

# TUDERTECHNICA



## TEFLON™ PTFE HOSES



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# TEFLON™ PTFE HOSES

TUDERTECHNICA TEFLON™ PTFE HOSES ARE USED AROUND THE WORLD BY MANY COMPANIES AND AMONG THEM:

- ❑ NOVARTIS
- ❑ HENKEL
- ❑ BAYER
- ❑ BAXTER
- ❑ ROCHE
- ❑ NESTLÉ
- ❑ HIPPI
- ❑ TEVA PHARMACEUTIC
- ❑ DOWN CORNING
- ❑ L'OREAL
- ❑ NOVO
- ❑ F.I.S.
- ❑ JIM BEAM
- ❑ HYDRITE
- ❑ AKZO NOBEL

## *What TUDERTECHNICA offers*

- Raw material best quality
- Highest safety;
- Capacity of handle many different and aggressive products;
- High flexible hose;
- Pharmaceutical and food standard approvals

**PHARMACEUTICAL, COSMETIC, CHEMICAL AND  
FOOD COMPANIES ARE VERY DEMANDING AND  
LOOKING FOR CONTINUOUS IMPROVEMENTS  
WITH A PARTICULAR FOCUS ON SAFETY**

# Tudertecnica TUFLUOR™ UNIQUE SELLING POINTS

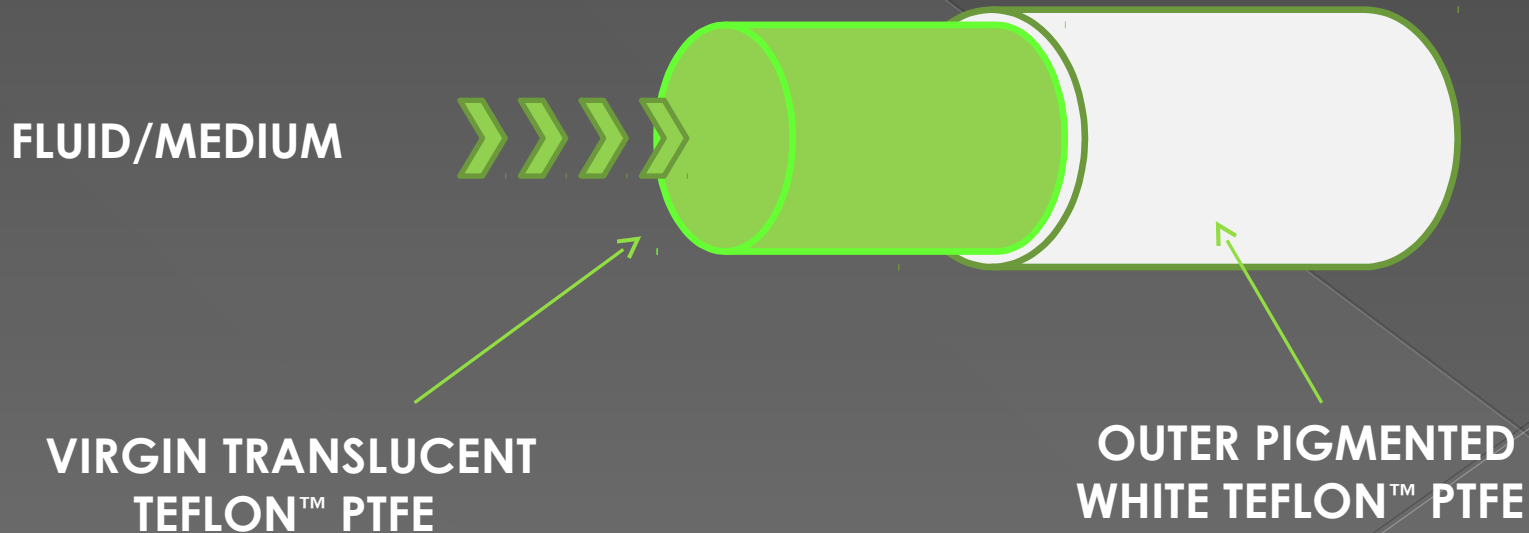
- 1) TUFLUOR™ liner is PTFE tubing.
- 2) TUFLUOR™ PTFE tubing is made with certified TEFLON™ PTFE RESIN.
- 3) TUFLUOR™ liner is CLEAR/WHITE TEFLON™ PTFE co-extruded tubing, *virgin material inside*

