

# Installation Manual

## SICRIT<sup>®</sup> MS Interface SX1 / SX2

for SCIEX MS instruments



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Plasmion GmbH – Am Mittleren Moos 48 - 86167 Augsburg - Germany

This manual must be stored carefully and must be at hand to any user of the described system.

In addition to this guide, Plasmion GmbH provides manuals for installation and operation of the SICRIT® Ion Source and additional modules for coupling with chromatography etc.

Please check for updated versions of manuals on [www.plasmion.com](http://www.plasmion.com).



**Attention!**

Please read and understand this manual before operating the described system. In case you discover obvious errors or contradictions for your product, contact the manufacturer before operating the system.





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The technology and application of the system described in this manual is covered by patents and patent applications and is used under license.

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## Safety Instructions

The following safety labels on the product and within this manual indicate safety risks and necessary precautions that arise during installation or from operating the products.

	[Attention!], marks possible dangers to your safety and health.
	[Dangerous Voltage!], indicates parts and situations where there is the risk of exposure to dangerous electrical voltages.
	[Attention Hot Surface!], indicates potentially hot surfaces that might cause burning injuries if touched without protective gear.
	[Note], marks important information or advice, not related to safety issues.

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## 1. Intended Use of the SICRIT® MS Interfaces

The system described is intended for use only in laboratory and/or R&D environment. If the system is used in a way not specified by the manufacturer, misused or modified causing an infringement of the safety measures, Plasmion GmbH refuses any liability for consecutive damage in any form.

### 1.1 The SICRIT® Technology

Soft Ionization by Chemical Reaction In Transfer (SICRIT®) is a flow through ionization technique to be coupled with mass or ion mobility spectrometers. Inside the ion source a cold plasma is used for ionization of the analytes passing through. This enables direct gas phase measurements as well as coupling with chromatographic systems such as GC or HPLC. The latter requires additional coupling modules.

### 1.2 The SICRIT® MS Interface SX1 / SX2 for SCIEX MS instruments

The SICRIT® Interfaces SX1 and SX2 replace the housing of the SCIEX *Turbo V Ion Source* and enable the coupling of the SICRIT® Ion source to the MS (Figure 1). The interface consists of:

- a source housing (a) including an interlock connector that enables the MS to recognize the SICRIT® Ion source (as NanoSpray source),
- an ion source adapter assembly (b) including a PEEK inlet adapter with o-ring sealing (Art.-Nr. 16-012), a PEEK fixing nut (Art.-Nr. 06-0051), and an ion source adapter (Art.-Nr. 06-0015)

The SX1 and SX2 MS interface sets only differ in the interlock connector (Art.-Nr. 14-004 or Art.-Nr. 24-002) The SX2 MS interface includes an additional connector cable which must be plugged to the original ion source during operation on SCIEX X500 (R) instruments

The MS interface enables the general connection of the SICRIT® Ion source to your Sciex MS. It also enables the mechanical connection of additional SICRIT® modules for coupling methods e.g. LC-SICRIT®-MS or GC-SICRIT®-MS (please check for available products at [plasmion.com](http://plasmion.com)).

