



# **Aluminized Clothing**

Aluminized Clothing provides excellent protection against radiant heat and molten metal splashes.



## HEAT AND FLAME PROTECTION

BLUE EAGLE aluminized clothing (heat protective clothing) offers excellent protection against radiant heat and molten metal splashes, and is suitable for use in steel mills, metal foundries, glass works, and other places with high levels of radiant heat.

When tested according to **EN 11612, Protective clothing - clothing to protect against heat and flame**, BLUE EAGLE aluminized clothing shows excellent performances.

### Limited Flame Spread **A1**

It shows perfect performances : no flame, no molten debris, no hole, no afterglow, no afterflame.

### Convective Heat **B2**

★★☆

### Radiant Heat **C4**

★★★★ Highest Level

### Molten Aluminium Splashes **D3**

★★★★ Highest Level

### Molten Iron Splashes **E3**

★★★★ Highest Level

### Contact Heat **F2**

★★☆

**BACK OF THE HAND**  
Aluminized outside provides protections against radiant heat and molten metal splashes.

**FINGER**  
In the test of burning behavior, it shows the highest performance level 4.

**PALM AREA**  
Woven Aramid fabric, which provides protections against contact heat and has highest mechanical properties.  
Abrasion resistance: level 4  
Blade cut resistance: level 5  
Tear resistance : level 4

**Mitten**  
AL142

**Mitten (index finger)**  
AL143

**Gloves**  
AL145

**Gloves, aluminized palm**  
AL145A

**Gloves, wider palm**  
AL145B

**Gloves, reinforced**  
AL145D

Model	Length	Type
AL142	35 cm (14 inches)	Mitten
AL143		Mitten (index finger)
AL145		Gloves
AL145A		Gloves, aluminized palm
AL145B		Gloves, wider palm
AL145D		Gloves, reinforced
AL163	40 cm (16 inches)	Mitten (index finger)
AL165		Gloves

## Aluminized Gloves / Mitten

The aluminized protective gloves provide excellent protections against radiant heat and molten metal splashes. Ideal for use in steel mills, casting shops, heat treating operations and foundries.

## Standards

**EN 407** - Protective gloves against thermal risks (heat and / or fire)

**EN 388** - Protective gloves against mechanical risks

Since 1978

# HEAT REFLECTION PROTECTION

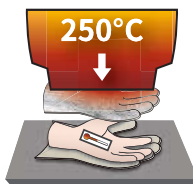
## Thermal Risks Test results of EN 407



### Burning Behaviour ★★★★★ (highest level)

Place a burner with standard flame below the glove. After 15 seconds, remove the burner. Measure and record the After flame time and After glow time.

Performance Level	After flame time (second)	After glow time (second)
1	≤ 20	N/A
2	≤ 10	≤ 120
3	≤ 3	≤ 25
4	≤ 2	≤ 5



### Contact Heat ★★☆☆☆

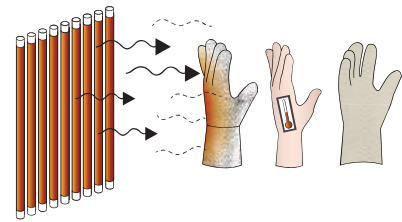
Place the glove on a calorimeter, and bring the heated metal into contact with the calorimeter with a standard force. Measure how long does it take for the inner side of the glove to become 10°C warmer than it was.

Performance Level	Temperature (°C)	Threshold Time (s)
1	100	≥ 15
2	250	≥ 15
3	350	≥ 15
4	500	≥ 15

## Mechanical Risks Test results of EN 388

### Mechanical Risks

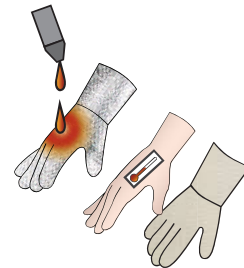
Test	Level 1	Level 2	Level 3	Level 4	Level 5
Abrasion Resistance (number of cycles)	100	500	2000	8000	-
Blade Cut Resistance (cut index)	1.2	2.5	5.0	10.0	20.0
Tear Resistance (N)	10	25	50	75	-
Puncture Resistance (N)	20	60	100	150	-



### Radiant Heat ★★★★★ (highest level)

Position the glove in front of a 20 kW/m<sup>2</sup> radiant heat source. Measure and record how long it takes to increase the inner side temperature of the glove with 24 °C.

Performance Level	Heat Transfer Level, t <sub>24</sub> (second)
1	≥ 7
2	≥ 20
3	≥ 50
4	≥ 95



### Small Splashes Molten Metal ★★☆☆☆

The test is based on the number of drops of molten metal that generates a temperature increase between the glove material and the skin with 40 °C.

Performance Level	Number of droplets
1	≥ 10
2	≥ 15
3	≥ 25
4	≥ 35



### Convective Heat ★★☆☆☆

Position the glove above a burner. Ignite the burner, measure and record how long it takes to increase the inner side temperature of the glove with 24 °C.