# WHY CO-EXTRUDED TEFLON™ PTFE TUBING?

THE TUBE IS MADE WITH 2 CO-EXTRUDED ADJACENT LAYERS

1) THE INNER LAYER IS VIRGIN TEFLON™ PTFE, NO PIGMENTS ADDED

2) THE OUTER LAYER IS WHITE PIGMENTED TEFLON™ PTFE



## WHY CO-EXTRUDED TEFLON™ PTFE TUBING?

WHEN PROCESSED, THE VIRGIN TEFLON™ PTFE BECOMES A CLOSE MATRIX MATERIAL BECAUSE OF NO PIGMENTS ADDED



INNER SURFACE WITH FEWER PORES:  
STRONGLY REPELLENT PROPERTIES



LOWER ABSORPTION THAN TEFLON™ PTFE WHITE PIGMENTED



**THE CHANCE OF LEACHING IS AT ITS LOWEST POSSIBLE  
LEVEL**

## WHY CO-EXTRUDED TEFLON™ PTFE TUBING?

- **TUDERTECHNICA TUFLUOR™ HOSE LINER HAS AN INNER LAYER MADE OF UNPIGMENTED VIRGIN TEFLON™ PTFE.**

### WHICH BENEFITS ?

- THE INNER LAYER OF **VIRGIN TEFLON™ PTFE**, UNPIGMENTED, GRANTS THE **HIGHEST ASSURANCE OF PURITY** FOR THE DELIVERED FLUID.

# Tudertecnica TUFLUOR™ UNIQUE SELLING POINTS

- 4) The color of TUFLUOR™ liner is white but THE WHITE PIGMENT IS NOT IN CONTACT WITH DELIVERED MEDIA**
- 5) FLEXIBILITY→hose flexibility depends upon the thickness of the PTFE tubing:**
  - ✓ Beeing co-extruded does not means thicker tube**

# TUFLUOR™ liner is TEFLON™ PTFE tubing











- **FOOD CONTACT COMPLIANCE WITH FDA 21 CFR 177.1550 STANDARDS**
- **TEFLON™ PTFE RESIN THAT HAS INCREASED THERMAL STABILITY, FLEX LIFE, STRESS-CRACK RESISTANCE**
- **CHEMICAL INERTNESS TO NEARLY ALL INDUSTRIAL CHEMICALS AND SOLVENTS, LOW FRICTION AND ANTISTICK SURFACES**
- **TEMPERATURE RANGE OF THE HOSE -40 C / +150C**
- **TEFLON™ PTFE TENSILE STRENGTH > 21 MPA , ELONGATION > 300%, FOLDING ENDURANCE > 10<sup>6</sup> CYCLES → LONG FLEX LIFE**

# TUFLUOR™ TEFLON™ PTFE LINER IS TESTED AND CERTIFIED BY INDEPENDENT LABORATORIES



## STANDARDS

- FDA 21 CFR 177.1550 
- USP XXXII class VI (black TEFLON PTFE tubing) 
- USP XXXVI class VI (clear TEFLON PTFE tubing) 
- ISO 10993 Sections 5,10,11:2009 
- 1907/2006/CE (REACH) 
- EUROPEAN REGLEMENT 1935/2004/CE & 10/2011/CE 
- 3A Sanitary Standard Class II (clear) 

	TEFLON™ PTFE CLEAR/WHITE PIGMENTED TUBING <u>CO-EXTRUDED</u>	TEFLON™ PTFE BLACK TUBING
CERTIFICATIONS	<ul style="list-style-type: none"> <li>- 1907/2006/CE (REACH)</li> <li>- FDA</li> <li>- USP</li> <li>- ISO 10993</li> <li>- 1935/2004/CE</li> <li>- 10/2011/CE</li> <li>- 3A</li> </ul>	<ul style="list-style-type: none"> <li>- 1907/2006/CE (REACH)</li> <li>- FDA</li> <li>- USP</li> <li>- ISO 10993</li> <li>- 1935/2004/CE</li> <li>- 10/2011/CE</li> </ul>
COLOUR	CLEAR/ WHITE PIGMENTED	BLACK
SMOOTH	YES	YES
CO-EXTRUDED	YES	NO
HOSE TEMPERATURE RANGE	-40°C / +150°C	-40°C / +150°C
HOSES TESTED FOR ATEX-ZONES 0,1,2/20,21,22	NO	<ul style="list-style-type: none"> <li>•TUFLUOR™ PTFE CHEM FULL CONDUCTIVE</li> <li>•TUFLUOR™ PTFE BIOTECH</li> <li>•GLIDETECH® PTFE BIOTECH</li> </ul>
FLEXLIFE (MIT CYCLES) ASTM D2176	> 1 Mio	> 1 Mio
SURFACE ROUGHNESS	Ra<0,1 micron	Ra<0,1 micron

