



COLTS | Laboratories™

Precision Testing. Definitive Results.

Description of Services

PPE Standards

ANSI Z87.1-2010

ANSI Z87.1-2010 Spectacles

This group of tests includes:

Optical Quality	Luminous Transmission
Haze	Spectacle Refractive Power, Astigmatism, Resolving Power, Prism and Prism Imbalance for Plano Protectors
Physical Requirements	Drop Ball Impact Resistance
Ignition (Spectacle)	Corrosion Resistance of Metal Components
Minimum Coverage Area	Minimum Lens Thickness
Marking Requirements	Marking Requirements (Spectacles)
Screen Windows and Screen Lenses	Frames for Replaceable or Removable Lenses
Aftermarket Components	Special Purpose Lenses

ANSI Z87.1-2010 High Impact Spectacles

This group of tests includes:

Optical Quality	Luminous Transmission
Haze	Refractive Power, Astigmatism, Resolving Power, Prism and Prism Imbalance for Plano Protectors
Spectacle Refractive Power, Astigmatism, Resolving Power, Prism and Prism Imbalance for Plano Protectors	Physical Requirements
Drop Ball Impact Resistance	Ignition (Spectacle)
Corrosion Resistance of Metal Components	Minimum Coverage Area
Minimum Lens Thickness	Marking Requirements
Marking Requirements (Complete Device)	Marking Requirements (Replaceable Lenses)
Marking Requirements (Spectacles)	Frames for Replaceable or Removable Lenses
Aftermarket Components	Impact Rated Protectors
Frames and Shells	Lateral (Side) Coverage
High Mass Impact	High Velocity Impact (Spectacles)
Penetration Test (lenses only)	Prescription Lens Carriers Behind Plano Protectors
Spectacle frames intended for prescription (Lens Thickness) removable lenses	Special Purpose Lenses

PPE Standards

ANSI Z87.1-2010

ANSI Z87.1-2010 Goggles - General Requirements

This group of tests includes:

Optical Quality	Luminous Transmission
Haze	Goggle Refractive Power, Astigmatism, Resolving Power, Prism and Prism Imbalance for Plano Protectors
Physical Requirements	Drop Ball Impact Resistance
Ignition (Goggle)	Corrosion Resistance of Metal Components
Minimum Coverage Area	Minimum Lens Thickness
Marking Requirements (Complete Device)	Marking Requirements (Goggles)
Marking Requirements (Replaceable Lenses)	Goggles (Adjustable Ventilation)
Direct Ventilation	Indirect Ventilation
Frames for Replaceable or Removable Lenses	Replaceable Lenses - Goggles
Aftermarket Components	

ANSI Z87.1-2010 Goggles - Screen Lens General Requirements

This group of tests includes:

Physical Requirements	Drop Ball Impact Resistance
Ignition (Goggle)	Corrosion Resistance of Metal Components
Minimum Coverage Area	Marking Requirements
Marking Requirements (Goggles)	Goggles (Adjustable Ventilation)
Direct Ventilation	Indirect Ventilation
Screen Windows and Screen Lenses	Replaceable Lenses - Goggles
Aftermarket Components	

PPE Standards

ANSI Z87.1-2010

ANSI Z87.1-2010 High Impact Goggles

This group of tests includes:

Optical Quality	Luminous Transmission
Haze	Goggle Refractive Power, Astigmatism, Resolving Power, Prism and Prism Imbalance for Plano Protectors
Physical Requirements	Drop Ball Impact Resistance
Ignition (Goggle)	Corrosion Resistance of Metal Components
Minimum Coverage Area	Minimum Lens Thickness
Marking Requirements (Complete Device)	Marking Requirements (Goggles)
Marking Requirements (Replaceable Lenses)	Goggles (Adjustable Ventilation)
Direct Ventilation	Indirect Ventilation
Frames for Replaceable or Removable Lenses	Replaceable Lenses - Goggles
Aftermarket Components	Impact Rated Protectors
Lateral (Side) Coverage	High Mass Impact
High Velocity Impact (Goggles)	High Velocity Impact (Spectacles)
Penetration Test (lenses only)	Devices with Lift Fronts
Prescription Lens Carriers Behind Plano Protectors	Clear and Filter Lenses (W Filters)
Transmittance of Housings - Goggles	Special Purpose Lenses

ANSI Z87.1-2010 Faceshields - General Requirements

This group of tests includes:

Optical Quality	Luminous Transmission
Haze	Faceshield Resolving Power, Prism and Prism Imbalance for Plano Protectors
Physical Requirements	Drop Ball Impact Resistance
Ignition (Faceshield)	Corrosion Resistance of Metal Components
Minimum Coverage Area	Minimum Lens Thickness
Marking Requirements	Marking Requirements (Faceshields)
Aftermarket Components	Special Purpose Lenses

PPE Standards

ANSI Z87.1-2010

ANSI Z87.1-2010 Faceshields

This group of tests includes:

Optical Quality	Luminous Transmission
Haze	Faceshield Resolving Power, Prism and Prism Imbalance for Plano Protectors
Refractive Power, Astigmatism, Resolving Power, Prism and Prism Imbalance for Plano Protectors	Physical Requirements
Drop Ball Impact Resistance	Ignition (Faceshield)
Ignition (Spectacle)	Corrosion Resistance of Metal Components
Minimum Coverage Area	Minimum Lens Thickness
Marking Requirements	Marking Requirements (Complete Device)
Marking Requirements (Faceshields)	Marking Requirements (Replaceable Lenses)
Screen Windows and Screen Lenses	Frames for Replaceable or Removable Lenses
Aftermarket Components	Impact Rated Protectors
Lateral (Side) Coverage	High Mass Impact
High Velocity Impact (Faceshields)	High Velocity Impact (Spectacles)
Penetration Test (lenses only)	Devices with Lift Fronts
Special Purpose Lenses	

ANSI Z87.1-2010 Faceshields - Individual Tests

This group of tests includes:

Optical Quality	Luminous Transmission
Haze	Faceshield Resolving Power, Prism and Prism Imbalance for Plano Protectors
Physical Requirements	Drop Ball Impact Resistance
Ignition (Faceshield)	Corrosion Resistance of Metal Components
Minimum Coverage Area	Minimum Lens Thickness
Marking Requirements	Marking Requirements (Faceshields)
Frames for Replaceable or Removable Lenses	Aftermarket Components
Impact Rated Protectors	Frames and Shells
Lateral (Side) Coverage	High Mass Impact
High Velocity Impact (Faceshields)	Penetration Test (lenses only)
Devices with Lift Fronts	Droplet and Splash Hazard - Faceshields
Special Purpose Lenses	

PPE Standards

ANSI Z87.1-2010

ANSI Z87.1-2010 Individual Tests

This group of tests includes:

Optical Quality	Luminous Transmission
Haze	Goggle Refractive Power, Astigmatism, Resolving Power, Prism and Prism Imbalance for Plano Protectors
Refractive Power, Astigmatism, Resolving Power, Prism and Prism Imbalance for Plano Protectors	Spectacle Refractive Power, Astigmatism, Resolving Power, Prism and Prism Imbalance for Plano Protectors
Drop Ball Impact Resistance	Ignition (Spectacle)
Corrosion Resistance of Metal Components	Minimum Coverage Area
Minimum Lens Thickness	Marking Requirements
Marking Requirements (Complete Device)	Marking Requirements (Replaceable Lenses)
Direct Ventilation	Indirect Ventilation
Welding Protectors - Transmittance of Non-Lens Areas	Lateral (Side) Coverage
High Mass Impact	High Velocity Impact (Spectacles)
High Velocity Impact (Welding Helmets)	Penetration Test (lenses only)
Prescription Lens Material Qualification	Optional Transmittance Attributes
Clear and Filter Lenses (UV Filters)	Switching Index
Occlusion	Variations in Luminous Transmittance
Transmittance of Housings - Goggles	Droplet and Splash Hazard - Goggles
Droplet and Splash Hazard - Faceshields	Dust Hazard
Fine Dust Hazard	Special Purpose Lenses

ANSI Z87.1-2010 High Impact Prescription Lens Mounting Qualification

This group of tests includes:

Prescription Lens Mounting Qualification	Spectacle frames intended for prescription (Lens Thickness) removable lenses
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ANSI Z87.1-2010 High Impact Prescription Lens Material Qualification

This group of tests includes:

Prescription Lens Material Qualification
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ANSI Z87.1-2010 Optional Transmittance Attributes

This group of tests includes:

Optional Transmittance Attributes	Clear and Filter Lenses (Visible Filters)
Clear and Filter Lenses (IR Filters)	Clear and Filter Lenses (UV Filters)
Clear and Filter Lenses (W Filters)	Visible Light Filters
Variations in Luminous Transmittance	

PPE Standards

ANSI Z87.1-2010

ANSI Z87.1-2010 Static Welding Filter - Glass

This group of tests includes:

Optical Quality	Refractive Power, Astigmatism, Resolving Power, Prism and Prism Imbalance for Plano Protectors
Welding Lens Refractive Power, Astigmatism, Resolving Power, Prism and Prism Imbalance for Plano Protectors	Drop Ball Impact Resistance
Ignition (Spectacle)	Minimum Lens Thickness
Marking Requirements	Marking Requirements (Welding Protectors)
Replaceable Lenses - Welding Helmets and Handshields	Optional Transmittance Attributes
Clear and Filter Lenses (W Filters)	Variations in Luminous Transmittance

ANSI Z87.1-2010 Automatic Darkening Welding Filters Transmittance

This group of tests includes:

Optional Transmittance Attributes	Clear and Filter Lenses (W Filters)
Automatic Darkening Welding Filter Lenses	Switching Index
Occlusion	Variations in Luminous Transmittance

ANSI Z87.1-2010 Welding Helmet w/ ADF

This group of tests includes:

Optical Quality	Haze
Welding Lens Refractive Power, Astigmatism, Resolving Power, Prism and Prism Imbalance for Plano Protectors	Physical Requirements
Drop Ball Impact Resistance	Ignition (ADF)
Ignition (Welding Helmet)	Corrosion Resistance of Metal Components
Minimum Coverage Area	Marking Requirements
Marking Requirements (Complete Device)	Marking Requirements (Replaceable Lenses)
Welding Protectors - Transmittance of Non-Lens Areas	Welding Protectors - Light Tightness
Replaceable Lenses - Welding Helmets and Handshields	Aftermarket Components
Impact Rated Protectors	Frames and Shells
Lateral (Side) Coverage	High Mass Impact
High Velocity Impact (Welding Helmets)	Penetration Test (lenses only)
Devices with Lift Fronts	Welding Helmets and Welding Faceshields
Clear and Filter Lenses (W Filters)	Automatic Darkening Welding Filter Lenses
Switching Index	Occlusion
Variations in Luminous Transmittance	

PPE Standards

ANSI Z87.1-2010

ANSI Z87.1-2010 Welding Helmet Shell Tests

This group of tests includes:

Physical Requirements	Drop Ball Impact Resistance
Ignition (Welding Helmet)	Corrosion Resistance of Metal Components
Minimum Coverage Area	Marking Requirements (Replaceable Lenses)
Marking Requirements (Welding Protectors)	Welding Protectors - Transmittance of Non-Lens Areas
Welding Protectors - Light Tightness	Replaceable Lenses - Welding Helmets and Handshields
Aftermarket Components	Impact Rated Protectors
Frames and Shells	Lateral (Side) Coverage
High Mass Impact	High Velocity Impact (Welding Helmets)
Penetration Test (lenses only)	Devices with Lift Fronts
Welding Helmets and Welding Faceshields	

ANSI Z87.1-2010 Welding Helmet - Hard Hat Mounting

This group of tests includes:

Physical Requirements	Drop Ball Impact Resistance
Ignition (Welding Helmet)	Marking Requirements
Marking Requirements (Welding Protectors)	Impact Rated Protectors
Lateral (Side) Coverage	High Mass Impact
High Velocity Impact (Welding Helmets)	Penetration Test (lenses only)
Devices with Lift Fronts	Welding Helmets and Welding Faceshields

ANSI Z87.1-2010 Automatic Darkening Welding Filter Requirements

This group of tests includes:

Optical Quality	Welding Lens Refractive Power, Astigmatism, Resolving Power, Prism and Prism Imbalance for Plano Protectors
Physical Requirements	Drop Ball Impact Resistance
Ignition (ADF)	Marking Requirements (Replaceable Lenses)
Marking Requirements (Welding Protectors)	Optional Transmittance Attributes
Clear and Filter Lenses (W Filters)	Automatic Darkening Welding Filter Lenses
Switching Index	Occlusion
Variations in Luminous Transmittance	

PPE Standards

ANSI Z89.1-2009 (Revised in 2014)

ANSI Z89.1-2009 Type I, Class C

This group of tests includes:

Instructions and Marking	Instructions
Markings	Flammability
Force Transmission	Apex Penetration
Electrical Insulation (Class C)	

ANSI Z89.1-2009 Type I, Class E

This group of tests includes:

Instructions and Marking	Instructions
Markings	Flammability
Force Transmission	Apex Penetration
Electrical Insulation (Class C)	Electrical Insulation Requirements Class E

ANSI Z89.1-2009 Type I, Class G

This group of tests includes:

Instructions and Marking	Instructions
Markings	Flammability
Force Transmission	Apex Penetration
Electrical Insulation (Class C)	Electrical Insulation Requirements Class G

ANSI Z89.1-2009 Type I Reverse Wearing

This group of tests includes:

Requirements for Optional Testing: Reverse Wearing (Type I)

ANSI Z89.1-2009 Type II, Class C

This group of tests includes:

Instructions and Marking	Instructions
Markings	Flammability
Force Transmission	Apex Penetration
Electrical Insulation (Class C)	Additional Requirements for Class II Helmets
Additional Type II Requirements: Impact Energy Attenuation	Additional Type II Requirements: Off-center Penetration
Additional Type II Requirements: Chin Strap	

PPE Standards

ANSI Z89.1-2009 (Revised in 2014)

ANSI Z89.1-2009 Type II, Class E

This group of tests includes:

Instructions and Marking

Markings

Force Transmission

Electrical Insulation (Class C)

Additional Requirements for Class II Helmets

Additional Type II Requirements: Off-center Penetration

Instructions

Flammability

Apex Penetration

Electrical Insulation Requirements Class E

Additional Type II Requirements: Impact Energy Attenuation

Additional Type II Requirements: Chin Strap

ANSI Z89.1-2009 Type II, Class G

This group of tests includes:

Instructions and Marking

Markings

Force Transmission

Electrical Insulation (Class C)