Performance Level	Heat Transfer Index, HTI (second)
1	≥ 4
2	≥ 7
3	≥ 10
4	≥ 18



# Heat Reflective Aluminized Hood

Model :

**AL19**

Features :

- Aluminized visor
- Aluminized FR fabric
- Reflect radiant heat away
- Face feels cooler
- More comfortable
- Block UV
- Lift-front design



### Aluminized Hood

- Aluminized visor
- Aluminized FR fabric
- Reflect radiant heat
- Block UV
- Equipped safety cap

**AL1**



### Aluminized Faceshield

- Aluminized visor
- Aluminized FR fabric
- Reflect radiant heat
- Block UV

**ALBR3**

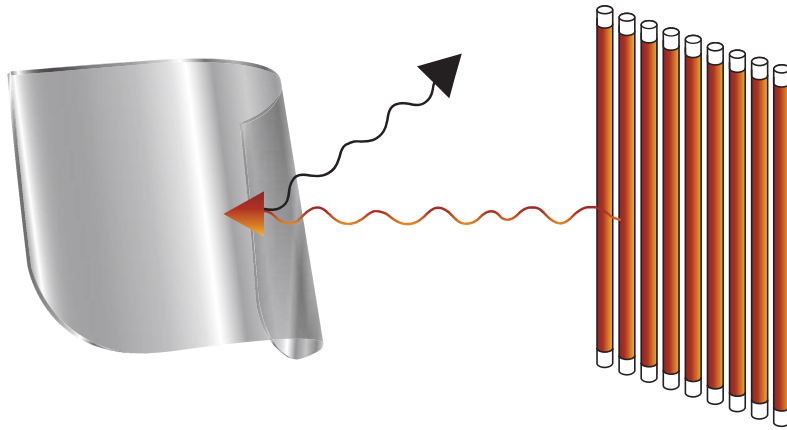


### Aluminized Visor / Bracket

- Aluminized visor
- Aluminum bracket
- Reflect radiant heat
- Block UV

**A4  
(Bracket)  
FCR3  
(Visor)**

## Aluminized Visor



- Aluminized visor reflects most radiant heat, so user's face will feel more comfortable and cooler.
- IR-reflectance > 75 %
- RHTI24 > 95 seconds. Achieve the highest level of radiant heat performance level when tested according to EN 6942-Protection against heat and fire-Method of test : Evaluation of materials and material assemblies when exposed to a source of radiant heat.
- Block both UV and IR.

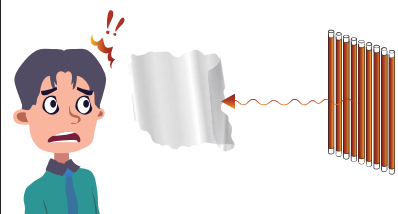
## Radiant Heat

Radiant heat is a heat which radiates out from high temperature objects, such as melt iron and melt glass. The total amount of radiation increases steeply as the temperature rises; it grows as  $T^4$ , where  $T$  is the absolute temperature of the body. The total radiative intensity of a black body rises as the fourth power of the absolute temperature, as expressed by the -- Stefan Boltzmann law. In the plot, the area under each curve grows rapidly as the temperature increases. For example, molten iron at the temperature of 1800 K (1527 °C) radiates 1296 times as much energy as an object at room temperature 300 K (27 °C). In small doses, radiant heat can be warm and welcoming. However, the large amount of radiant heat generated by high mass, high temperature object, such as molten metal in steel mills, can be very dangerous and a serious threat of workers' safety.

Radiant heat travels in invisible waves through space. When radiant heat hit a person, it is absorbed, converted into heat, and would cause unbearable pain and followed by second-degree burns. That is why workers need to wear aluminized apparels and visors.

When radiant heat hit a clear or tinted faceshield, its temperature would be increased and would cause it to melt. Unlike clear or tinted faceshields, BLUE EAGLE aluminized apparels and faceshields can reflect radiant heat and limit a rise in temperature on the apparels and visors to protect users.

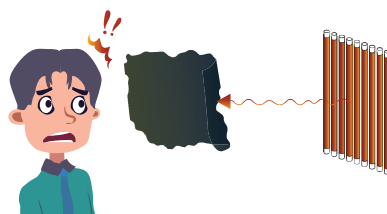
## Clear Visor



### Disadvantages

- A Clear visor only absorbs a little radiant heat, and most of the heat still transmits to user's face and eyes.
- User's face feels hot, and radiant heat harms user's face and eyes.
- Since the visor is clear, users are forced to look at the very bright objects, such as molten metal, directly.

## Tinted Visor

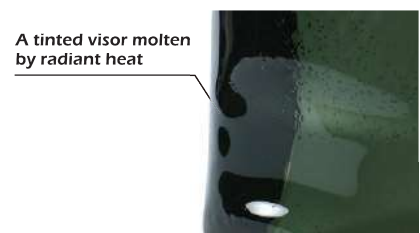


### Disadvantages

- A Tinted visor only absorbs some radiant heat, and most of the heat still transmits to user's face and eyes.
- User's face feels hot, and radiant heat harms user's face and eyes.



