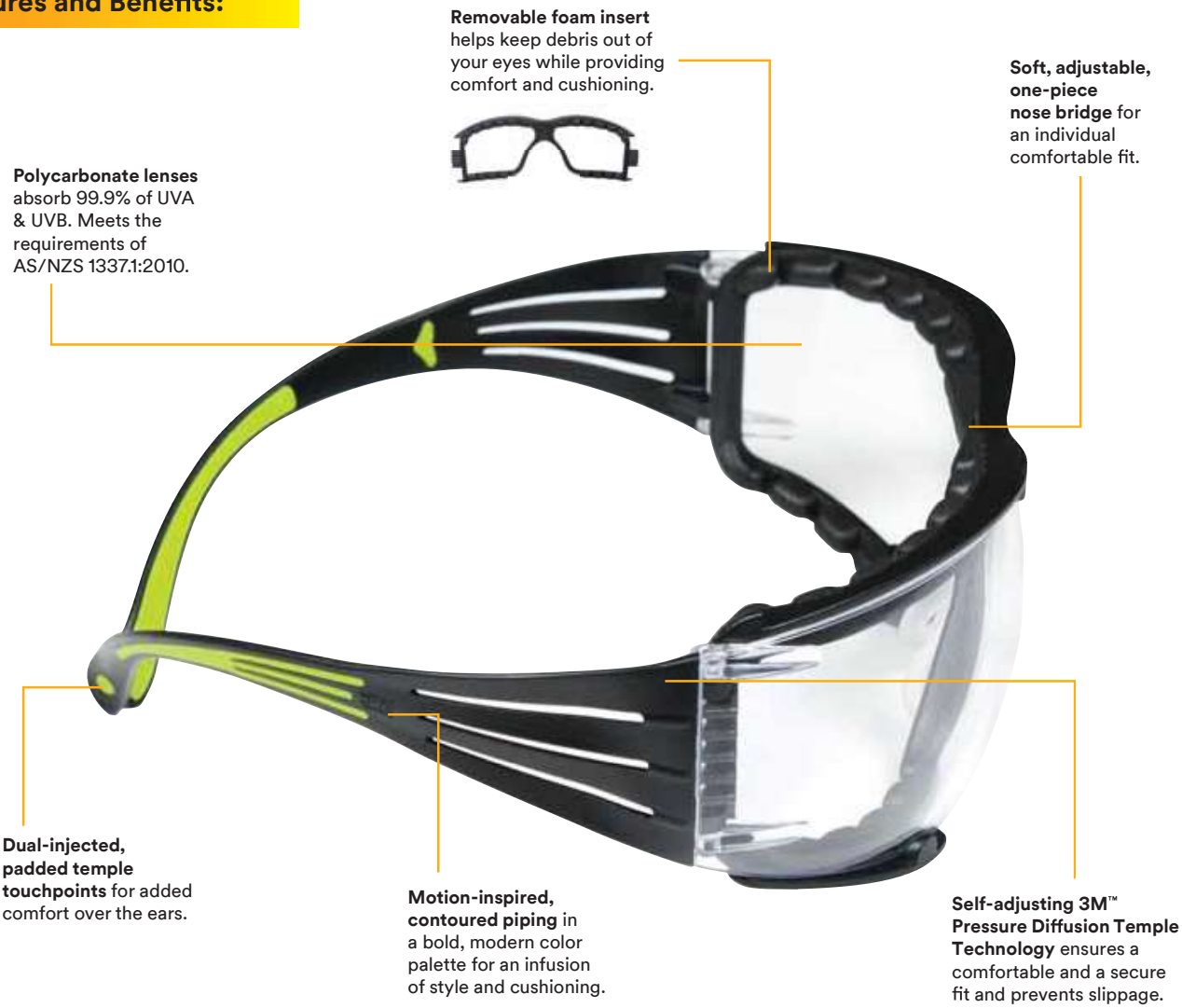
3M™ SecureFit™ Protective Eyewear 400 Series

Advanced Technology. 3M™ SecureFit™ Protective Eyewear self-adjusts to the individual wearer, providing comfort that lasts all day.

3M™ SecureFit™ Protective Eyewear 400 Series comes with a variety of features, because having options in protective eyewear can be critical. Workers can choose from several lens coating options, including 3M™ features like a removable foam gasket that combines with Pressure Diffusion Temple (PDT) Technology to create a secure and comfortable fit.

Features and Benefits:



3M Order Code	Model #	Description
70071676368	SF401AF-AS	Polycarbonate. Clear Lens.
70071695426	SF402AF-AS	Polycarbonate. Grey Lens.
70071695434	SF410AS-AS	Polycarbonate Indoor/Outdoor Mirror Lens.
70071675345	SF-FOAM	SecureFit™ Foam Gasket

3M™ SecureFit™ 200 Series

3M™ SecureFit Protective Eyewear features 3M's proprietary self-adjusting Pressure Diffusion Temple Technology– a scientific advancement that helps diffuse pressure over the ear, enhancing frame comfort while at the same time ensuring a secure fit across diverse workforces.