Additional Requirements for Class II Helmets

Additional Type II Requirements: Off-center Penetration

Instructions

Flammability

Apex Penetration

Electrical Insulation Requirements Class G

Additional Type II Requirements: Impact Energy Attenuation

Additional Type II Requirements: Chin Strap

ANSI Z89.1-2009 Type II Reverse Wearing

This group of tests includes:

Requirements for Optional Testing: Reverse Wearing (Type I)

Requirements for Optional Testing: Reverse Wearing (Type II)

ANSI Z89.1-2009 Electrical Insulation, Class E, Type I and II Helmets

This group of tests includes:

Force Transmission

Electrical Insulation Requirements Class E

ANSI Z89.1-2009 Electrical Insulation, Class G, Type I and II helmets

This group of tests includes:

Electrical Insulation Requirements Class G

PPE Standards

ANSI Z89.1-2009 (Revised in 2014)

ANSI Z89.1-2009 Low Temperature

This group of tests includes:

Instructions and Marking	Markings
Force Transmission	Force Transmission (LT)
Apex Penetration	Apex Penetration (LT)
Electrical Insulation Requirements Class G (LT)	Electrical Insulation Requirements Class E (LT)
Additional Type II Requirements: Impact Energy Attenuation (LT)	Additional Type II Requirements: Off-center Penetration (LT)
Additional Type II Requirements: Chin Strap (LT)	

CAN/CSA Z94.3-07 (Reaffirmed 2012)

CAN/CSA Z94.3-07 Class 1 (Spectacle)

This group of tests includes:

Impact Resistance - Plano Protector Class 1	Impact Resistance - Filter Lens
Ignition Resistance - Spectacle	Flame Resistance - Spectacle
Replacement Components	Size
Residual Power	Resolving Power
Prismatic Deviation	Haze (Clear Lens)
Luminous Transmittance (Clear Lens)	Zero Power Filters - Size, residual power, resolving power, and prismatic deviation
Transmittance - Filter Lenses	Transmittance - Filter Plate (Single Lens)
Transmittance - Filter Lenses	Transmittance - Filter Plate (Single Lens)
Transmittance - Filter Lenses Ratio	Transmittance - Filter Lenses UV, VIS & IR
Transmittance - Filter Plate (Single Lens)	Permanence Filters - Dimensional Change
Permanence Filters - Heat, Moisture, UV Exposure	Permanence Filters - Ignition and Flammability
Zero-power special-purpose lenses	Minimum Frontal Coverage - Spectacles
Side Protection - Spectacles	Side Protection - Spectacles
Side Protection - Spectacles	Side Protection - Spectacles
Side Protection - Spectacles	Side Protection - Spectacles
Markings	Zero Power Filter Markings
Special Purpose Statement	Agency Marking
User Information	Transmittance Requirements - Filters

PPE Standards

CAN/CSA Z94.3-07 (Reaffirmed 2012)

CAN/CSA Z94.3-07 Class 2 (Goggle)

This group of tests includes:

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|---|--|
| Impact Resistance - Plano Protector Class 1 | Impact Resistance - Plano Protector Class 2 - 7 |
| Impact Resistance - Filter Lens | Ignition Resistance - Goggle |
| Ignition Resistance - Spectacle | Flame Resistance - Goggle |
| Flame Resistance - Spectacle | Replacement Components |
| Size | Residual Power |
| Resolving Power | Prismatic Deviation |
| Haze (Clear Lens) | Luminous Transmittance (Clear Lens) |
| Zero Power Filters - Size, residual power, resolving power, and prismatic deviation | Transmittance - Filter Lenses |
| Transmittance - Filter Plate (Single Lens) | Transmittance - Filter Lenses |
| Transmittance - Filter Plate (Single Lens) | Transmittance - Filter Lenses Ratio |
| Transmittance - Filter Lenses UV, VIS & IR | Transmittance - Filter Plate (Single Lens) |
| Permanence Filters - Dimensional Change | Permanence Filters - Heat, Moisture, UV Exposure |
| Permanence Filters - Ignition and Flammability | Zero-power special-purpose lenses |
| Field of View - Goggles | Ventilation Opening Class 2A Goggle |
| Ventilation Opening Class 2B Goggle | Welders' and Cutters' Goggles |
| Optional Lift-Front Attachment - Goggles | Markings |
| Zero Power Filter Markings | Special Purpose Statement |
| Agency Marking | User Information |
| Transmittance Requirements - Filters | |

PPE Standards

CAN/CSA Z94.3-07 (Reaffirmed 2012)

CAN/CSA Z94.3-07 Class 3 (Welding Helmet) Base Model Static Filter

This group of tests includes:

Impact Resistance - Filter Lens	Ignition Resistance - Spectacle
Ignition Resistance - Welding Helmet	Flame Resistance - Spectacle
Flame Resistance - Welding Helmet	Replacement Components
Size	Residual Power
Resolving Power	Prismatic Deviation
Haze (Clear Lens)	Transmittance - Filter Plate (Single Lens)
Transmittance - Filter Plate (Single Lens)	Transmittance - Filter Lenses UV, VIS & IR
Transmittance - Filter Plate (Single Lens)	Permanence Filters - Dimensional Change
Permanence Filters - Heat, Moisture, UV Exposure	Permanence Filters - Ignition and Flammability
Transmittance - Welding Protector Housing	Welding Protector Window Size
Cover Lenses or Cover Plates	Welding Protector Filter/Plate Size
Welding Helmet Suspension	Welding Helmet Housing Position
Welding Protective Hat or Cap	Welding Lift-front Assembly
Bibs for Welding Helmets	ADFs Dark State Transmittance
ADFs Light State Transmittance	ADFs Switching Index
ADFs Switching Index	Markings
Zero Power Filter Markings	Agency Marking
User Information	Transmittance Requirements - Filters

CAN/CSA Z94.3-07 Class 3 (Welding Helmet) Shell Test

This group of tests includes:

Impact Resistance - Plano Protector Class 1	Impact Resistance - Plano Protector Class 2 - 7
Ignition Resistance - Spectacle	Ignition Resistance - Welding Helmet
Flame Resistance - Spectacle	Flame Resistance - Welding Helmet
Replacement Components	Transmittance - Welding Protector Housing
Welding Protector Window Size	Cover Lenses or Cover Plates
Welding Protector Filter/Plate Size	Welding Helmet Suspension
Welding Helmet Housing Position	Welding Protective Hat or Cap
Welding Lift-front Assembly	Bibs for Welding Helmets
Markings	Agency Marking
User Information	

PPE Standards

CAN/CSA Z94.3-07 (Reaffirmed 2012)

CAN/CSA Z94.3-07 Class 3 (Welding Helmet) Shell Headgear Test

This group of tests includes:

Impact Resistance - Plano Protector Class 1
Ignition Resistance - Welding Helmet
Welding Helmet Suspension
Markings

Impact Resistance - Plano Protector Class 2 - 7
Flame Resistance - Welding Helmet
Welding Helmet Housing Position
User Information

CAN/CSA Z94.3-07 Class 3 Static Filter

This group of tests includes:

Impact Resistance - Plano Protector Class 2 - 7
Ignition Resistance - Spectacle
Flame Resistance - Spectacle
Replacement Components
Residual Power
Prismatic Deviation

Transmittance - Filter Plate (Single Lens)
Transmittance - Filter Plate (Single Lens)
Permanence Filters - Heat, Moisture, UV Exposure
Transmittance - Welding Protector Housing
Cover Lenses or Cover Plates
Welding Helmet Suspension
Welding Protective Hat or Cap
ADFs Light State Transmittance
ADFs Switching Index
Zero Power Filter Markings
User Information

Impact Resistance - Filter Lens
Ignition Resistance - Welding Helmet
Flame Resistance - Welding Helmet
Size
Resolving Power
Zero Power Filters - Size, residual power, resolving power, and prismatic deviation
Transmittance - Filter Plate (Single Lens)
Permanence Filters - Dimensional Change
Permanence Filters - Ignition and Flammability
Welding Protector Window Size
Welding Protector Filter/Plate Size
Welding Helmet Housing Position
Welding Lift-front Assembly
ADFs Switching Index
Markings
Agency Marking
Transmittance Requirements - Filters

PPE Standards

CAN/CSA Z94.3-07 (Reaffirmed 2012)

CAN/CSA Z94.3-07 Class 3 ADF

This group of tests includes:

Impact Resistance - Filter Lens	Ignition Resistance - Welding Helmet
Flame Resistance - Welding Helmet	Replacement Components
Size	Residual Power
Resolving Power	Prismatic Deviation
Zero Power Filters - Size, residual power, resolving power, and prismatic deviation	Transmittance - Filter Plate (Single Lens)
Transmittance - Filter Plate (Single Lens)	Transmittance - Filter Plate (Single Lens)
Transmittance - Welding Protector Housing	Welding Protector Window Size
Cover Lenses or Cover Plates	Welding Protector Filter/Plate Size
Welding Helmet Suspension	Welding Helmet Housing Position
Welding Protective Hat or Cap	Welding Lift-front Assembly
Bibs for Welding Helmets	ADFs Dark State Transmittance
ADFs Light State Transmittance	ADFs Switching Index
ADFs Switching Index	Markings
Zero Power Filter Markings	Agency Marking
User Information	Transmittance Requirements - Filters
Haze & Luminous Transmittance - Rx	

CAN/CSA Z94.3-07 Class 4 (Welding Hand Shields) Base Model

This group of tests includes:

Impact Resistance - Filter Lens	Ignition Resistance - Welding Helmet
Flame Resistance - Welding Helmet	Replacement Components
Size	Residual Power
Resolving Power	Prismatic Deviation
Zero Power Filters - Size, residual power, resolving power, and prismatic deviation	Transmittance - Filter Plate (Single Lens)
Transmittance - Filter Plate (Single Lens)	Transmittance - Filter Plate (Single Lens)
Permanence Filters - Dimensional Change	Permanence Filters - Heat, Moisture, UV Exposure
Permanence Filters - Ignition and Flammability	Transmittance - Welding Protector Housing
Welding Protector Window Size	Cover Lenses or Cover Plates
Welding Protector Filter/Plate Size	Welding Protective Hat or Cap
Markings	Zero Power Filter Markings
Agency Marking	User Information
Transmittance Requirements - Filters	

PPE Standards

CAN/CSA Z94.3-07 (Reaffirmed 2012)

CAN/CSA Z94.3-07 Class 6 (Faceshield)

This group of tests includes:

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|---|---|
| Impact Resistance - Plano Protector Class 1 | Impact Resistance - Plano Protector Class 2 - 7 |
| Impact Resistance - Filter Lens | Ignition Resistance - Face shields |
| Ignition Resistance - Spectacle | Flame Resistance - Face shield |
| Flame Resistance - Spectacle | Replacement Components |
| Size | Residual Power |
| Resolving Power | Prismatic Deviation |
| Haze (Clear Lens) | Luminous Transmittance (Clear Lens) |
| Zero Power Filters - Size, residual power, resolving power, and prismatic deviation | Transmittance - Filter Lenses |
| Transmittance - Filter Lenses | Transmittance - Filter Lenses Ratio |
| Transmittance - Filter Lenses UV, VIS & IR | Permanence Filters - Dimensional Change |
| Permanence Filters - Heat, Moisture, UV Exposure | Permanence Filters - Ignition and Flammability |
| Transmittance - Welding Protector Housing | Welding Protector Window Size |
| Welding Protector Filter/Plate Size | Welding Lift-front Assembly |
| Faceshield Window Size | Faceshield Window Contour |
| Faceshield Special Purpose Windows | Faceshield Crown Protection |
| Faceshield Chin Protection | Markings |
| Zero Power Filter Markings | Special Purpose Statement |
| Agency Marking | User Information |
| Transmittance Requirements - Filters | |

PPE Standards

CAN/CSA Z94.3-07 (Reaffirmed 2012)

CAN/CSA Z94.3-07 Individual Tests

This group of tests includes:

Impact Resistance - Plano Protector Class 1	Impact Resistance - Plano Protector Class 2 - 7
Ignition Resistance - Face shields	Ignition Resistance - Goggle
Ignition Resistance - Spectacle	Ignition Resistance - Welding Helmet
Flame Resistance - Face shield	Flame Resistance - Goggle
Flame Resistance - Spectacle	Flame Resistance - Welding Helmet
Residual Power	Resolving Power
Prismatic Deviation	Haze (Clear Lens)
Luminous Transmittance (Clear Lens)	Transmittance - Filter Lenses
Transmittance - Filter Plate (Single Lens)	Transmittance - Filter Lenses
Transmittance - Filter Plate (Single Lens)	Transmittance - Filter Lenses Ratio
Transmittance - Filter Lenses UV, VIS & IR	Transmittance - Filter Plate (Single Lens)
Permanence Filters - Dimensional Change	Permanence Filters - Heat, Moisture, UV Exposure
Permanence Filters - Ignition and Flammability	Minimum Frontal Coverage - Spectacles
Side Protection - Spectacles	Side Protection - Spectacles
Side Protection - Spectacles	Side Protection - Spectacles
Side Protection - Spectacles	Side Protection - Spectacles
Field of View - Goggles	Ventilation Opening Class 2A Goggle
Ventilation Opening Class 2B Goggle	Optional Lift-Front Attachment - Goggles
Transmittance - Welding Protector Housing	Cover Lenses or Cover Plates
Welding Lift-front Assembly	Faceshield Chin Protection
Markings	Zero Power Filter Markings
Special Purpose Statement	Agency Marking
User Information	Transmittance Requirements - Filters
Frame Criteria - Rx	Ultraviolet transmittance - Sunglasses

CAN/CSA Z94.3-07 Optical Properties

This group of tests includes:

Residual Power	Resolving Power
Prismatic Deviation	Haze (Clear Lens)
Luminous Transmittance (Clear Lens)	Transmittance - Filter Plate (Single Lens)
Transmittance - Filter Plate (Single Lens)	Transmittance - Filter Lenses UV, VIS & IR

PPE Standards

CAN/CSA Z94.1-05

CAN/CSA Z94.1-05 Type 1, Class C

This group of tests includes:

Projections
Accessories and fittings
Accessories and fittings
Type 1 Impact attenuation - Forward wearing
Passive retention
Liner Ignition Resistance
Instructions for use

Projections
Accessories and fittings
Accessories and fittings
Type 1 Penetration resistance - Forward wearing
Shell flammability resistance
Markings and labels

CAN/CSA Z94.1-05 Type 1, Class E

This group of tests includes:

Design and Construction
Materials
Placeholder Description
Placeholder Description
Projections
Projections
Accessories and fittings
Accessories and fittings
Dielectric strength test
Dielectric strength Class E
Requirement for Type 1 Headwear
Penetration Test
Type 1 Penetration resistance - Forward wearing
Passive retention
Shell flammability resistance
Liner Ignition Resistance
Instructions for use

General
Placeholder Description
Placeholder Description
Placeholder Description
Projections
Accessories and fittings
Accessories and fittings
Accessories and fittings
Class E headwear
Impact attenuation test
Type 1 Impact attenuation - Forward wearing
Requirement for Type 1 Headwear
Passive retention test
Shell flammability resistance test
Liner ignition resistance test
Markings and labels

PPE Standards

CAN/CSA Z94.1-05

CAN/CSA Z94.1-05 Type 1, Class G

This group of tests includes:

Design and Construction	General
Materials	Placeholder Description
Placeholder Description	Placeholder Description
Placeholder Description	Placeholder Description
Projections	Projections
Projections	Accessories and fittings
Accessories and fittings	Accessories and fittings
Accessories and fittings	Accessories and fittings
Dielectric strength test	Placeholder Description
Dielectric strength Class G	Impact attenuation test
Requirement for Type 1 Headwear	Type 1 Impact attenuation - Forward wearing
Penetration Test	Requirement for Type 1 Headwear
Type 1 Penetration resistance - Forward wearing	Passive retention test
Passive retention	Shell flammability resistance test
Shell flammability resistance	Liner ignition resistance test
Liner Ignition Resistance	Markings and labels
Instructions for use	

CAN/CSA Z94.1-05 Type 1 Reverse Wearing

This group of tests includes:

Impact attenuation test	Requirement for Type 1 Headwear
Type 1 Impact attenuation - Reverse wearing	Penetration Test
Requirement for Type 1 Headwear	Type 1 Penetration resistance - Reverse wearing
Passive retention test	Passive retention

CAN/CSA Z94.1-05 Type 1 Reverse Wearing Submitted w/Base Model

This group of tests includes:

Type 1 Impact attenuation - Reverse wearing	Type 1 Penetration resistance - Reverse wearing
Passive retention	

PPE Standards

CAN/CSA Z94.1-05

CAN/CSA Z94.1-05 Type 2, Class C

This group of tests includes:

Projections	Projections
Accessories and fittings	Accessories and fittings
Accessories and fittings	Accessories and fittings
Instrumentation check: In House Data Collection - DO NOT REPORT	Type 2 Impact Attenuation - Forward wearing
Type 2 Penetration resistance - Forward wearing	Passive retention
Shell flammability resistance	Liner Ignition Resistance
Markings and labels	Instructions for use

CAN/CSA Z94.1-05 Type 2, Class E

This group of tests includes:

Design and Construction	General
Materials	Placeholder Description
Placeholder Description	Placeholder Description
Placeholder Description	Placeholder Description
Projections	Projections
Projections	Accessories and fittings
Accessories and fittings	Accessories and fittings
Accessories and fittings	Accessories and fittings
Dielectric strength test	Class E headwear
Dielectric strength Class E	Impact attenuation test
Type 2 Impact Attenuation - Forward wearing	Type 2 Penetration resistance - Forward wearing
Passive retention test	Passive retention
Shell flammability resistance test	Shell flammability resistance
Liner ignition resistance test	Liner Ignition Resistance
Markings and labels	Instructions for use

PPE Standards

CAN/CSA Z94.1-05

CAN/CSA Z94.1-05 Type 2, Class G

This group of tests includes:

Design and Construction	General
Materials	Placeholder Description
Placeholder Description	Placeholder Description
Placeholder Description	Placeholder Description
Projections	Projections
Projections	Accessories and fittings
Accessories and fittings	Accessories and fittings
Accessories and fittings	Accessories and fittings
Dielectric strength test	Placeholder Description
Dielectric strength Class G	Impact attenuation test
Type 2 Impact Attenuation - Forward wearing	Type 2 Penetration resistance - Forward wearing
Passive retention test	Passive retention
Shell flammability resistance test	Shell flammability resistance
Liner ignition resistance test	Liner Ignition Resistance
Markings and labels	Instructions for use

CSA Z94.1-05 Type 2 Reverse Wearing

This group of tests includes:

Impact attenuation test	Requirement for Type 1 Headwear
Type 2 Impact Attenuation - Reverse wearing	Penetration Test
Requirement for Type 2 Headwear	Type 2 Penetration resistance - Reverse wearing
Passive retention test	Passive retention

CAN/CSA Z94.1-05 Type 2 Reverse Wearing Submitted w/ Base Model

This group of tests includes:

Type 2 Impact Attenuation - Reverse wearing	Type 2 Penetration resistance - Reverse wearing
Passive retention	

PPE Standards

EN 166:2001

EN 166:2001 Basic Requirements

This group of tests includes:

General Construction	Materials
Headbands	Field of Vision
Spherical, Astigmatic, and Prismatic Powers - Unmounted oculars covering one eye	Spherical, Astigmatic, and Prismatic Powers - Mounted oculars and unmounted oculars covering both eyes
Cover plates	Transmittance - Oculars without filtering action
Transmittance - Oculars with filtering action (filters) and housings for oculars with filtering action	Variations in Transmittance - Oculars without corrective effect
Diffusion of Light	Quality of Material and Surface
Minimum Robustness	Increased Robustness
Increased Robustness - Complete eye-protectors and frames	Stability at an Elevated Temperature
Resistance to Ultraviolet Radiation (oculars only)	Resistance to Ultraviolet Radiation (oculars only)
Resistance to Corrosion	Resistance to Ignition
Markings - General	Ocular - Scale Number
Ocular - Identification of Manufacturer	Ocular - Optical Class
Ocular - Mechanical Strength	Ocular - Resistance to Short Circuit Electric Arc
Ocular - Non-adherence to Molten Metals & Resistance to Penetration of Hot Solids	Ocular - Resistance to surface damage by fine particles
Ocular - Resistance to fogging of oculars	Ocular - Original/Replacement Ocular
Ocular - Resistance to High Speed Particles at Extremes of Temperature	Ocular - Marking of Laminated Oculars
Frames - Identification of Manufacturer	Frames - Number of the Standard
Frames - Field of Use	Frames - Increased Robustness and Resistance to High Speed Particles
Frames - Resistance to High Speed Particles at Extremes of Temperature	Frames Designed to Fit a Small Head
Frames - Highest Ocular Scale Number	Marking of Eye-protectors Where the Frame & Ocular Form a Single Unit
Information supplied by the manufacturer	

PPE Standards

EN 166:2001

EN 166:2001 Individual Tests

This group of tests includes:

General Construction	Materials
Headbands	Field of Vision
Spherical, Astigmatic, and Prismatic Powers - Mounted oculars and unmounted oculars covering both eyes	Transmittance - Oculars without filtering action
Transmittance - Oculars with filtering action (filters) and housings for oculars with filtering action	Diffusion of Light
Quality of Material and Surface	Minimum Robustness
Increased Robustness	Increased Robustness - Complete eye-protectors and frames
Stability at an Elevated Temperature	Resistance to Ultraviolet Radiation (oculars only)
Resistance to Ultraviolet Radiation (oculars only)	Resistance to Corrosion
Resistance to Ignition	Protection Against High Speed Particles
Protection Against Droplets and Splashes of Liquids	Protection Against Large Dust Particles
Lateral Protection	Resistance to surface damage by fine particles
Resistance to fogging of oculars	Protection against high speed particles at extremes of temperature
Markings - General	Ocular - Scale Number
Ocular - Identification of Manufacturer	Ocular - Optical Class
Ocular - Mechanical Strength	Ocular - Resistance to Short Circuit Electric Arc
Ocular - Non-adherence to Molten Metals & Resistance to Penetration of Hot Solids	Ocular - Resistance to surface damage by fine particles
Ocular - Resistance to fogging of oculars	Ocular - Original/Replacement Ocular
Ocular - Resistance to High Speed Particles at Extremes of Temperature	Ocular - Marking of Laminated Oculars
Frames - Identification of Manufacturer	Frames - Number of the Standard
Frames - Field of Use	Frames - Increased Robustness and Resistance to High Speed Particles
Frames - Resistance to High Speed Particles at Extremes of Temperature	Frames Designed to Fit a Small Head
Frames - Highest Ocular Scale Number	Marking of Eye-protectors Where the Frame & Ocular Form a Single Unit
Information supplied by the manufacturer	

Military Standards

MIL-PRF-32432(GL)

MIL-PRF-32432(GL) Abrasion

This group of tests includes:

Haze/Resistance to scratching/Abrasion

MIL-PRF-32432(GL) Adhesion

This group of tests includes:

Humidity/Adhesion

MIL-PRF-32432(GL) Ballistic Fragmentation

This group of tests includes:

Ballistic fragmentation protection Class 1 spectacles

Ballistic fragmentation protection Class 1a spectacles

Ballistic fragmentation protection Class 2a and Class 3a goggles

Universal Prescription Lens Carrier (UPLC) adaptors Class 2a and Class 3a goggles

Ballistic fragmentation protection Class 1 spectacles - Both Eyes

Ballistic fragmentation protection Class 2 and Class 3 goggles

Universal Prescription Lens Carrier (UPLC) adaptors Class 1a spectacles

MIL-PRF-32432(GL) Chemical Resistance

This group of tests includes:

Chemical resistance

MIL-PRF-32432(GL) Chromaticity

This group of tests includes:

Chromaticity (Sunglass Lens Only)

MIL-PRF-32432(GL) Neutrality

This group of tests includes:

Neutrality (Sunglass Lens Only)

MIL-PRF-32432(GL) Humidity

This group of tests includes:

Humidity/Adhesion

ASTM Standards

ASTM F 659

ASTM F 659 Individual Tests

This group of tests includes:

Resistance to Fogging