

# Protection From Thermal Hazards

# EN407



## Resistance to Flammability

Because the presence of flame is inherently dangerous, this test assesses how long gloves glow or burn after they're ignited.

### How the test works

In a controlled chamber, the glove is exposed to the flame for three seconds. The same test is performed for 15 seconds. After flame and afterglow times are logged and the glove is inspected for any damage or exposed seams.

| After-Burn Time (seconds) | After-Glow Time (seconds) | Rating |
|---------------------------|---------------------------|--------|
| under 20                  | Infinity                  | 1      |
| under 10                  | ≤ 120                     | 2      |
| under 3                   | ≤ 25                      | 3      |
| under 2                   | ≤ 5                       | 4      |



## Contact Heat Resistance

This tests thermal resistance by measuring the rate of temperature rise. In other words, how long gloves keep heat and flame at bay.

### How the test works

Palm samples are placed on four plates heated from 100°C to 500°C. Performance is determined by how long it takes the temperature on the side opposite the sample to rise 10°C. This is known as the threshold time. Gloves need to withstand the increasing temperature of maximum 10°C for at least 15 seconds for a pass at a given level.

| Temperature after 15 Seconds | Rating |
|------------------------------|--------|
| 100°C                        | 1      |
| 250°C                        | 2      |
| 350°C                        | 3      |
| 500°C                        | 4      |



## Convective Heat Resistance

This test resembles the Resistance to Flammability test; however, the flame is more aggressive and different surfaces of the glove are tested.

### How the test works

In a controlled chamber, the cuff, back, and palm are exposed to the flame. The goal is to determine how long it takes to raise the inner temperature of the glove 24°C.

| Seconds  | Rating |
|----------|--------|
| under 4  | 1      |
| under 7  | 2      |
| under 10 | 3      |
| under 18 | 4      |



## Radiant Heat Resistance

This tests the back of the glove to ensure materials can resist extreme heat radiating through the glove's various materials

### How the test works

Glove samples are exposed to a radiant heat source. Like the Convective Heat Resistance test, the goal is to assess how long it takes the inner temperatures to rise 24°C.

| Seconds  | Rating |
|----------|--------|
| under 7  | 1      |
| under 20 | 2      |
| under 50 | 3      |
| under 95 | 4      |



## Resistance to Small Drops of Molten Metal

This test is designed to assess hand protection when working with small amounts of molten metal. Welding is a good example.

### How the test works

In a controlled chamber, two palm and two back-of-the-hand samples are exposed to small drops of molten metal, such as copper. Protective performance is based on the number of drops needed to raise the temperature by 40°C on the opposite side of the sample.

| Number of Drops | Rating |
|-----------------|--------|
| under 10        | 1      |
| under 15        | 2      |
| under 25        | 3      |
| under 35        | 4      |



## Resistance to Large Drops of Molten Metal

For this test, PVC foil is used to simulate how skin would be affected inside the glove.

### How the test works

Molten metal, such as iron, is poured over a glove sample that, in turn, is placed over PVC foil. After each of three tests, the foil is assessed for changes. If a drop remains stuck to the sample, or the sample ignites or is punctured the result is a failure.

| Grams of Molten | Rating |
|-----------------|--------|
| 30g             | 1      |
| 60g             | 2      |
| 120g            | 3      |
| 200g            | 4      |