Medium Impact

3M Order Code	Model #	Description
70071676269	SF201AF-AS	Clear Lens
70071695509	SF202AF-AS	Grey Lens

3M™ Helios

Stylish and lightweight. Multiple lens coating options. Contoured nine base anti-static lenses provide excellent fit and coverage. Flexible, vented, pillow-padded, co-moulded side arms for comfort. Dielectric no metal components. Clip on/off dust guard improves cheek to spectacle seal.

Medium Impact

3M Order Code	Model #	Description
AT010657693	S9151	Black Red Vpp5 Clr Lens
AT010657701	S9152	Black Red Vpp5 Smk Lens
AT010657719	S9153	Black Grey Clear Lens
AT010657727	S9154	Black Grey Amber Lens
AT010657735	S9155	Blk Gy Hcaf Brown Lens
AT010657743	S9156	Wh Rd Hcaf Sunset Lens
AT010657750	S9157	Wht Rd Distinction Lens
AT010657768	S9158	Wh Rd Hcaf Clear Lens
AT010659327	SX915DG	Clip On Off Dust Guard

3M™ Solus™ 1000 Series

Slim frame with a stylish and modern look. Strong PC lenses. Lightweight with soft cushioning on nose bridge and padding on temples for increased comfort and stability and when worn.

Medium Impact

3M Order Code	Model #	Description
70071676533	S1201SGAF-AS	With Scotchguard™ Anti-fog coating. Green/Black PC. Clear Lens
70071676541	S1202SGAF-AS	With Scotchguard™ Anti-fog coating. Green/Black PC. Grey Lens
70071694551		Replacement Foam Gasket
70071694569	SOLUS-STRAP	Replacement Strap

3M™ Bark Hut

High fashion matt black frame. Lightweight and extremely comfortable. Robust and flexible frame. Hard coat anti-fog (HCAF) coating on selected models. 100% UV protection for outdoor use. Suitable for use with cutting, non hazardous liquids, lathe work, dust, sawing, chipping, riveting, glare and solar radiation. Clip on/off dust guard for dusty working environments

Medium Impact

3M Order Code	Model #	Description
AT010658295	SNN007BB	Blue Blocker Hc Lens Spec
AT010658303	SNN007C	Clear Hcaf Lens Spec
AT010658311	SNN007CDG	Clear Hcaf Lens Spec Dust Guard
AT010658329	SNN007GP	Smoke Graduated Pol Hc Lens Spc
AT010658337	SNN007MG	Mirror Green Hc Lens Spec
AT010658345	SNN007S	Smoke Hcaf Lens Spec
AT010658352	SNN007SDG	Smoke Hcaf Lens Spec Dust Guard
AT010659335	SXDG007	Spec Dust Guard

3M™ Wasp

Stylish and lightweight. Multiple tints options. Contoured nine base anti-static lens. Excellent fit and coverage. Adjustable spectacle strap available. Anti-scratch/anti-fog lens coating.

Medium Impact

3M Order Code	Model #	Description
AT010656984	S0131	Polycarbonate Hcaf Clear
AT010656992	S0132	Polycarbonate Hcaf Smoke
AT010657008	S0133	Polycarbonate Hcaf Sunset

3M™ Savanah

Lightweight polycarbonate spectacle frame. Wrap-around style with flexible side arms and temple grips. Medium impact protection. 100% UV protection for use outdoors. Anti-scratch lens increases durability. Anti-fog (clear only) lens prevents fogging in humid conditions. Suitable for general industry including fabrications, manufacturing, mining and laboratory work

Medium Impact

3M Order Code	Model #	Description
AT010658568	SNN301C	Clear Af Lens Spec
AT010658584	SNN301S	Smoke Lens Spec
AT010658550	SNN301B	Brown Lens Spec
AT010658576	SNN301CDG	Clear Complete With Adhere
AT010658592	SNN301SDG	Smoke Complete With Adhere
AT010659343	SXDG301	Dust Guard

3M™ Buster

Fashionable, lightweight and comfortable safety spectacles. Unique floating lens with excellent coverage. Medium impact protection. 100% UV protection for use outdoors. Anti-scratch lens increases durability. Suitable for general industry including manufacturing, engineering, workshops and indoor/outdoor industrial environments

Medium Impact

3M Order Code	Model #	Description
AT010658402	SNN101C	Clear Af Lens Spec
AT010658410	SNN101S	Smoke Lens Spec
AT010658386	SNN101A	Amber Af Lens Spec
AT010658394	SNN101BM	Blue Mirror Lens Spec
AT010658360	SNN101:3	Shade 3 Lens Spec
AT010658378	SNN101:5	Shade 5 Lens Spec

3M™ Wolf

Fashionable sports style. Snug one piece lens. 100% UV protection for outdoor use. Anti-scratch lens increases durability. Clear, smoke, blue mirror, amber lenses.

