

# SPECSAVERS CORPORATE EYECARE

Information and procurement tool series

## Guide to Safety Eyewear

for employers in the Republic of Ireland

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# GUIDE TO SAFETY EYEWEAR

## Assessment

The eyes and eyesight are particularly vulnerable to hazards in the workplace. Each different working environment presents its own unique risks and requirements, so the starting point for any provision of safety eyewear must always be a thorough health and safety audit and risk assessment.

The Safety, Health and Welfare at Work (General Application) Regulations 2007 require employers to identify and assess workplace risk and to establish the necessary safeguards for employees. The employer must determine whether the chosen safety eyewear satisfies the particular requirements.

This assessment must consist of an analysis of the risks present, which cannot be avoided by other means and the characteristics the safety eyewear must have in order to be effective against the risks. This must also take into account any risks which the equipment itself may create. If there is any change in circumstances, the assessment must be reviewed immediately.

## Information

Part of the employer's role is to provide adequate information, instruction and training with regards to safety eyewear. The employee must be told of the risks against which they are being protected, be given information about the eyewear provided, the level of protection it affords and how it must be used. If necessary, training and demonstrations should be arranged.

The safety, health and welfare at work regulations provide a guide list of activities and sectors of activity which may require provision of personal eye or face protection:

- Welding, grinding and separating work
- Caulking and chiselling work
- Rock working and processing work
- Work with bolt-driving tools
- Work on stock removing machines for small chippings
- Drop forging
- The removal and breaking up of fragments
- Spraying of abrasive substances
- Work with acids and caustic solutions, disinfectants and corrosive products
- Work with liquid sprays
- Work with and in the vicinity of molten substances
- Work with radiant heat
- Work with lasers

## Legal requirements

The employer must ensure that the safety eyewear provided complies with the relevant European Community directives regarding design and manufacture.

Under the European standards, EN166 covers the general specifications for protective spectacles, goggles and visors, incorporating the mechanical strength, appropriate use and optical performance.

Additional qualities are covered by the following standards:

- EN 169: Filters for welding and related techniques
- EN 170: Ultraviolet filters
- EN 171: Infrared filters
- EN 172: Sunglare eye protectors for industrial use
- EN 207: Filters and eye protectors against laser radiation
- EN 208: Eye protectors for adjustment work on lasers and laser systems
- EN 379: Welding filters with transmittance variable by time and zone

## Impact resistance

The overall purpose of safety eyewear is to resist impact. These impacts may, of course, be of varying levels but also from hugely varying objects and substances. Within the EN166 standard are various different levels of impact resistance.

Each lens will be marked with the appropriate symbol regarding its properties:

Symbol	Property
S	Increased robustness*
F	Low energy impact*
B	Medium energy impact
A	High energy impact
9	Non-adherence of molten metal and resistance to penetration of hot solids
K	Resistance to damage by fine particles
N	Non-fogging properties

*\*Offered by Specsavers Corporate Eyecare*

In some low-energy impact situations (EN 166 F), safety spectacles or glasses are acceptable. This level is required to resist a 6mm, 0.86g ball, travelling at 45 meters per second.

Safety glasses will not suffice once the energy impact resistance required reaches 'medium' (denoted as EN166 B), or if work involves the need for protection against corrosive materials, electrical arcs or welding materials. At this point, goggles or visors carrying the appropriate EN specifications will need to be sourced. For high-energy impacts, visors or face shields will be required (as defined by EN166 A).

### **Lack of understanding**

Research run by Specsavers Corporate Eyecare into employers' knowledge, policies and choices regarding safety eyewear has uncovered a worrying lack of understanding that could put employees at risk and incur unwarranted costs for employers.

Some of the more common misconceptions include the belief that wearing ordinary prescription glasses will provide protection from such hazards as corrosive materials, electric arcs and welding materials. In fact, wearing ordinary prescription glasses will not provide protection against any of these risks. If ordinary prescription eyewear is used instead of the appropriate safety eyewear, then employees are potentially put at serious risk.

Indeed the lack of knowledge regarding safety eyewear is evident from the very start of the process - when the need for safety frames is first ascertained. A concerning number of employers rely on the employee to request safety eyewear or expect employees to be advised by their high-street optician.

In practice this should actually be instigated by a full health and safety audit and risk assessment. Each situation will have its own specific solution, which can only be truly assessed by someone with access to the workplace. The high-street optician will not, therefore, be the appropriate person to determine the risks and propose the precautions. The person responsible for the health and safety audit will need to assess

whether the hazards warrant a plastic, toughened glass or polycarbonate lens, whether a tinted lens is appropriate or to be avoided, and whether any other coatings should be included in the requirement. These decisions can only be made with detailed knowledge of the specific risks.

