

COMPETENCE BROCHURE

Filter Technology
Fire Safety in Filter Technology

Tested Safety for a Pleasant Environment



Safety through tested filters



Anyone escaping from the city atmosphere to a seaside beach at the weekend or planning to hike through mountain valleys on vacation knows how fresh clean air invigorates our bodies. Filtration of polluted air, for example, in working environments or even in areas with a large number of people, fulfills the task of providing this fresh and clean air to us - for better vitality and for pleasant comfort.

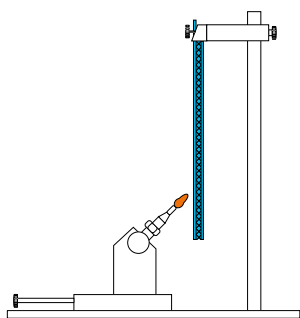
Many people coming together results in significant formation of exhalations, aerosols and gases. Besides, smells from supply stations such as kitchens, snack bars or on-board restaurants, and the smells from lavatories and waste storage facilities must also be included. As polluted air is generated everywhere, it must be treated and processed. Ideally, the air within a train car should be completely filtered once every 5 minutes, and even more - completely replaced every 10 minutes.



In an emergency, a fire in close proximity to people is an exceedingly fearful hazard. Therefore, safety precautions and tested materials are an absolute must wherever people come together. The same applies to transportation means in which people travel together. "Non-combustible" or "fire-retardant" are terms used here for preferred materials.

Testing of combustible materials (DIN 53438)

DELBAG® filters and filter materials of the FireTex® Series have so far been successfully tested in accordance with the DIN 53438 standard "Testing of combustible materials". As a result, these filters were classified in the highest class F1, K1.



Test setup for material testing,
In this test, a filter material sample is exposed to a flame:

- On the one hand, the surface of the material is flamed, a so called surface flaming
- On the other hand, the edge of the material is flamed, a so called edge flaming

More safety through DIN EN 13501

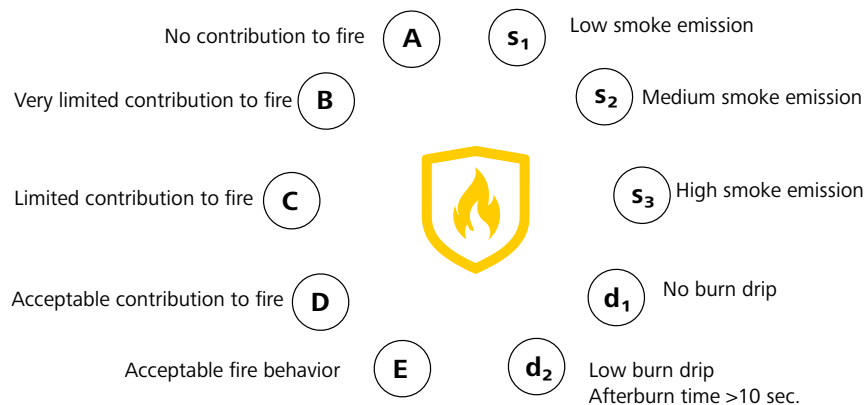
However, the impact of a fire on people usually begins to take effect much earlier. Fire has a "long-distance effect" and these negative effects usually begin in the formation phase. Many fires develop their lethal impact even without the formation of a flame. Thus, people usually die not from the immediate flames but as result of smoke and gas development. In order to be able to evaluate not only the fire behavior but also the smoke development and the dripping behavior of the material, these factors have been taken into account in the European norm "Classification of construction products and building elements using data from reaction to fire tests" (DIN EN 13501).



Tested according to the "new" fire norm, with FireTex® Series keeping you on the safe side

The new fire-protection classes for materials provide a better comprehensive scope and clarity. This results in a division into classes from A to F. However, class F means "no fire protection at all" and only classes E up to class A, which then certify the materials as "no contribution to fire at all", make sense in this consideration. This evaluation was extended by a smoke development test and the dripping behavior of the burning material. Therefore, the classification has been extended by the letter "s" and "d".

The DELBAG® filters and filter materials of the FireTex® Series meet the highest criteria of this test method and give you a good safety boost.



Safe filters step by step ...



While DIN EN 13501 already offers criteria to give you a good feeling when selecting our filters and filter materials, these also undergo another test procedure: EN 45 545.

Great care is also taken in the design of rail vehicles to ensure safety both for passengers and personnel. Since April 2016, the European standard EN 45 545 Railway applications - Fire protection on railway vehicles - has provided a uniform stamp for the fire protection requirements of all materials used in railroads.



Automated vehicles:

In the event of a fire, there are no personnel available in this type of vehicle to direct passengers to safe escape paths.



Double-deck vehicles:

These vehicles often experience very high passenger volumes and the technical design makes it difficult for passengers to escape quickly.