Medium Impact

3M Order Code	Model #	Description
AT010658600	SNN310	Wolf Smoke Lens Spec
AT010658618	SNN320	Wolf Blue Mirror Lens Spec
AT010658626	SNN330	Wolf Amber Lens Spec
AT010658543	SNN300	Wolf Clear Lens Spec

3M™ Ecko

Ultra lightweight disposable spectacles. One piece wrap-around sports style. Medium impact protection. Low cost. 100% UV protection for use outdoors. Anti-scratch lens increases durability. Suitable for general industry including mining, construction, laboratory workers

Medium Impact

3M Order Code	Model #	Description
AT010658428	SNN170C	Ecko Clear Lens Spec
AT010658444	SNN170S	Ecko Smoke Lens Spec
AT010658436	SNN170CM	Ecko Clear Mirror Lens Spec

3M™ CrackerJack

Trendsetting matt black rubberised coated frame that contours to the face reducing flying debris impact risk. The sports style spectacle is a 2.3mm Polycarbonate anti-scratch/anti-fog coated lens (HC/AF) for superior performance and providing >99.9% UV resistant. Certified to AS/NZS 1337.1:2010 – Medium impact protection.

Medium Impact

3M Order Code	Model #	Description
AT010657289	S27S	Black Frame
AT010657297	S27SP	Black Frame - Polarised
AT010657305	S28B	Brown Frame

3M™ Virtua™AP Classic Line Series

Designed with high-wrap polycarbonate lenses and integral sideshields to provide comfortable fit and ultimate protection.

Medium Impact

3M Order Code	Model #	Description
70071649464	11818-00000-100AS	Clear Lens
70071649449	11815-00000-100AS	Grey Lens
70071649456	11817-00000-100AS	Amber Lens

3M™ Virtua™ Series

The Virtua™ Series delivers protection with streamlined design, entry level eyewear that is ideal for visitors and temporary workers.

Medium Impact

3M Order Code	Model #	Description
70071561800	10418-00000	Polycarbonate. Clear Lens. Un-coated
70071561826	10420-00000	Polycarbonate. Clear Lens. Anti-Fog coating.

3M™ 2700 Series

Designed for use over prescription glasses

Medium Impact

3M Order Code	Model #	Description
70071649514	2700-00000-100AS	Clear Frame/Clear Lens in Polybag

3M™ 2720 Series

Low profile for comfort with high levels of protection

Medium Impact

3M Order Code	Model #	Description
70071649522	2720-00000-100AS	Blue Frame/Clear Lens in Polybag

3M™ Fahrenheit™ Goggle Series

Modern, slim-line and lightweight design for excellent fit. Aerodynamic shape with cylindrical lens for 180 degree distortion-free vision. Indirect ventilation system to prevent fog, liquids and dust. Lens absorbs more than 99% UV.

3M Order Code	Model #	Description
70071531621	40170-00000	Polycarbonate Clear Lens
70071531639	40171-00000	Polycarbonate Clear Lens
70071531647	40172-00000	Acetate Clear Lens
70071531654	40173-00000	Black Foam Frame. Polycarbonate Clear Lens

3M™ GoggleGear™ 500 Series

The 3M™ Goggle Gear, 500-Series is a low-profile design with an adjustable neoprene strap and indirect ventilation. These splash goggles with 3M™ Scotchgard™ Anti-Fog Coating help keep lenses clear in, steamy and wet environments. The Science Behind 3M™ Scotchgard™ Anti-Fog Technology 3M™ Scotchgard™ Anti-Fog Technology brings higher anti-fog performance to safety eyewear, helping workers see more clearly to complete on-the-job tasks. The anti-fogging properties are based on 3M internal testing per EN168 test method when compared to traditional anti-fog coatings. Here is how the anti-fogging properties work. When microscopic water droplets land on lenses without any type of coating, they bead up and form condensation and fog, obscuring your vision.

Features and Benefits:

- 3M™ Scotchgard™ Anti-Fog Coating lasts longer* than traditional anti-fog coatings, helping to increase eyewear performance in wet and steamy environments
- Workers may enjoy reliable, clearer sight longer, because the coating with its active ingredient is bonded to the lens. The coating retains its effectiveness for at least 25 washings with water, allowing workers to wear their eyewear longer
- The coating can be disinfected with diluted bleach soaking or alcohol wipes without losing its anti-fog performance. Washing with soap and water is considered a best practice and can enhance coating durability.
- The coating withstands disinfection with diluted bleach soaking or alcohol wipes without losing its anti-fog performance

3M Order Code	Model #	Description
70071676582	GG501NSGAF-AS	GG500 GoggleGear™ 500 Series with Scotchguard™ Anti-fog coating. Polycarbonate. Clear Lens.
70071675055	GG500-P1	GoggleGear Prescription Insert