### **The right level of protection**

Usually safety glasses will include side shields to offer lateral protection but these should be selected so as not to unnecessarily restrict the field of view.

For circumstances where protection is required for more than just the eyes, full-face protection is often appropriate. Misting is a common complaint of such personal protective equipment (PPE), but this problem can be eliminated by the use of respiratory equipment.

Over-goggles or eye shields may be appropriate for glasses wearers in some working environments. These are not suitable, however, for long-term or regular usage as they offer less comfort than prescription safety frames. The obvious physical discomfort of wearing two sets of eyewear is one issue but the light refraction caused by two sets of lenses can also make this an unacceptable solution.

It is also important to provide appropriate safety eyewear to guests and visitors, no matter how brief their time spent in the environment.

### **Frame options**

It is possible to procure frames made from either metal or plastic. Metal frames are most commonly nickel alloy, while polyamide, polycarbonate and cellulose acetate tend to be used to manufacture plastic frames.

Although the functionality of safety frames rightly limits the styling to some degree, it is still possible for frames to come in a wide range of male, female and unisex styles in varying colours and finishes. Industry specific considerations will also influence the decision over frame type and style. For example, only plastic frames are suitable for food preparation areas.

### **Lens selection**

Those who regularly need to wear safety eyewear and have a prescription requirement should be provided with safety glasses of the type they most commonly wear. Safety eyewear should not be seen as a good opportunity for a wearer of bifocals to suddenly experiment with varifocals. Equally, it would be irresponsible for an employer to only fund the provision of single vision glasses for an employee who regularly wears multi-focals.

Comfort is an important factor, particularly for anyone who has to wear safety eyewear for long periods of time. Typically, polycarbonate lenses offer the greatest impact resistance combined with the lowest weight.

Again, our research has shown that wearers may not be receiving the most appropriate kind of safety eyewear. Many health and safety managers are not aware that prescription safety glasses are available with varifocal or bifocal lenses, or even that they can include sun glare protection. So employees are missing out by not being given the full benefits of their safety eyewear.

### **Comfort and fit**

Style and fit are more important than would perhaps be expected in safety eyewear. When evaluating the use of safety frames, comfort should be a vital factor. Many health and safety managers tell us they believe that if safety frames are not comfortable they are likely to be removed. Personal protective equipment should be just that, personal: selected for the individual and professionally fitted for safe and comfortable wear. The more comfortable the eyewear, the more likely it is to be worn.

While much of the obligation lies with the employer, the wearer also has a responsibility to actually wear the safety glasses provided and do so in the correct manner. Choice of style can, however, help with this. For example, side shields are an integral part of the protection offered by safety glasses and must never be removed. Health and safety managers who select glasses with riveted side shields, as opposed to those that screw in or clip on, will find that staff are significantly less likely to succumb to this temptation.

### Eye examinations

Employers are not legally required to provide an eyetest for employees prior to selecting prescription safety glasses. It is wise, however, to at least ensure that the wearer's prescription is up to date; otherwise the safety glasses will have a shortened shelf life if an eye test follows shortly and reveals the need for a new prescription.

For ordinary spectacles, taking advantage of upgrade offers from the optician can make lenses and frames very cost-effective. While everyday glasses and those for use with visual display units (VDUs) can be upgraded with reactions lenses, varifocals, etc; no reputable optician will offer upgrades on safety lenses. This is because the optician cannot know every single action and environment in which the safety glasses will be used and it would not be safe to base changes to specifications on assumptions.

### Maintenance

The employer must ensure that safety eyewear is maintained in good working order, providing the necessary storage, maintenance, repair or replacement. They must not allow broken or damaged safety glasses to be repaired on site. Safety eyewear must be returned, usually via the supplying optician's practice, to the EN166-licensed manufacturers who can repair or replace them.

Cleaning and disinfecting polycarbonate lenses should be done with great care. This type of lens in particular can have a dramatic reaction to solvents such as acetone or methyl chloride.

Avoiding extremes of heat and humidity will help to preserve the life of safety glasses. The simplest step of all - replacing them in their protective casing while not being used - will keep scratches to a minimum.

No matter how carefully they are looked after, safety glasses should be replaced at least every three years. This means that a typical eye test cycle of two years provides a suitable interval for most users to receive a new pair of glasses.

Lack of knowledge of maintenance of safety eyewear could be putting staff at risk and incurring unnecessary costs for employers: it is not unusual for health and safety managers to believe that the typical lifespan of safety glasses is three years or more. This could be putting wearers at risk. On the other side of the issue, many employers believe safety glasses have a typical lifespan of just one year, so may be incurring unnecessary costs by changing safety eyewear more regularly than required.

