

ATEX ZONE 22 - Beware of explosive dust



With regard to Health and Safety vacuum cleaners, diseases are not the only danger. It is well-known that cotton or paper can burn, but also other materials such as flour or even metals can ignite. The presence of oxygen and an ignition source with sufficient energy and a flammable substance (gas, liquid or solid) are factors which can provoke an explosion. The finer the dust, the higher the risk of explosion!



With the ATEX directive 94/9/EC that came into force in July 2003, the removal and separation of explosive materials has become an international regulation. Many types of dust which are potentially explosive are classified as an ATEX (ATmosphere EXplosive) application and equipment must meet additional and very special requirements.

Nilfisk offers a range of safety vacuum cleaners to pick up explosive dust and separate it from the surrounding air. If dusts are to be vacuumed which are both explosive and hazardous, the vacuum must meet the requirements for both explosive and hazardous dust applications.


Additional test certificates and third party approvals

ATEX Directive 94/9/EC puts the burden on the manufacturer to ensure that products supplied for use in explosive atmospheres are ATEX compliant. This means that for a Health and Safety vacuum designed for use in an explosive atmosphere, the machine must be ATEX compliant with reference to the particular working environment. All Nilfisk TYPE 22 vacuum cleaners are ATEX compliant in ZONE 22, and this range of vacuum cleaners has passed a wide range of technical test requirements and third party approvals.

In addition to the normal requirements for a certified Health and Safety vacuum cleaner, some of the requirements to be met are listed below:

- Electric working materials must correspond to the regulations of the VDE 0165 "Setup of electrical equipment in explosive areas", for example EC system drives (free from sources of ignition).
- The machine must correspond to protection class IP 54 at least.
- Working materials must be marked with the occurring surface temperatures during constant use when these temperatures exceed 80°C. In addition, surface temperature must not exceed 135°C.
- Electric motors must be protected against short circuit, overheating due to overload or phase dropout.
- Air flow out of the vacuum must be directed in such a way that settled dust cannot be whirled up – exhaust speed max. 1 m/s at 50 mm above the floor.
- Conductive machine parts (including attachments such as the suction hose and hand tube) must be electrostatically earthed.
- Special coupling is to be used which secures the earthing and makes confusion with non-conductive attachment parts impossible
- Earthing resistance must not be higher than 1 MΩ.
- Container casing must be made of very non-flammable material.
- Vacuums should be clearly marked with a warning label stating "approved for use with flammable dusts in ZONE 22".
- The vacuum should also be marked with L-, M- or H-Class, depending on which requirements apply.

Nilfisk single-phase TYPE 22 vacuum cleaners for ATEX ZONE 22 are tested and certified with the following classification:

 II 3D Ex tD A22 T 135 °C IP54