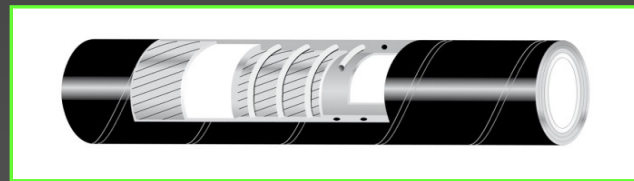
# TEFLON™ PTFE HOSES

## CO-EXTRUDED CLEAR/WHITE PIGMENTED

TUFLUOR™ PTFE PHARM



TUFLUOR™ PTFE CHEM



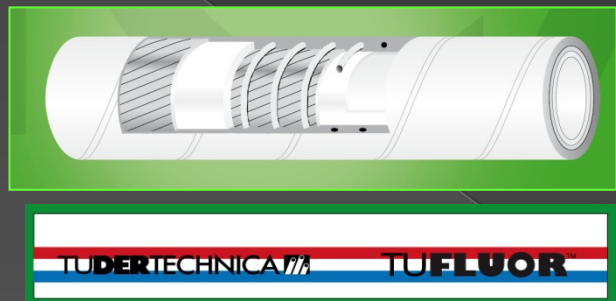
TUFLUOR™ PTFE CHEM FORM



TUFLUOR™ PTFE *EVOLUTION*



# TUFLUOR™ PTFE PHARM

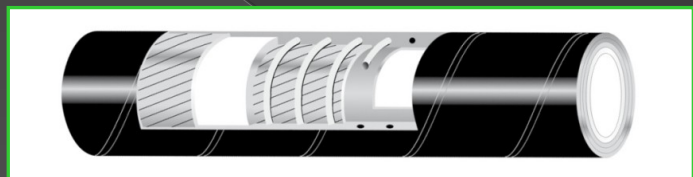


Suction and delivery hose designed according to EN12115 for chemicals and solvents resistant to high temperatures.

Phthalates free tube, tested in compliance with 1907/2006/CE (REACH).

- TUBE:** TEFLON™ PTFE, co-extruded clear/white pigmented smooth. Phthalates free, tested in compliance with 1907/2006/CE (REACH). TEFLON™ PTFE is a polymer with excellent resistance to high temperature, mechanical stress and to oxidation
- REINFORCEMENT:** synthetic plies - a/s copper to discharge static electricity - galvanized wire helices
- COVER:** smooth, EPDM, white, abrasion, ageing, ozone resistant, cloth finish
- WP:** 16 BAR (250 PSI)    **BP:** 64 BAR (1000 PSI)
- VACUUM:** 675 mmHg (0,9 bar)                      **T:** -40°C / +150°C ( -40°F / +302°F )

# TUFLUOR™ PTFE CHEM



Suction and delivery hose DESIGNED ACCORDING TO EN 12115 for chemicals and solvents resistant to high temperatures.

Phthalates free tube, tested in compliance with 1907/2006/CE (REACH).

•**TUBE:** TEFLON™ PTFE, co-extruded clear/white pigmented, smooth. Phthalates free, tested in compliance with 1907/2006/CE (REACH). TEFLON™ PTFE is a polymer with excellent resistance to high temperature, mechanical stress and to oxidation

•**REINFORCEMENT:** synthetic plies - a/s copper wires to discharge static electricity - galvanized wire helices

•**COVER:** smooth, EPDM, black, conductive, abrasion, ageing, ozone resistant, cloth finish

•**WP:** 16 BAR (250 PSI)    **BP:** 64 BAR (1000 PSI)

•**VACUUM:** 675 mmHg (0,9 bar)

**T:** -40°C / +150°C ( -40°F / +302°F )

# TUFLUOR™ PTFE CHEM FORM



Suction and delivery hose designed according to EN 12115 for chemicals and solvents resistant to high temperatures. Phthalates free tube, tested in compliance with 1907/2006/CE (REACH).

- TUBE:** TEFLON™ PTFE, co-extruded clear/white pigmented, smooth. Phthalates free, tested in compliance with 1907/2006/CE (REACH). TEFLON™ PTFE is a polymer with excellent resistance to high temperature, mechanical stress and to oxidation

- REINFORCEMENT:** synthetic plies - a/s copper wires to discharge static electricity - galvanized wire helices

- COVER:** WIDE CORRUGATED, EPDM, black, conductive, abrasion, ageing and ozone resistant, cloth finish

- WP:** 10 BAR (150 PSI)    **BP:** 40 BAR (600 PSI)

- VACUUM:** 675 mmHg (0,9 bar)

**T:** -40°C / +150°C ( -40°F / +302°F )



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# TUFLUOR™ PTFE *EVOLUTION*



Suction and delivery hose designed for chemicals and solvents resistant to high temperatures.