Sleeping car and ICE:

Vehicles of this type often travel through long tunnel stretches and to rescue passengers in sleeping cars poses a very complex task.



Normal vehicles:

Suburban trains or light street rail vehicles have only short tunnel sections and travel at relatively low speeds. In the event of a fire, passengers can be evacuated quickly.

Based on the operating and design classes of the rail vehicles, the hazard levels HL1 to HL3 are defined here for the application environments.

Test indicators according to this "railway standard" are:

- Heat generation
- Obstruction of view
- Deoxidation
- Emitted toxic gases

VERSATILE AND SAFE USE

... all application environments

Depending on the hazard level (Hazard Level 1 to 3), different requirements are placed on combustability (oxygen index), smoke gas density and smoke gas toxicity. The requirement class R5 applies here to air filters. The result of the test is a classification of materials into the worst hazard class HL1 up to the best hazard class HL3 and thus a corresponding use in the vehicles.

The DELBAG® filters and filter materials of the FireTex® Series meet the criteria of hazard class HL3 in product category R5.



Passenger ships :
Safe use in mobile hotel operations, such as cruise ships.



Airport and flight operations:
Ideal use for airports or in airplanes for passenger transportation.



Industrial areas with heavy flying sparks:
Suitable for use with EDM machines or in welding areas.



FireTex® - filters for versatile use



The **FireTex®** line of **DELBAG®** encompasses filters which greatly reduce the fire hazards and consequently protect processes and human lives.

FireTex® filters are fire resistant, do not emit smoke and do not drip in case of a fire. The well renowned test laboratory DMT has successfully tested FireTex® filter media and has accredited this filter media in accordance with DIN EN 45545-2 (requirement approach R5, hazard class HL3) and DIN 4102-1 (B1). The filter media was additionally tested for toxicity and certified according to DIN EN ISO 5659-2. In addition, it has been certified according to DIN EN 13501 with the highest class A, s1 and d1 rated. The special treatment of FireTex® filter media products has no influence on the pressure drop or the dust holding capacity of the filter material.



The bag filters **MultiSack F90 FireTex®** consist of multi-layer fire-protected synthetic filter media. Spacers in the individual bags ensure full utilization of the filter bag depth. The bag filter **MultiSack F90 FireTex®** complies with the European fire protection standard EN 45545-2 / HL3 according to the R5 specifications.

The **Filter cells Z-Line FireTex®** in the fireproof frame are also made of fireproof pleated synthetic fleece. The filter medium folded in a V-shape ensures low pressure drops even at high volume flows. The **Z-Line FireTex®** complies with the European fire protection standard EN 45545-2 / HL3 according to the R5 specifications.



The flame-retardant cartridge **MultiPlus-F FireTex®** consists of a flame-retardant cellulose/polyester mixture. Accurate pleating allows the installation of a large filter surface and provides a uniform air flow. The heavy duty base structure is made of galvanized carbon steel with a top cap and bottom base. The filter medium of the **MultiPlus-F FireTex®** is attached and sealed to the cap and base.



The **filter mats FireTex®** are high-quality fleece with low pressure differential gradients. The fleece consists of randomly structured, non-breaking polyester fibers with a progressive depth structure and compression from the clean-air side. The **filter mat FireTex®** complies with the European fire protection standard EN 45545-2 / HL3 according to the R5 specifications.



High performance filters from DELBAG® which are tested according to all current criteria, ensure a pleasant atmosphere.

OVER 20,000 PRODUCTS

Wide range - quickly on site



DELBAG GmbH, one of the world's leading suppliers of filter elements and filtration system solutions for well over 100 years, operates its logistics center on the outskirts of Dresden, the capital of Saxony.

The logistical heart of the 19,000 square meter distribution center is the DELBAG supply system. Over 20,000 specific filter SKUs are stored in the state-of-the-art DELBAG shipping center. Supply and delivery of filter products in carton boxes, ensures overnight shipping of filter products for all DELBAG B2B customers throughout continental Europe. The DELBAG distribution center is located in the immediate vicinity of the A4 highway, a major logistical artery connecting Eastern with Western Europe. With the maximum cost efficiency, the DELBAG distribution center can process more than 2,200 filter boxes and over 800 shipping modules per day - and on peak days too - using the automated warehousing to ship these to customers throughout Europe. The DELBAG logistics hub is at the heart of DELBAG's impressive order-processing capability.

DELBAG GmbH, headquartered in the Metropole of the Ruhr Area, is one of the leading manufacturers and suppliers of industrial air filter solutions. Under the Hengst Air Filtration umbrella brand, the company supplies a wide range of filtration products to the B2B air-filter market in more than 140 countries.

Contact our sales staff and find out more about the possible applications of our FireTex® filter line.



DELBAG® Air Treatment – Filtration – Facilitating Clean Air
Your global provider of air filtration solutions



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