Identified PFAS in finished welding and cutting products

1. Insulation

Substance class/name: **PTFE**	**PFAS-containing material/component:** **Insulating sleeves, head labels**

Reason for PFAS use/requirement profile:

- High temperature resistance up to 300 °C
- Dielectric strength > 1000 V
- Good machinability
- Minimal splash adhesion
- Low modulus of elasticity
- Good formability
- UV stability

⇨ Long service life of wear parts/torch body → Best possible welding results (little to no scrap) → Conservation of resources

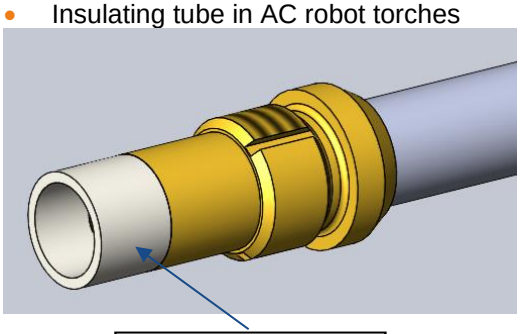
1.1. Insulations in MSG welding torches

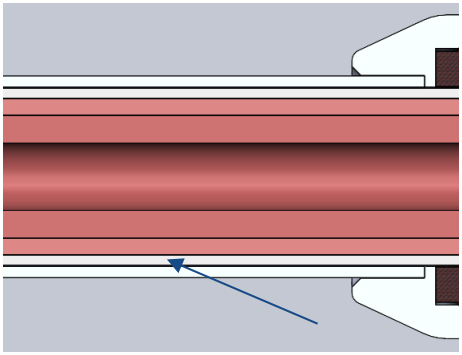
Fig. ABIROB W 300 MSG robot welding torch

Substance class/name: PTFE

PFAS-containing material/component:

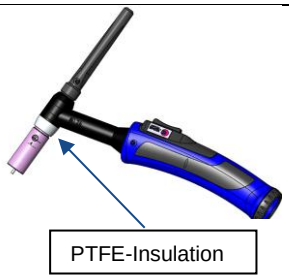
- Insulating tube in AC robot torches

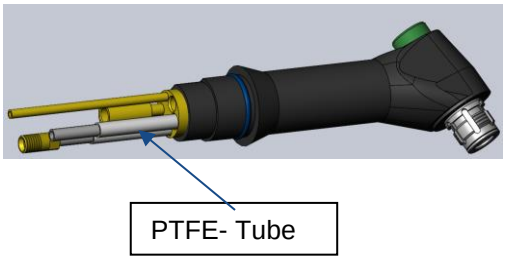


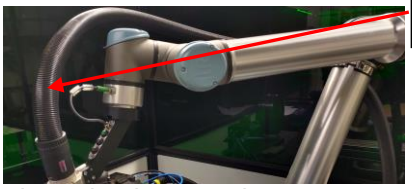


Reason for PFAS use/requirement profile:

- The electrical insulation for minimum dielectric strength 1000 V according to IEC 60974-7
- High temperature resistance for welding environments
- Impact resistance
- UV resistance to arc radiation

1.2 Insulations in TIG welding torches	 Fig. ABITIG 20 manual welding torch
Substance class/name: PTFE	**PFAS-containing material/component:** • Insulator to gas nozzle made of PTFE
Reason for PFAS use/requirement profile: • The electrical insulation for minimum dielectric strength 1000 V according to IEC 60974-7 • High temperature resistance for welding environments • UV resistance to arc radiation	

1.3 Insulations in plasma cutting torches	 Fig. ABICUT 75 plasma hand cutting torch
Substance class/name: PTFE	**PFAS-containing material/component:** • Insulator to the gas nozzle 
Reason for PFAS use/requirement profile: • The electrical insulation for minimum dielectric strength 2100 V according to IEC 60974-7 • Torch-internal electrical insulation between pilot circuit and cutting circuit • High temperature resistance for cutting environmental conditions • UV resistance to arc radiation	

1.4 Insulations in the hose assembly	 Fig. Robot hose package
Substance class/name: PTFE	**PFAS-containing material/component:** • Inner tube in coaxial cable
Reason for PFAS use/requirement profile: • The electrical insulation for minimum dielectric strength 1000 V according to IEC 60974-7 • Flexibility under highly dynamic alternating loads • Sliding properties during assembly • UV resistance to arc radiation	