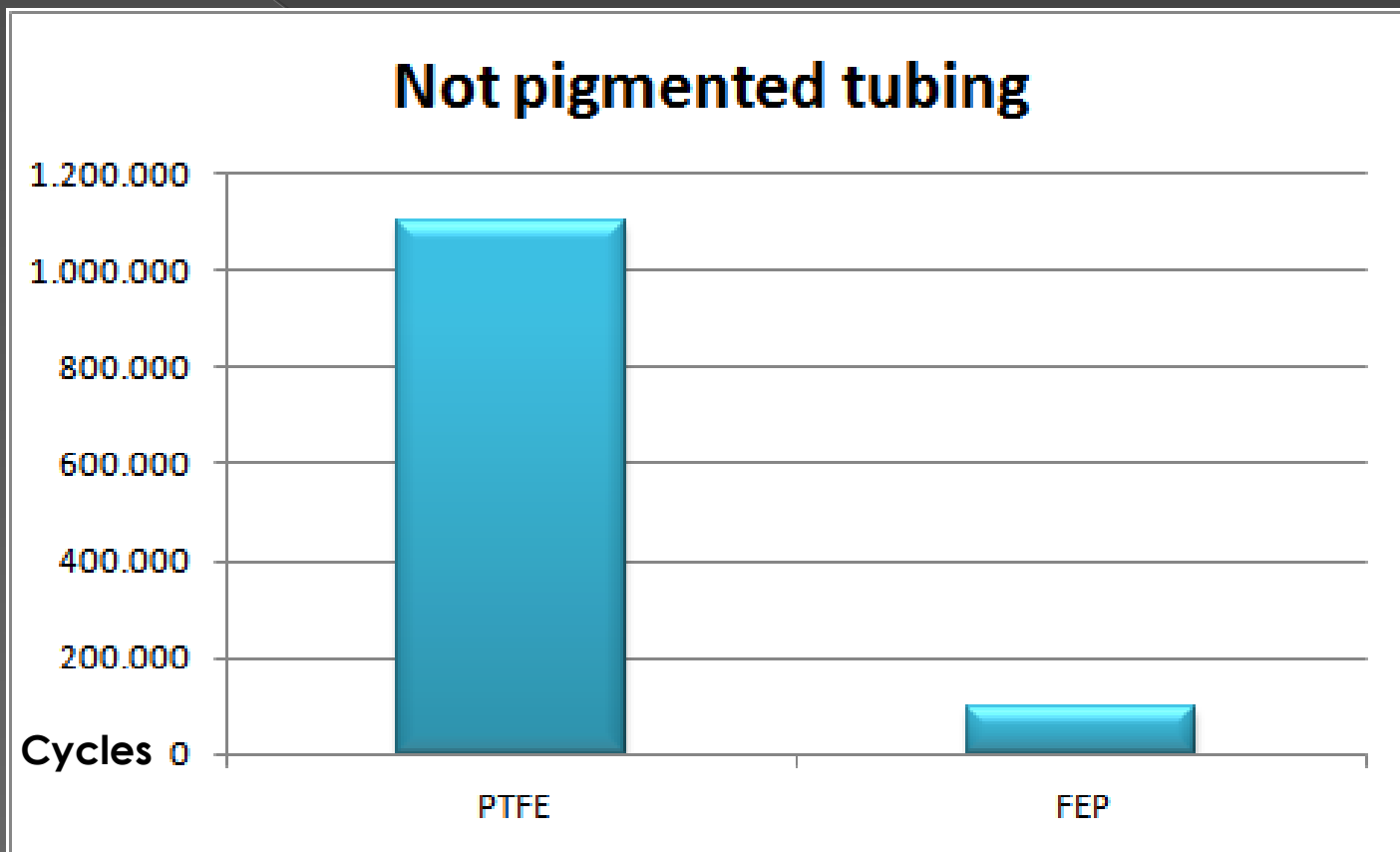
Phthalates free tube, tested in compliance with 1907/2006/CE (REACH).

- TUBE: TEFLON™ PTFE, co-extruded clear/white pigmented, smooth.
- REINFORCEMENT: synthetic plies - a/s copper to discharge static electricity - galvanized wire helices
- COVER: smooth, EPDM, green, abrasion, ageing, ozone resistant, cloth finish
- WP: 10 BAR (150 PSI)    BP: 40 BAR (600 PSI)
- VACUUM: 675 mmHg (0,9 bar)
- T: -40°C / +150°C ( -40°F / +302°F )

