

# Hot Gas Hand Welding of SIMONA® Fluoropolymer Sheet Products

## *Weld Parameters for Sheet Products and Corresponding Grades of Welding Rod*

- SIMONA® PVDF 740
- SIMONA® PVDF-C 2850
- SIMONA® PVDF-HD 2800\*
- SIMONA® E-CTFE 901
- SIMONA® E-CTFE 902
- SIMONA® E-TFE 2183\*
- SIMONA® PFA-M 1520



Gas Flow Meter



Gas Temperature Probe

### **General guidelines and conditions**

With the exception of gas temperatures, which are product-specific as shown in the summary table, these general welding parameters apply to all SIMONA fluoropolymer sheet products.

### **Weld rod**

Welding conditions are based on using a grade of weld rod made from the same fluoropolymer as the sheet itself. For example, SIMONA® PVDF-C 2850 sheet has a corresponding grade of weld rod. SIMONA developed these companion weld rod products as an added measure for weld integrity.

### **Welding conditions and equipment**

Temperature control is critical for effective welding of fluoropolymers with hand-held hot gas weld guns. We recommend a closed loop temperature controlled system with the capability of changing the air temperature on the gun itself. These gun features will give operators the flexibility needed to produce repeatable weldments. The gun also must be able to produce a consistent, reliable stream of air at the maximum gas temperature shown in the Weld Parameters table for each material, at flow rates of 55-65 liters per minute.

A gas flow meter capable of reading a maximum 100 liters per minute flow rate is also essential. The air supply must be clean and free of oil and moisture. A gas temperature probe that can read up to 700°C is also necessary. The more accurate the temperature probe, the better. (Examples: Wegener MISC 01 gas flow meter, WEG 06 TDA temperature gauge or the Omega hand held thermometer equipped with an air probe.)

The temperature settings in the Weld Parameters table should be considered as a starting point. Most importantly, temperatures should be adjusted to achieve a smooth, even wake just visible on each side of the molten weld rod. An even wake is the direct result of a proper melt temperature, consistent pressure, proper gun angle (45-60°) and steady, even travel of the gun across the welding area.

*\*Products available as fabric-backed sheet only. All other products available as both un-backed and fabric-backed sheet.*

**WELD PARAMETERS: SIMONA® FLUOROPOLYMER SHEET AND WELD ROD PRODUCTS**

SIMONA AMERICA offers Weld Verification Kits to validate different weld conditions. Contact technical service for details.

**1. GUIDELINES: All fluoropolymer sheet grades and corresponding weld rods.**

Typical Equipment Types	Wegener Autotherm 2 or Comparable Model Wegener TIPSD4 Kamweld Tips KS-1-8A and KS-1B
Gas Type	Air OFA (Oil-Free Air)
Gas Flow	55 - 65 LPM
Pressure	Typical range: 3.0 - 4.0 psi



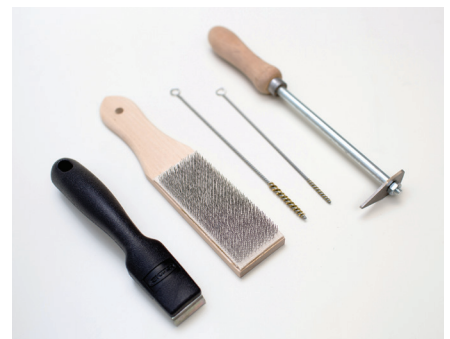
SIMONA Weld Verification Kit

**2. GAS TEMPERATURES BY MATERIAL: Welding guns must be able to achieve upper limit.**

Products	Gas Temperature Ranges
SIMONA® PVDF 740	Air: 375 - 385 °C
SIMONA® PVDF-C 2850	Air: 365 - 380 °C
SIMONA® PVDF-HD 2800*	Air: 380 - 390 °C
SIMONA® E-CTFE 901	Air: 385 - 425 °C
SIMONA® E-CTFE 2 902	Air: 425 - 475 °C
SIMONA® E-TFE 2183*	Air: 385 - 395 °C
SIMONA® PFA-M 1520	Air: 545 - 555 °C



Specialized Weld Tips for Fluoropolymers



Standard Surface Prep Tools

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**Equipment information**

Kamweld: kamweld.com  
 Laramy: laramyplasticwelders.com  
 Leister: leister.com/en-us  
 Seelye: seelyeinc-ori.com  
 Wegener: wegernerwelding.com

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