2. O-rings

Substance class/name:
FKM
FFKM
Viton

PFAS-containing material/component:
O-rings

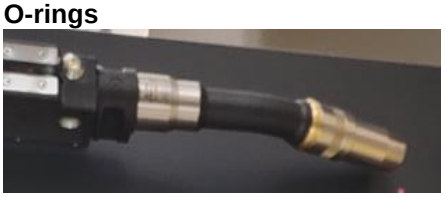


Fig. MSG robot alternating neck welding torch ABIROB WH W600

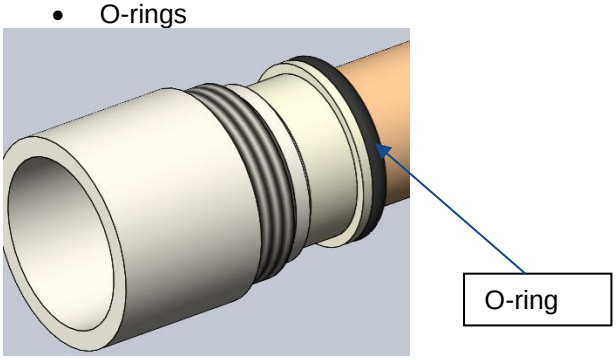
Reason for PFAS use/requirement profile:

- Ozone resistance
- high temperature resistance -> wear parts last longer → resource conservation
- long service life -> resource conservation
- high media resistance (glycol-based coolant) → resource conservation

Material class/name: FKM, FPM, FKM, Teflon® , Viton®

PFAS-containing material/component:

- O-rings



Reason for PFAS use/requirement profile:

- Temperature resistance
- Sliding properties at interfaces
- Resistance to aggressive cooling media
- UV resistance to arc radiation

3. Hoses

Substance class/name:
PTFE

PFAS-containing material/component:

- PTFE hose

Name/description of the application:

- Wire Conveyor Hose
- Gas hose
- Water hose

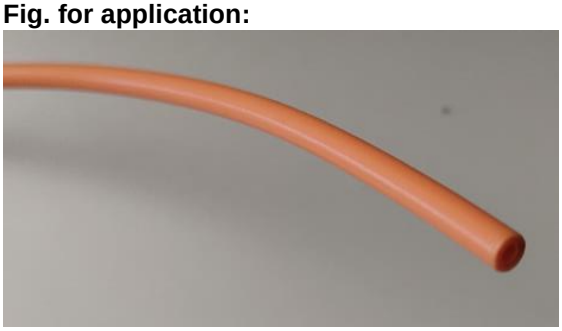
Fig. Media hoses

Reason for PFAS use/requirement profile:

- Gas hoses with minimal diffusion of hydrogen and oxygen
- Flexibility under highly dynamic alternating loads
- Thermal shock resistance
- Resistance to aggressive media, especially cooling media
- UV resistance to arc radiation (with exposed media routing at interfaces)
- sulating properties

⇨ Conservation of resources (rework, pores in the weld seam, ...)

4. Liner

Substance class/name: **PTFE**	**PFAS-containing material/component:** • Liner
Name/description of the application: Liner: Welding wire feeding in manual welding torch, robot welding torch and wire feeding hose	**Fig. for application:**  Fig. wire conveyor hose (so-called liner)
Substance class/name: Polyhaloolefins	**PFAS-containing material/component:** Wire guide core made of PTFE

Reason for PFAS use/requirement profile:

Mechanical properties: low friction and high abrasion resistance, dimensional stability up to approx. 200 °C
Insulation: dielectric strength 1000 Vac according to EN 60974-7

- Good internal sliding properties from the wire filler material (PTFE liner / carbon PTFE liner)
- Good external sliding properties during assembly
- Flexibility under highly dynamic alternating loads
- UV resistance to arc radiation (with external wire guides)
- ⇨ Conservation of resources (rework, pores in the weld seam, ...)

5. Hose / Cable Package with Connectors

	 Fig. Cable package
Material class/name: PTFE, FEP	**PFAS-containing material/component:** • Connector housing • Plug inserts • Cable sheaths

Reason for PFAS use/requirement profile:

- Flexibility
- Electrical insulation for dielectric strength
- Temperature resistance
- Resistance to aggressive media,
- UV resistance to arc radiation (with exposed media routing at interfaces)