# TUFLUOR™ PTFE vs FEP

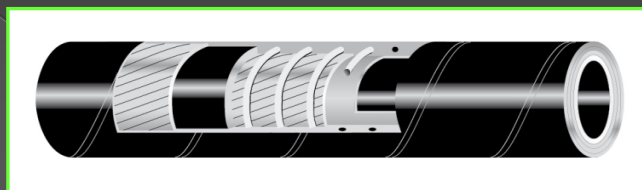
	PTFE		FEP
CERTIFICATIONS	<ul style="list-style-type: none"> <li>• REACH</li> <li>• FDA</li> <li>• USP</li> <li>• ISO 10993</li> <li>• CE 1935/2004</li> <li>• CE 10/2011</li> <li>• 3A (ONLY CLEAR WHITE)</li> </ul>		<ul style="list-style-type: none"> <li>- FDA</li> <li>- USP</li> </ul>
COLOUR	BLACK	WHITE	WHITE
CONDUCTIVE	YES	NO	NO
MELTING POINT	327°C		270°C
HOSE TEMPERATURE RANGE	-40°C / +150°C		-40°C / +150°C
HOSES TESTED FOR ATEX-ZONES 0,1,2 20,21,22	YES	NO	NO
FLEXLIFE (MIT CYCLES) ASTM D2176	> 1 Mio		5 K ~ 80 K
FRICTION COEFFICIENT (STEEL)	0,02		0,05

# Tudertecnica TUFLUOR™ PTFE Tubing Flex Life

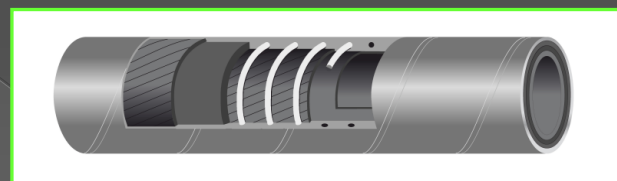


# TEFLON™ PTFE HOSES BLACK CONDUCTIVE

TUFLUOR™ PTFE CHEM FULL CONDUCTIVE



TUFLUOR™ PTFE CHEM F.C. FORM TUFLUOR™ PTFE PHARMACHEM



TUFLUOR™ PTFE BIOTECH

GLIDETECH® PTFE BIOTECH

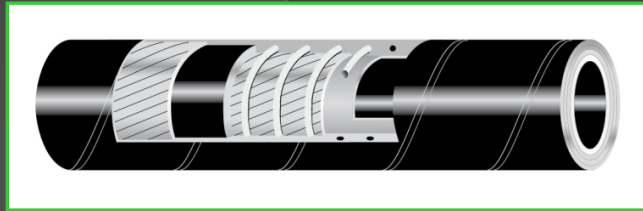


## WHY TEFLON™ PTFE BLACK CONDUCTIVE TUBING?

- DUE TO ITS ELECTRICAL PROPERTIES IT MAY BE USED IN EX-ZONES 0 AND 20, 1 AND 21, 2 AND 22 [I.E.C. ZONE 0, ZONE 1 AND DIVISION 1, ZONE 2 AND DIVISION 2]
- FULLY CONDUCTIVE: WITH AN ELECTRICAL RESISTANCE THROUGH THE HOSE WALL NOT EXCEEDING  $10^9 \Omega$
- MADE WITH HIGH PURITY CARBON BLACK THAT CONTAINS EXTREMELY LOW LEVELS OF PAHS AND BENZO[A]PYRENE IMPURITIES. THE TYPICAL VALUES ARE SUBSTANTIALLY LOWER THAN THE FDA REQUIREMENTS
- WITH THIS HOSE, BEING FULLY CONDUCTIVE, THE DISSIPATION OF STATIC ELECTRICITY OF THE ASSEMBLY IS ACHIEVED IN A SAFER WAY

# TUFLUOR™ PTFE CHEM FULL CONDUCTIVE

TUDERTECHNICA 

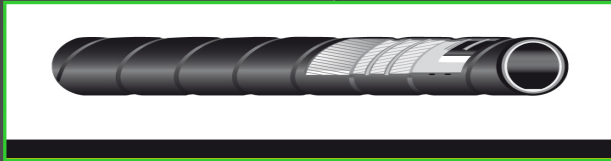


Suction and delivery hose designed according to EN 12115 for chemicals and solvents resistant to high temperatures. Phthalates free tube, tested in compliance with 1907/2006/CE (REACH).  
TESTED AND CERTIFIED HOSE BY INERIS FOR USE IN ATEX AREA (EX-ZONE 0,1,2).

- TUBE:** TEFLON™ PTFE, black, conductive, smooth. Phthalates free, tested in compliance with 1907/2006/CE (REACH). TEFLON™ PTFE is a polymer with excellent resistance to high temperature, mechanical stress and to oxidation
- REINFORCEMENT:** synthetic plies - a/s copper wires to discharge static electricity - galvanized wire helices
- COVER:** smooth, EPDM, black, conductive, abrasion, ageing and ozone resistant, cloth finish
- WP:** 16 BAR (250 PSI)     **BP:** 64 BAR (1000 PSI)
- VACUUM:** 675 mmHg (0,9 bar)                      **T:** -40°C / +150°C ( -40°F / +302°F )

# TUFLUOR™ PTFE CHEM TUDERTECHNICA

## FULL CONDUCTIVE FORM



Suction and delivery hose designed according to EN 12115 for chemicals and solvents resistant to high temperatures. Phthalates free tube, tested in compliance with 1907/2006/CE (REACH). SUITABLE FOR USE IN ATEX AREA (EX-ZONE 0,1,2).

