NORRES

TECHNISCHE SCHLÄUCHE
INDUSTRIAL HOSES

PRESS-RELEASE

New NORRES PUR AS hose series featuring permanently antistatic material

Electrostatic discharge capability – a question of perspective!

Explosion protection measures are governed by national regulations that differ from one country to another. The use of materials that are conductive and capable of electrostatic discharge is almost always recommended as the most effective way to avert danger in hazardous areas. This recommendation also applies to transport hoses. However, conventional wall materials often only achieve their conductivity or their electrostatic discharge capability with the help of migrating antistatic material and carbon blacks. In such cases, a deterioration in the electrostatic discharge effect can frequently be observed in the course of the hose's service life. At the same time, there is a risk that the antistatic material will be absorbed by the conveyed material as it migrates. The innovative hoses in the PUR AS series from NORRES Schlauchtechnik (Gelsenkirchen, Germany) are permanently antistatic. Since the wall material is non-migrating, there is no contamination of the conveyed material and no impairment of the electrostatic discharge effect. The PUR AS hose series will be shown at the Powtech fair from April 27 to April 29, 2010 in Nuremberg.

The transport of bulk materials through hoses made of materials that are non-conductive and not capable of electrostatic discharge – in other words, insulating – can present a variety of risks due to static charge: in the worst case, combustible dust explosions can occur when dusts are conveyed. Dangerous or unpredictable behaviour caused by startle reactions to electrostatic shock with body contact, disruptions to the production process due to material adherence to the walls of the hose or inaccurate measuring and control equipment results are further hazards arising from static charge. Whereas measures to counteract the latter risk types are left largely to the discretion of the user, production downtimes need to be pre-empted by selecting the hose design best suited for the application in question. A potentially explosive atmosphere can also exist inside the hose, for example if combustible bulk materials are transported using compressed air. This is actually a very common scenario – at a guess, around 75% of all bulk materials are combustible. Earthing the spiral is not normally sufficient here, because this has only a minimal influence on the static charge in the hose. The charge that builds up owing to the friction of the bulk material is released when corona discharges occur inside the hose; these may even pierce the hose wall, creating burn holes from the interior to the wire. It is clear that these holes also have a detrimental effect on the hose's service life as well as on

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its hygienic characteristics. In unfavourable conditions, the pumped medium may additionally ignite inside the hose.

Hose materials that are conductive and capable of electrostatic discharge effectively overcome this problem. Conventional transport hoses boasting these properties often only achieve their conductivity or their electrostatic discharge capability with the help of migrating antistatic material and carbon blacks. However, the discharge effect deteriorates in the course of the process, because the antistatic material that migrates to the inner surface when solids are conveyed is continuously abraded. The hoses gradually lose their electrostatic discharge capability as a result. Electrically conductive hoses, on the other hand, are black because carbon blacks are added to the walls, making it impossible to observe the pumping and transport process. Yet it is precisely this ability to keep a watch on the flow that enables potential disruptions to be detected and avoided in good time without having to shut down the system for several hours.

The use of materials that are conductive and capable of electrostatic discharge is particularly important in industries such as food processing, pharmaceuticals and chemicals. Transport hose manufacturers serving these sectors, for instance, face a new challenge because the raw materials traditionally resorted to are incompatible with certain pumping processes. In the food industry, for example, many of the substances that need to be conveyed produce an explosive atmosphere inside the hose. In the past, however, it has only rarely been possible to employ conductive materials, since the legal and regulatory approvals necessary for food applications are generally lacking for the conductive blacks or –if these approvals exist – the maximum permissible black content is too low to guarantee the required degree of conductivity. The fact that hoses whose conductivity is achieved by adding carbon blacks are – not surprisingly – also coloured black is a further drawback. On the one hand, this obscures the user's view of the product being pumped while on the other, the conveyed material may be contaminated due to wear.

The innovative AIRDUC®, PROTAPE® and BARDUC® PUR AS product series from NORRES put an end to this dilemma. The hoses in these series are manufactured from a special wall material that gives them a permanent electrostatic discharge capability < 10^9 Ω as well as a milky transparent surface. The delivered material is readily visible. Since the wall material is non-migrating, there is no contamination of the conveyed material and no deterioration in the electrostatic discharge effect. AIRDUC®, PROTAPE® and BARDUC® PUR MHF-AS have each obtained legal and regulatory approvals from an independent testing laboratory for the complete hose in food applications; they meet the requirements of EU Directive 2002/72/EC, including the amending Directive 2007/19/EC, and

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bear the EU's glass / fork symbol. NORRES will show PUR AS hose series at the Powtech fair in Nuremberg, Germany, from April 27 to April 29, 2010. You can find NORRES in Hall 6, Stand No. 468.

Photo: AIRDUC PUR VA 355 MHF-AS

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