### Procurement

There are four main stages in the provision of prescription safety eyewear:

- 1 The manufacture and supply of certified safety frames
- 2 The eye test to determine the correct prescription
- 3 The insertion of the appropriate lenses (glazing) in a certified laboratory
- 4 The fitting and dispensing of the spectacles to the wearer

A different supplier can be selected for each of these stages or, a single source can provide the full service. As a result, there are a number of different ways to purchase safety eyewear:

- **From a safety frame manufacturer**  
Many manufacturers of safety frames have regional sales representatives who will set up accounts directly with a company. Pricing is often dependent on volume. The cost of glazing should be included but the optician providing the dispensing service will apply additional, variable, dispensing fees.
- **Through a PPE catalogue**  
PPE catalogues will often offer a range of plain and prescription safety eyewear. Any discounts will be dependant on volumes. Again, while the cost of glazing should be included, the optician who is providing the dispensing service will apply varying additional fees.

- **Through a third party network co-ordinator**

This is a way of procuring safety glasses from a single manufacturer at a fixed price, usually inclusive of dispensing fees, through a range of opticians.

- **Through an arrangement with an optician**

The costs incurred will depend on the optician's level of involvement in the process. At one extreme, the optician will source the frames individually from the manufacturer and send them to a certified safety eyewear laboratory for glazing, before dispensing.

At the other end of the spectrum, the optician may have their own range of frames and their own certified glazing facility. The safety eyewear is made in-house from the beginning to the very end of the process. This allows for a greatly reduced cost, inclusive of all fees and glazing, but also for a consistently high level of service and quality. Very few high-street opticians offer this comprehensive service and those that do are valued highly by health and safety managers.

The importance of safety frames being comfortable for the wearer should not be underestimated. Good fit and comfort may often be the deciding factor in a worker actually wearing their safety eyewear.

Finding an optician that has the full range of safety glasses in store and will allow the customer to try them on is a very good first step. When it comes to deciding upon the best style, there is no substitute for actually holding and wearing the glasses being considered. An optician should be chosen that can offer a good range of options and, also ensure that style, comfort and fit are all optimised for purpose.

Ultimately, the health and safety manager must choose the company with which he or she feels most comfortable, where a rapport has been built with individuals who are clearly experts in their field.

#### **Administration**

When the purchasing route is selected, it is important to also consider the administration process. Given that safety glasses need to be replaced at regular intervals, that prescriptions and requirements will frequently change and that staff may come and go, it is essential to ensure that the administration processes are as simple and straightforward as possible. It is also important that pricing structures are transparent and consistent and that the provider takes full responsibility for the quality of the safety glasses, offering a full end-to-end customer service.

#### **The risks**

Selecting the correct and most suitable safety eyewear can at first seem a potentially complicated and daunting process. If each area is, however, addressed systematically, the workplace risks to employees' eyesight can be satisfactorily overcome both simply and cost effectively.

The loss of an employee's eyesight would not only be a tragedy in itself but could easily lead to much greater risks for that individual and their colleagues.

#### **Wider benefits**

Specsavers has now successfully completed the installation of millions of euros' worth of life-saving digital retinal cameras (also known as fundus cameras) across its network of stores in the Republic of Ireland.

The cameras allow Specsavers Corporate Eyecare to provide a digital retinal screening service to all appropriate clients. Retinal screening with a fundus camera is an integral part of health and wellbeing, with the emphasis on preventative care.

Now being used routinely by Specsavers Corporate Eyecare in full eye examinations for the over 40s, including for VDU and safety eyewear, the fundus technology allows the optometrist to detect and monitor the following illnesses and health conditions:

- diabetes
- various heart conditions
- cancers of the eye, such as melanomas
- brain tumours
- high cholesterol
- detached retina
- hypertension (high blood pressure)
- glaucoma

With, for example, 191,000 people in the Republic of Ireland diagnosed with diabetes and more than 30,000 people unknowingly having the condition, this screening is a vital part of health and wellbeing. Detecting such conditions with a fundus camera is inexpensive but could save businesses millions in absenteeism and long-term sick leave.

#### **The rewards**

An individual's eyesight is one of the most precious gifts and both employees and employers alike must work to protect it. It is a sad fact that damage to the eyes is extremely difficult to put right once an accident has occurred. The only sensible option is for health and safety managers to take as much guidance as possible, to gain as much knowledge as possible and to conform to the very highest standards of safety.

#### **Further information**

Further information can be found through the following links:

#### **Health and Safety Authority**

[www.hsa.ie](http://www.hsa.ie)

#### **Specsavers Corporate Eyecare**

[www.specsavers.ie/corporate](http://www.specsavers.ie/corporate)

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