- TUBE:** TEFLON™ PTFE, black, conductive, smooth. Phthalates free, tested in compliance with 1907/2006/CE (REACH). TEFLON™ PTFE is a polymer with excellent resistance to high temperature, mechanical stress and to oxidation

- REINFORCEMENT:** synthetic plies - a/s copper wires to discharge static electricity - galvanized wire helices

- COVER:** *wide corrugated* EPDM, black, conductive, abrasion, ageing and ozone resistant, cloth finish

- WP:** 10 BAR (150 PSI)    **BP:** 40 BAR (600 PSI)

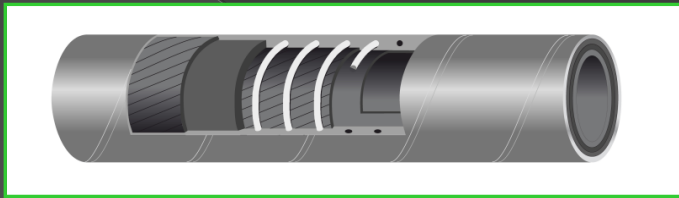
- VACUUM:** 675 mmHg (0,9 bar)

**T:** -40°C / +150°C ( -40°F / +302°F )

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# TUDERTECHNICA

## TUFLUOR™ PTFE PHARMACHEM



Suction and delivery hose designed according to EN 12115 for chemicals and solvents resistant to high temperatures. Phthalates free tube, tested in compliance with 1907/2006/CE (REACH).

SUITABLE HOSE FOR USE IN ATEX AREA (EX-ZONE 0, 1 and 2).

- TUBE:** TEFLON™ PTFE, black, conductive, smooth. Phthalates free, tested in compliance with 1907/2006/CE (REACH). TEFLON™ PTFE is a polymer with excellent resistance to high temperature, mechanical stress and to oxidation

- REINFORCEMENT:** synthetic plies - a/s wires to discharge static electricity - galvanized wire helices

- COVER:** smooth, grey, antistatic, abrasion, ageing , ozone and oil resistant, cloth finish

- WP:** 16 BAR (250 PSI)    **BP:** 64 BAR (1000 PSI)

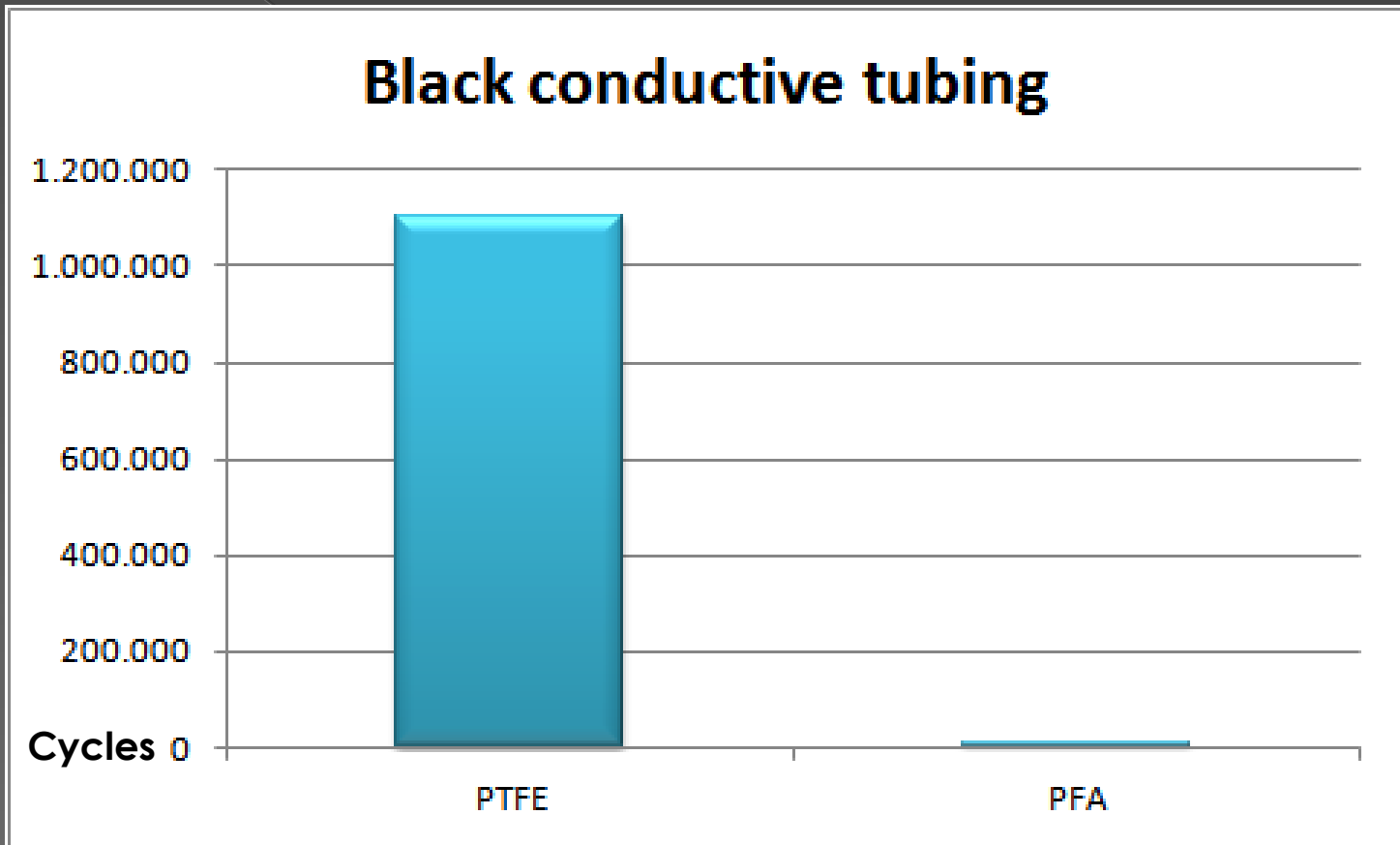
- VACUUM:** 675 mmHg (0,9 bar)

