



RITZ SAFETY

Learning Guide:

ASTM F1060 vs. EN 407

Why Different Heat Resistance Tests Exist,
and Which One Makes Sense for You





Whether it's pulling hot parts off a press, welding near open flame or working around molten metal, many industrial jobs require reliable heat-resistant hand protection. But when it comes to evaluating gloves for thermal hazards, two different standards tend to show up: ASTM F1060 and EN 407.

Both are widely recognized, but they're designed to measure different types of heat exposure. Knowing how each one works, and when to use which, can help ensure your crew gets the right glove for the job.

Why Do These Standards Exist?

The simple answer: heat hazards vary, and so do safety regulations across regions.

- ASTM F1060-18 is a North American standard used primarily in the U.S. and Canada. It focuses specifically on contact heat protection, how well a glove protects a worker's hand when they grab or hold something hot.
- EN 407 is the European standard that covers a much broader range of thermal risks. It tests how well a glove handles not just contact heat, but also burning behavior, convective heat, radiant heat, small molten metal splashes and large molten metal splashes. It's meant for multi-hazard applications like glass manufacturing, injection molding or metal extrusion.

Both serve a purpose, but they're built for different types of jobsite realities.



A Truly Comprehensive Test

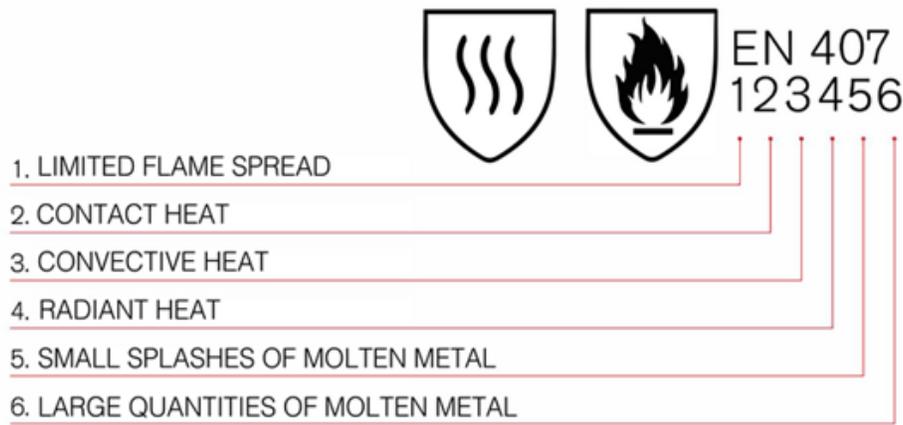
One of the biggest advantages of EN 407 is that it's not a single test, it's six tests in one.

Each test evaluates a different type of thermal hazard, and gloves are rated separately in each category:

Test	What it Measures
Burning Behavior	How easily the glove ignites and how long it burns after the flame is removed
Contact Heat	How well the glove insulates direct contact with a hot object
Convective Heat	Resistance to heat carried by air or gas
Radiant Heat	Resistance to intense heat from sources like furnaces or open flame
Small Molten Metal Splashes	Protection from small droplets of molten metal
Large Molten Metal Splashes	Protection from larger amounts of molten metal without breaking open

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Are There North American Equivalents for all EN 407 Tests?

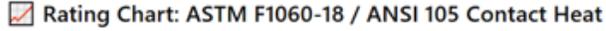
Yes, although EN 407 groups these thermal hazards into one single standard, there are equivalent ASTM tests used in North America for each individual hazard type:

Hazard Type	Test
Contact Heat	ASTM F1060-18
Molten Metal Splash	ASTM F955
Flame Resistance	ASTM D6413
Convective Heat	ASTM F1939
Radiant/Flame Composite	ASTM F1930 (typically for garments, sometimes extended to gloves)

Some gloves tested to EN 407 may also be tested to these individual ASTM methods to satisfy North American marking expectations.

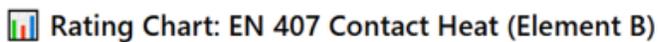
What if I Only Need Contact Heat Resistance? Which Should I Use?

Although both standards test to contact heat resistance, EN 407 and ASTM F1060-18 are not the same. Both standards test for contact heat resistance in gloves, but they differ in test methods, rating systems, temperatures used, and what they emphasize. But what are those differences?



ASTM Level	Contact Temp Range
Level 0	< 80°C (176°F)
Level 1	80–139°C (176–282°F)
Level 2	140–199°C (284–390°F)
Level 3	200–259°C (392–498°F)
Level 4	260–319°C (500–606°F)
Level 5	≥ 320°C (608°F+)

 *Glove must allow ≥15 seconds before causing second-degree burns, with ≥4 sec of "alarm time" for wearer to react.*



EN 407 Level	Temperature (°C)	Time (seconds)
Level 1	100°C	≥ 15 sec
Level 2	250°C	≥ 15 sec
Level 3	350°C	≥ 15 sec
Level 4	500°C	≥ 15 sec

 *To pass a level, glove must resist heat for 15 sec without inner temp exceeding 10°C rise.*

Temperature Approach:

- EN 407 tests at fixed temperatures (100°C, 250°C, 350°C, 500°C).
- ASTM F1060-18 tests at variable temperatures tailored to simulate real-world contact points.

Rating Levels:

- EN 407 assigns Levels 1-4 based on the highest fixed temp passed for 15 sec.
- ASTM assigns Levels 0-5 based on the temperature range where the glove protects for ≥15 sec.

Pass Criteria:

- EN 407 passes if the inner temperature rises <10°C after 15 sec at set temps.
- ASTM passes if it prevents second-degree burns for ≥15 sec with ≥4 sec alarm time.

Note: ASTM F1060-18 requires at least 4 seconds of "alarm time" (the interval between initial pain prediction and second-degree burn threshold), giving wearers a better chance to remove gloves before injury.)*

Pain/Alarm Time Requirement:

- EN 407 does not require user reaction alarm time before pain.
- ASTM requires ≥ 4 seconds of “alarm time” (the interval between initial pain prediction and second-degree burn threshold), giving wearers a better chance to remove gloves before injury.

Measurement Style:

- EN 407 provides a pass/fail at preset levels, without telling you exact failure temp.
- ASTM provides a defined temperature range where gloves offer protection, giving more actionable data.

So, when contact heat protection is needed for a specific temperature, ASTM F1060-18 testing provides a more precise evaluation. It measures how long a glove can delay second-degree burns at a defined temperature within each range, with at least four seconds of warning time before pain occurs. This makes it ideal for tasks like metal stamping or handling oven-heated parts. In contrast, EN 407 tests at fixed temperature levels and doesn't account for alarm time or the glove's actual failure point. While EN 407 is useful for general thermal hazards, ASTM F1060-18 offers more actionable data for contact heat risks.

Key Takeaways

EN 407 is a comprehensive standard ideal for applications with overlapping thermal hazards. ASTM F1060-18 is focused and precise, perfect for evaluating contact heat alone. Choosing the right gloves starts with understanding your real-world risks. Match the test method to the actual tasks your team performs, not just the markings on the glove.