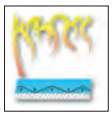
K-MASS® Passive fire protection

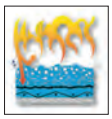
General standard requirement:

Protect parts 1093°C/2000°F during 30 minutes.
Result: After the test, the protected parts must to be operative and will keep its operational features.



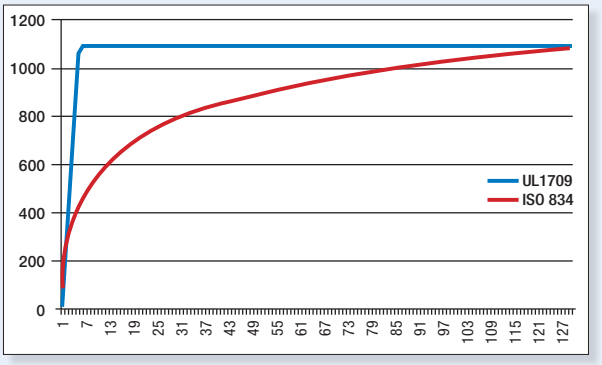
As the fire starts:
K-Mass® starts to react at 85.6°C. A chemical process causes the coating to expand (intumesce). Evaporation on the surface then takes place which also has a cooling effect. The outside surface then starts to char.

During the fire:
The surface char deepens reflecting 80-90% of the heat back into the fire. More intumescing takes place which forms a barrier which both insolates and has a cooling effect.



Long term exposure:
The 1093°C heat will penetrate the first layer so that the K-Mas® below will start to react. The next layer reacts as before. The layers react until the fire is extinguished or the material is consumed.

WHY UL-1709
UL-1709 shows the real behaviour of a petrochemical fire.
The fire reaches extremely high temperatures in a very short period of time.



Petrochemical fire behavior (UL-1709) vs. cellulose fire behavior (ISO 834).

K-MASS APPLICATION TYPES

SURFACE COATING:

K-MassK-Mass® is applied directly over all external surfaces of the parts which are going to be protected against the fire. The coating is fixed to the surfaces permanently. This protection systems allows to perform any kind of maintenance operations.

K-cab housing: control set protection.

MODULAR SYSTEM

The modular system K-GUARD® consists of two parts which cover and protect the equipment. Both parts are made 100% of K-MASS® and are adapted to the external shape of the equipment, reducing ing all the possible gaps between protected parts and K-MASS®. K-GUARD allows to perform any kind of maintenance.