**T:** -40°C / +150°C ( -40°F / +302°F )

# BLACK TEFLON™ PTFE vs BLACK PFA

	PTFE	PFA
<b>CERTIFICATIONS</b>	<ul style="list-style-type: none"> <li>• REACH (Phthalates free)</li> <li>• FDA</li> <li>• USP class VI</li> <li>• ISO 10993</li> <li>• CE 1935/2004</li> <li>• CE 10/2011</li> </ul>	<ul style="list-style-type: none"> <li>• FDA (?)</li> <li>• USP class VI</li> <li>• ISO 10993</li> <li>• CE 10/2011</li> </ul>
<b>CONDUCTIVE</b>	YES	YES
<b>MELTING POINT</b>	327°C	305°C
<b>HOSES TESTED FOR ATEX-ZONES</b> 0,1,2 20,21,22	<ul style="list-style-type: none"> <li>• TUFLUOR™ PTFE CHEM FULL CONDUCTIVE</li> <li>• TUFLUOR™ PTFE BIOTECH</li> <li>• GLIDETECH® PTFE BIOTECH</li> </ul>	?
<b>FLEXLIFE (MIT CYCLES) ASTM D2176</b>	> 1 Mio	5 K ~ 10 K
<b>FRICTION COEFFICIENT (STEEL)</b>	0,02	0,2

# Tudertecnica TUFLUOR™ PTFE Tubing Flex Life



# TUFLUOR™ PTFE BIOTECH



Suction and delivery hose designed according to EN 12115 for chemicals and solvents resistant to high temperatures. Phthalates free tube, tested in compliance with 1907/2006/CE (REACH). TESTED AND CERTIFIED HOSE BY INERIS FOR USE IN ATEX AREA (EX-ZONE 0,1,2).

•**TUBE:** TEFLON™ PTFE, black, conductive, smooth. Phthalates free, tested in compliance with 1907/2006/CE (REACH). TEFLON™ PTFE is a polymer with excellent resistance to high temperature, mechanical stress and to oxidation

•**REINFORCEMENT:** synthetic plies - a/s copper wires to discharge static electricity - galvanized wire helices

**COVER:** smooth, **white with conductive chips**, low friction material, non marking when dragged on the floor, oil, chemical, abrasion, ageing and ozone resistant, easy to clean, glossy cover. Meets FDA 21 CFR 177.1520, BFR CAT III, DM 21.03.73 E SEGUENTI, EUROPEAN REGLEMENT 1935/2004/CE

•**WP:** 16 BAR (250 PSI)    **BP:** 64 BAR (1000 PSI)

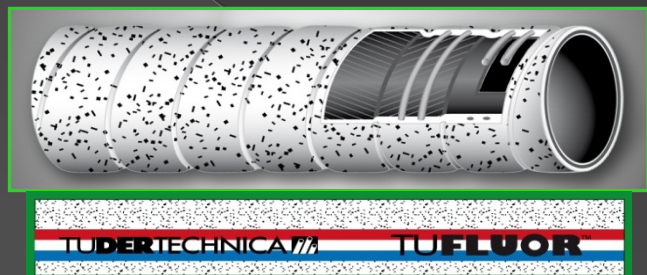
Available also with **WHITE PTFE tube**

•**VACUUM:** 675 mmHg (0,9 bar) **T:** -40°C / +150°C ( -40°F / +302°F )



TUDERTECHNICA

# GLIDETECH® PTFE BIOTECH



Suction and delivery hose DESIGNED ACCORDING TO EN 12115 for chemicals and solvents resistant to high temperatures. Phthalates free tube, tested in compliance with 1907/2006/CE (REACH).

