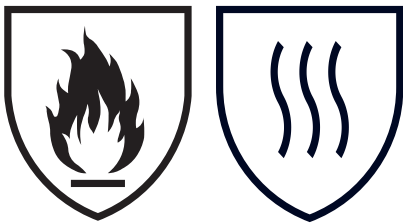


# EN 407:2020

## Thermal risks (heat and/or fire)



EN 407  
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- LIMITED FLAME SPREAD
- CONTACT HEAT
- CONVECTIVE HEAT
- RADIANT HEAT
- SMALL SPLASHES OF MOLTEN
- LARGE QUANTITIES OF MOLTEN

### THERMAL RISKS (HEAT AND/OR FIRE)

The main reason for the standard update is that Regulation (EU) 2016/425 specifically covers oven gloves, which are classified as Category II PPE

The major changes are as below:

- New test methods for burning behavior, now called limited flame spread.
- New test method for contact heat. All areas intended to be exposed to contact heat must be tested (including cuff or fingers)
- New test method for convective heat.
- Hand protective equipment, such as oven gloves now included in the scope.



This is a new pictogram for hand protective equipment for domestic risks such as oven gloves. **This pictogram is to be used for gloves that are not tested against Limited flame spread, e.g. protective gloves that only claim contact heat should use the new pictogram.**

Note that the two pictograms can never be used at the same time.

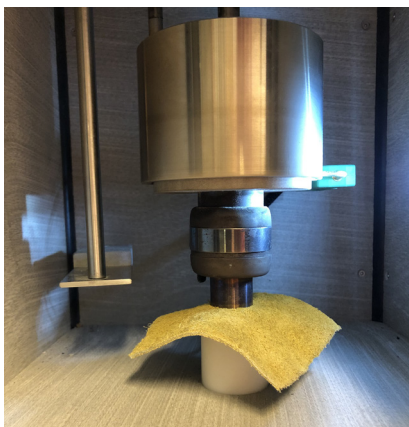


### LIMITED FLAME SPREAD

The flame is brought into contact with the test sample for 10 sec., the degree of after-flame and after-glow of the sample is recorded.



PERFORMANCE LEVEL	AFTER-FLAME TIME (s)	AFTER-GLOW TIME (s)
1	≤ 15	No requirement
2	≤ 10	≤ 120
3	≤ 3	≤ 25
4	≤ 2	≤ 5



### CONTACT HEAT

A metal cylinder is heated to the required temperature (100°C, 250°C, 350°C or 500°C). A calorimeter is placed on the underside of the sample and the time for the temperature to rise to 10°C above the starting temperature is measured.



All parts intended to be exposed to contact heat are tested. The lowest single value of 3 measurements sets the performance level.

Performance level	Contact temperature Tc (°C)	THRESHOLD TIME TT (s)
1	100	≥ 15
2	250	≥ 15
3	350	≥ 15
4	500	≥ 15

## CONVECTIVE HEAT



The samples are exposed to a heat source – a flame composed of turbulent combustion gases. The thermal insulation of the glove is measured by the rate of temperature rise of a calorimeter on the inside of the glove while the glove outer is placed in contact with a controlled gas flame. The rate at which the temperature can rise by a specified amount in a specified amount of time is defined as Heat transfer index.

PERFORMANCE LEVEL	HEAT TRANSFER INDEX HTI (s)
1	≥ 4
2	≥ 7
3	≥ 10
4	≥ 18



## RADIANT HEAT



The testing is conducted on a sample that are exposed to a specific level of radiant heat. The times for temperature rises of 24°C measured by a calorimeter are recorded and are expressed as radiant heat transfer time.

PERFORMANCE LEVEL	HEAT TRANSFER T24 (s)
1	≥ 7
2	≥ 20
3	≥ 50
4	≥ 95



## SMALL SPLASHES OF MOLTEN METAL



The thermal insulation of the glove is measured by the rate of a temperature rise of a calorimeter placed on the underside of the test sample. Drops of molten metal of a specified size (0.5 g) impact the glove outer at a defined rate. The number of droplets which produce a temperature rise of 40°C is measured.

PERFORMANCE LEVEL	NUMBER OF 0.5 g DROPLETS
1	≥ 10
2	≥ 15
3	≥ 25
4	≥ 35

## LARGE QUANTITIES OF MOLTEN METAL



Materials are tested by pouring defined quantities of molten metal onto the test specimen which is supported at an angle to the horizontal. Following pouring, damage is assessed by visual examination of an embossed thermoplastic PVC sensor film placed directly behind and in contact with the test specimen during the test.

PERFORMANCE LEVEL	MOLTEN IRON (g)
1	30
2	60
3	120
4	200



## TO CLAIM PERFORMANCE LEVELS OF 3 OR 4



To claim performance levels of 3 or 4 for any of the thermal properties, the limited flame spread test must also be performed and must obtain a minimum rating of Level 3. If this requirement is not met, the maximum level that can be reported for any of the thermal properties will be Level 2.

If elevated performance levels (3 or 4) the gloves should be designed so they can be easily removed.