A clear visor molten by radiant heat



A tinted visor molten by radiant heat



**Coat**

**Trousers**

**Model :**

AL2

**Model :**

AL3

**Chest circle :**  
48 "

**Waist circle :**  
34 "

**Coat length :**  
29 "

**Trouser length :**  
39 "

**Features**

- Excellent radiant heat protection
- Excellent molten metal splashes protection
- Flame Resistance (FR)
- Contact heat protection
- Convective heat protection
- Coat and trouser styles



**Coat (SCBA type)**

**Trousers**

**Model :**

AL28

**Model :**

AL3

**Chest circle :**  
55 "

**Waist circle :**  
34 "

**Coat length :**  
34 "

**Trouser length :**  
39 "

**Features**

- Excellent radiant heat protection
- Excellent molten metal splashes protection
- Flame Resistance (FR)
- Contact heat protection
- Convective heat protection
- Coat and trouser styles
- Available with an SCBA accommodation



**Overall (SCBA type)**

**Model :**

AL283

**Chest circle :**

55 "

**Overall length :**

60 "

**Features**

- Excellent radiant heat protection
- Excellent molten metal splashes protection
- Flame Resistance (FR)
- Contact heat protection
- Convective heat protection
- Overall style
- Available with an SCBA accommodation



**Robe**

**Model :**  
AL29

**Chest circle :** 57 "      **Length :** 51 "

**Features**

- Excellent radiant heat protection
- Excellent molten metal splashes protection
- Flame Resistance (FR)
- Contact heat protection
- Convective heat protection
- Robe style
- Easily put on and take off



**Apron with sleeves**

**Model :**  
AL6

**Chest width :** 27 "      **Length :** 49 "

**Features**

- Excellent radiant heat protection
- Excellent molten metal splashes protection
- Flame Resistance (FR)
- Contact heat protection
- Convective heat protection
- Apron with sleeves style
- Light weight
- Front protection only
- Easily put on and take off



**Apron**

**Model :**  
AL7

**Width :** 27 "      **Length :** 39 "

**Features**

- Excellent radiant heat protection
- Excellent molten metal splashes protection
- Flame Resistance (FR)
- Contact heat protection
- Convective heat protection
- Apron with sleeves style
- Light weight
- Front protection only
- Easily put on and take off





### Boots

- Aluminized FR fabric
- Radiant heat protection
- Molten metal splashes protection
- Reflect radiant heat
- Steel toe, boots height : 8"

**AL4**



### Gaiters

- Aluminized FR fabric
- Radiant heat protection
- Molten metal splashes protection
- Reflect radiant heat
- Height : 9"

**AL5**



### Sleeves

- Aluminized FR fabric
- Radiant heat protection
- Molten metal splashes protection
- Reflect radiant heat
- Length : 22"

**AL8**

## Customized

**Do not see the aluminized apparel you want ?**

**Our design team can always create a custom product to meet your needs.**



### Aluminized Modacrylic/Fiberglass Fabric

Providing excellent protections against radiant heat and molten metal splashes.



### Aluminized Aramid Fabric

Providing even better molten metal splashes protection and better mechanical properties. In addition, it is more durable.



### Aluminized Aramid/Oxidized Pan Fiber Fabric

Providing the best molten metal splashes protection. In addition, it is soft and lightweight. Comfortable to wear.

Since 1978

# HEAT REFLECTION PROTECTION

★ EN 11612 : Protective clothing-Clothing to protect against heat and flame

### Convective Heat ★★☆☆

Position the clothing above a standard burner. Ignite the burner, measure and record how long it takes to increase the other side temperature of the clothing with 24 °C.

Performance Level	Heat transfer index HTI 24 (s)	
	min.	max.
B1	4	< 10.0
B2	10.0	< 20.0
B3	20.0	

### Molten Aluminum Splashes ★★★

Pouring certain grams of molten aluminum onto the clothing and exam the sign of damage on the other side.

Performance Level	Grams	
	min.	max.
D1	100	< 200
D2	200	< 350
D3	350	

### Radiant Heat ★★★★★

Position the clothing in front of a 20 kW/m<sup>2</sup> radiant heat source, measure and record how long it takes to increase the other side temperature of the clothing with 24 °C.

Performance Level	Heat transfer index RHTI 24 (second)	
	min.	max.
C1	7.0	< 20.0
C2	20.0	< 50.0
C3	50.0	< 95.0
C4	95.0	

### Contact Heat ★★☆☆

Place clothing on a calorimeter, and bring a 250 °C heated metal into contact with the calorimeter with a standard force. Measure how long does it take for the other side of the clothing to become 10 °C warmer than it was.

Performance Level	Threshold Time (s)	
	min.	max.
F1	5.0	< 10.0
F2	10.0	< 15.0
F3	15.0	

### Molten Iron Splashes ★★★

Pouring certain grams of molten iron onto the clothing and exam the sign of damage on the other side.

Performance Level	Grams	
	min.	max.
E1	60	< 120
E2	120	< 200
E3	200	