TESTED AND CERTIFIED HOSE BY INERIS FOR USE IN ATEX AREA (EX-ZONE 0,1,2).

•**TUBE:** TEFLON™ PTFE, black, conductive, smooth. Phthalates free, tested in compliance with 1907/2006/CE (REACH). TEFLON™ PTFE is a polymer with excellent resistance to high temperature, mechanical stress and to oxidation **Available also with WHITE PTFE tube**

•**REINFORCEMENT:** synthetic plies - a/s copper wires to discharge static electricity - galvanized wire helices

**COVER:** wide corrugated, **white with conductive chips**, low friction material, non marking when dragged on the floor, oil, chemical, abrasion, ageing and ozone resistant, easy to clean, glossy cover. Meets FDA 21 cfr 177.1520, BfR cat III, DM 21.03.73 e seguenti, EUROPEAN REGLEMENT 1935/2004/CE

**WP:** 10 BAR (150 PSI)    **BP:** 40 BAR (600 PSI)

**VACUUM:** 675 mmHg (0,9 bar)

**T:** -40°C / +150°C ( -40°F / +302°F )

# WHY WHITE THERMOPLASTIC GLOSSY COVER WITH CONDUCTIVE CHIPS?

- LONGER LIFE COMPARED TO STANDARD HOSE COVERS
- ABRASION RESISTANCE
- CHEMICAL AND OIL RESISTANCE
- OZONE RESISTANCE
- DIRT ABSORPTION
- GLOSSY COVER
- EASY GLIDE, LOW FRICTION
- BRILLIANT AND DISTINCTIVE APPEARANCE
- CLEANABILITY AND RESISTANCE TO DIRT ABSORPTION
- NON MARKING WHEN DRAGGED ON THE FLOOR
- ERGONOMICALLY FRIENDLY – OPERATOR SATISFACTION
- HINDERS THE GROWTH OF MOLDS
- PROTECTION AGAINST STATIC ELECTRICITY WITH A WHITE COVER



# SPECIALTY PRODUCTS

## TUFLUOR™ PTFE SIL

TUDERTECHNICA 



Suction and delivery hose for food, cosmetic and pharmaceutical products, chemicals and solvents, resistant to high temperatures.

**Tube** TEFLON™ PTFE, co-extruded clear/white pigmented, phthalates free, tested in compliance with 1907/2006/CE (REACH)

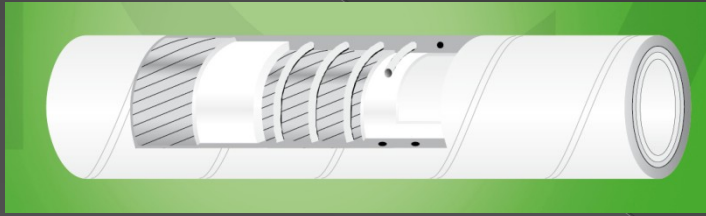
**Reinforcement** synthetic plies, **stainless steel** wire helices, on request a/s wires to discharge static electricity

**Cover** smooth, silicone, white. Meets FDA CFR 21 PART 177.2600, BfR Recommendation XV, European Reglement 1935/2004/CE. Heat, abrasion, ageing and ozone resistant, **glossy cover**

# SPECIALTY PRODUCTS

## TUFLUOR™ PTFE SIL

TUDERTECHNICA 



### TECHNICAL CHARACTERISTICS

**Temperature** →  $-40^{\circ}\text{C}$  /  $+150^{\circ}\text{C}$  (  $-40^{\circ}\text{F}$  /  $+302^{\circ}\text{F}$  ). The operating temperature of the hose is directly dependent upon the specific fluid been conveyed and the length of time the fluid is in contact with the hose

**Vacuum** → 675 mmHg ( 26,6 inHg )

**ID range** → from 0.50 [in] up to 3.94 [in] (from 13 mm up to 100 mm)

**Length** → up to 10 meters (32.5 feet)

*Available also with black  
CONDUCTIVE Teflon™ PTFE tube  
(FDA COMPLIANT)*

# TUDERTECHNICA



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