

13th of July 2016

## Test Report DIN EN 10204 – 2.1

NORRES has tested spiral hoses of different types for an assessment of their electrostatic properties regarding their use in hazardous areas.

Taking into account the revised version of TRGS 727 (formerly TRBS 2153), hose types were tested using samples in order to assess 34 different series of hoses.

The results concerning the use of the different series in hazardous areas are shown in the following table. Generally, it can be stated that according to the revised version of TRGS 727 only such hoses are permitted for pneumatic transport that have diameters between 50 and 160 mm. In addition to that, regarding the scope of Directive 2014/34/EU (ATEX Directive), the following statement can be issued for the spiral hoses: The spiral hoses are not 'equipment' or 'components' as defined by 2014/34/EU. However, it can be stated that, based on national and international regulations, the individual types of spiral hoses when earthed meet the electrostatic requirements for the intended use given in the table. This quality can be considered when issuing a hazard assessment for equipment that is subject to Directive 2014/34/EU (ATEX Directive) and in which the spiral hoses are supposed to be used.

Mit freundlichen Grüßen/ Best Regards

NORRES Schlauchtechnik GmbH

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Table: Overview of the areas of use for the different series of spiral hoses

Hose type	Article number	Intended use					
		Pneumatic transport of flammable dust (Zones 20, 21, 22 inside)	Aspiration (no Zone or Zone 22 inside)	Transport of flammable liquids (Inside: Zone 0, 1 & 2)	Transport of non-flammable liquids	Use in Zones 1 and 2	Use in Zone 0
AIRDUC PUR 351 INOX FOOD-AS	351 ... 1018	✓	✓	✓	✓	✓	✓
AIRDUC PUR 355 AS	355 ... 0000	✓	✓	✓	✓	✓	✓
AIRDUC PUR 355 INOX FOOD-AS	355 ... 1018	✓	✓	✓	✓	✓	✓
AIRDUC PUR 356 AS	356 ... 0000	✓	✓	✓	✓	✓	✓
AIRDUC PUR 356 INOX FOOD-AS	356 ... 1018	✓	✓	✓	✓	✓	✓
TIMBERDUC PUR 533 SE AS	533 ... 0000	✓	✓	✓	✓	✓	✓
AIRDUC PUR 351 EC	351 ... 1003	✓	✓	✓	✓	✓	✓
AIRDUC PUR 355 EC	355 ... 1003	✓	✓	✓	✓	✓	✓
AIRDUC PUR 356 EC	356 ... 1003	✓	✓	✓	✓	✓	✓
AIRDUC PE 362 EC	362 ... 1003	✓	✓	✓	✓	✓	✓
BARDUC PUR-INOX 382 FOOD-AS	382 ... 1014	✓	✓	✓	✓	✓	✓
NORPLAST PUR C 387 AS	387 ... 2878	✓	✓	✓	✓	✓	✓
NORPLAST PVC C 389 AS SUPEREL.	389 ... 2878	✓	✓	✓	✓	✓	✓
PROTAPE PUR INOX 330 FOOD AS	330 ... 1018	✓	✓	✓	✓	✓	✓
PROTAPE PE 322 EC	322 ... 1003	✓	✓	✓	✓	✓	✓
AIRDUC PUR 350 FOOD-AS	350 ... 0000	✓	✓	✓	✓	✓	✓
PROTAPE PUR 330 AS	330 ... 1002	✓	✓	✓	✓	✓	✓
PROTAPE PUR 330 AS Black	350 ... 3030	✓	✓	✓	✓	✓	✓
AIRDUC PUR 350 AS	350 ... 1002	✓	✓	✓	✓	✓	✓
AIRDUC PUR 350 BLACK	350 ... 3030	✓	✓	✓	✓	✓	✓
TIMBERDUC PUR 532 AS	532 ... 0000	✓	✓	✓	✓	✓	✓
PROTAPE PUR C 335 FOOD AS	335 ... 2878	✗	✓	✗	✓	✓	✗



Hose type	Article number	Intended use					
		Pneumatic transport of flammable dust (Zones 20, 21, 22 inside)	Aspiration (no Zone or Zone 22 inside)	Transport of flammable liquids (Inside: Zone 0, 1 & 2)	Transport of non-flammable liquids	Use in Zones 1 and 2	Use in Zone 0
NORPLAST PUR C 386 AS	386 ... 0000	✗	✓	✗	✓	✓	✗
NORPLAST PUR C 385 AS	385 ... 2878	✗	✓	✗	✓	✓	✗
PROTAPE PUR 301 AS	301 ... 0000	✗	✓	✗	✓	✓	✗
TIMBERDUC PUR 531 AS	531 ... 0000	✗	✓	✗	✓	✓	✗
NORPLAST PUR C386 AS	386 ... 0000	✗	✓	✗	✓	✓	✗
NORPLAST PUR CU 389 AS	389 ... 2878	✗	✓	✗	✓	✓	✗
EVA 373 AS	373 ... 1002	✗	✓	✗	✓	✓	✓
EVA 373 EC	373 ... 1003	✗	✓	✗	✓	✓	✓
CP PE 457 EC <sup>1</sup>	457 ... 1003	✗	✓	✗	✗	✓	✓
CP viton 459 EC <sup>1</sup>	459 ... 0000	✗	✓	✗	✗	✓	✓
CP PTFE INOX 475 EC <sup>1</sup>	475 ... 1003	✗	✓	✗	✗	✓	✓
CP PTFE INOX/Glas INOX 471 EC <sup>1</sup>	471 ... 1003	✗	✓	✗	✗	✓	✓
CP PTFE-Hyp INOX 472 1	472 ... 1003	✗	✓	✗	✗	✓	✓
CP PVC 465 EC	457 ... 1003	✗	✓	✗	✗	✓	✓
Metal hoses 1		✓	✓	✗	✗	✓	✓

Note: If those material properties are ensured for each product supplied and if simultaneously, this property is also permanently ensured by the operational use, then there are no objections against the use of the hoses in the hazardous areas mentioned above as far as their electrostatic properties are concerned. This statement only applies on the condition that the products manufactured comply with the test specimen. Whether the compliance of the products manufactured with the test specimen is observed by NORRES could be shown on demand by an additional production batch specific test report.

