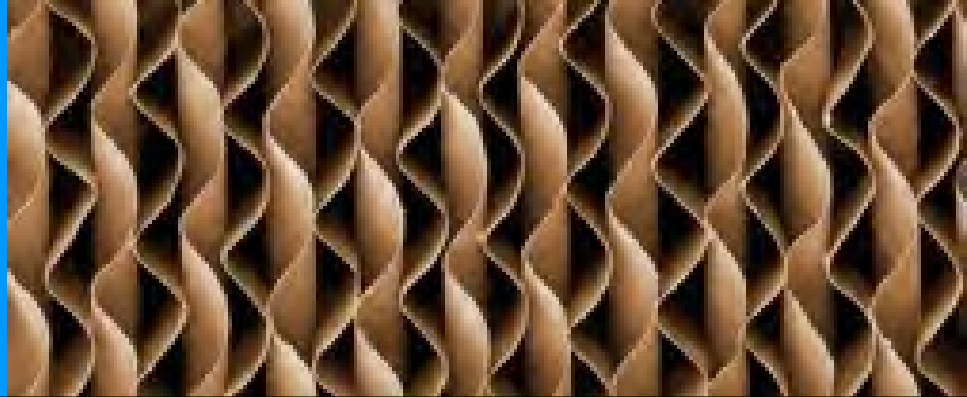


# Comparison

## of Ratings

UL 900 &

EN ISO 1182 / EN 13823



### ***Underwriters Laboratory vs. Euroclass Standard for Glass Based, Fire Rated Evaporative Cooling Pads***

Underwriters Laboratory (UL) is a nationally recognized testing laboratory. The Euroclass system is a standard of regulation that is acknowledged by countries of the European Union (EU). While both entities have a fire rating that has been associated with glass based evaporative cooling pads, difficulties exist when comparing the two ratings because the test methodology and information measured varies significantly.

Glas Pad customers in the U.S. market are familiar with the UL 900 Class 2 rating. The UL 900 requirements classify smoke and flammability standards for *Air Filter Units*. The smoke and flammability limits for clean filter units currently use two classifications but these will phase out to a single classification by May of 2012. After that date a UL 900 rating will only guarantee to meet current Class 2 requirements.

#### UL 900

An air filter, or in this case media is inserted into a duct with a specific amount of air movement and is exposed to a flame which is located 18" to 24-1/2" away for a period of 3 minutes.

Samples achieving a Class 2 rating shall not produce flame or extensive sparks (25 or more) which are sustained beyond the discharge end of the test duct (8' from filter sample) when subjected to the flame exposure test and shall not cause development of an area of smoke of more than 9 square inches as measured below the smoke-density time curve.

#### EUROCLASS EN ISO 1182

EN ISO 1182 is a non-combustibility test that observes a cylindrical sample of the object to be tested in a vertical tube furnace with a temp of approximately 750 °C, in essence reproducing a fully developed fire in a room. The test period is determined once temperature equilibrium is achieved for 10 minutes and must be a minimum of 30 minutes and a maximum of 60 minutes. Measurements are collected to determine the rise of temperature of the furnace, the mass loss of the specimen and the time of sustained flaming of the specimen.

#### EUROCLASS EN 13823

EN 13823 is probably closer to UL 900 than EN ISO 1182 in test methodology but is still significantly different. It is a non-combustibility test with the situation being a single burning item (SBI) in a room. A burner, diffused by sand, is placed at the bottom corner of a hanging specimen for a period of 20 minutes. The performance parameters evaluated are: heat production, smoke production, lateral (horizontal) flame spread and falling flaming droplets and particles.

The Euroclass rating is based on: flame spread (from class A-*does not contribute to E-presents an acceptable reaction to fire*), dripping (class D0-*no flaming droplets within 600s* to D2-*flaming droplets persisting longer than 10s within 600s*) and smoke (class S1-*SMOGR*  $\leq 30m2s-2$  and *TSP 600s*  $\leq 50m2$  to S3- *SMOGR*  $\geq 180m2s-2$  and *TSP 600s*  $\geq 200m2$ ).

Nature Cool Glas Pad carries a flame

and smoke rating of Class A2, D0, S2 based on EN ISO 1182 and EN 13823.

#### So What Does This All Mean?

In essence, a product can receive a UL 900 Class 2 rating (soon to be UL 900 rating without class differentiation) as long as the observer does not see flame or 25 or more sparks shooting out of a duct 8' away from the exposed sample and there is not more than 9 square inches measured on the smoke density curve after a period of only 3 minutes. UL only looks at smoke production and what is coming out of the end of the duct. In contrast, Euroclass measures temperature change, mass loss of the specimen, smoke production, lateral flame spread and falling flaming droplets. The scenarios are significantly different as well as the amount of time of the tests.

Competitive products carrying a UL 900 rating of Class 2 will either burn moderately when attacked by flame, or emit moderate amounts of smoke, or both. Nature Cool Glas Pad, with its Class A2, D0, S2 rating based on EN ISO 1182 and EN 13823 guarantees that it has no contribution to fire and no flaming droplets after 10 minutes of exposure. In fact, Nature Cool's A2 rating is only out ranked by the A1 rating which includes such products as natural stone, concrete, bricks, ceramic, glass and steel.

*Note: There is currently no known methodology for comparing the two standards and information contained within is solely of the opinion of Rotor Source.*