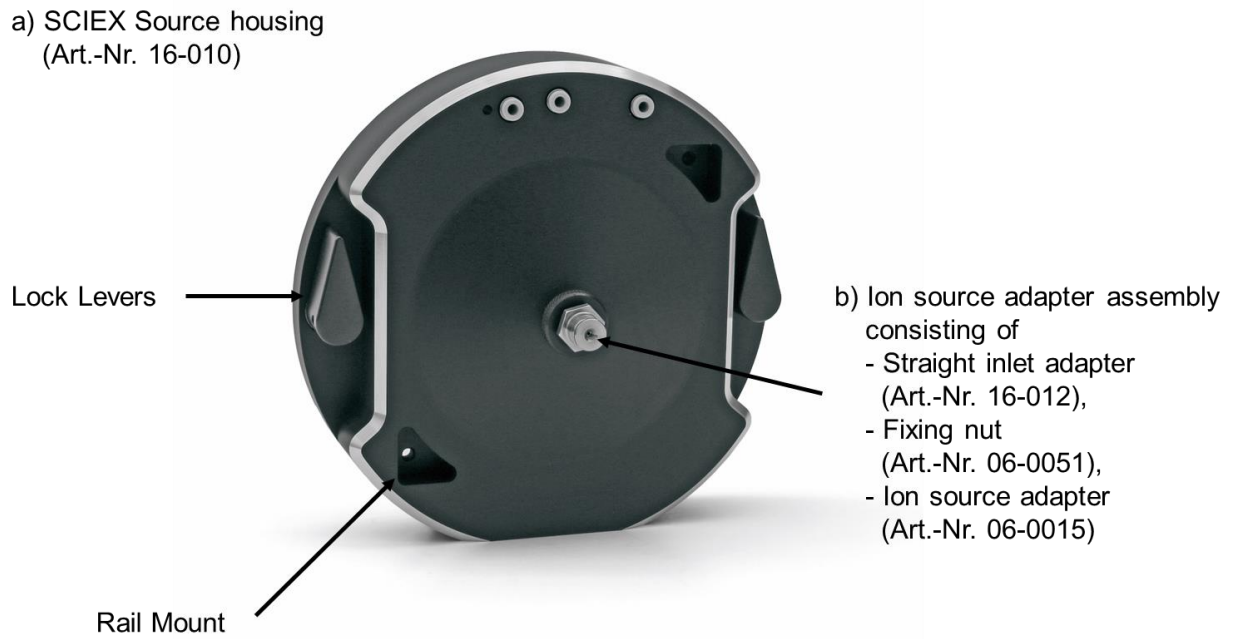




Figure 1: Components of the SICRIT® MS Interface SX1/SX2

## 2. Installation of the SICRIT® MS Interface SX1 / SX2 to the MS Instrument

### 2.1 Steps before the installation of SICRIT® MS Interface SX1

Before the interface can be installed to the mount of a SCIEX MS, the standard housing of the *Turbo V ion source* must be removed. Please follow the specific descriptions of the MS manufacturer.

	<p>Attention!</p> <p>Plasmion GmbH does not hold responsibility for potential damage that result from non-compliance to the manuals of the MS-manufacturer when removing the housing or other parts of the MS.</p>
	<p>Attention!</p> <p>Some parts of the MS interface can be very hot and cause burnings or injuries. Before performing the installation, let the system cool down, wear protective gear and refer to the instructions given in the respective MS manual.</p>

- Put your MS instrument in standby mode.
- Rotate the two levers on the ion source housing and take it off. After successful removal, the MS interface should look as shown in Figure 2.

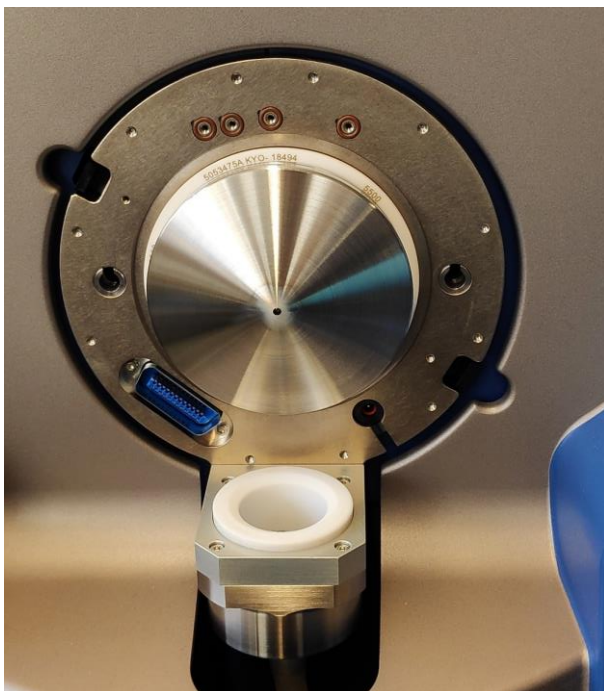


Figure 2: SCIEXMS inlet after removal of the ion source housing.

- Carefully remove the *Curtain Plate* (see Figure 3)

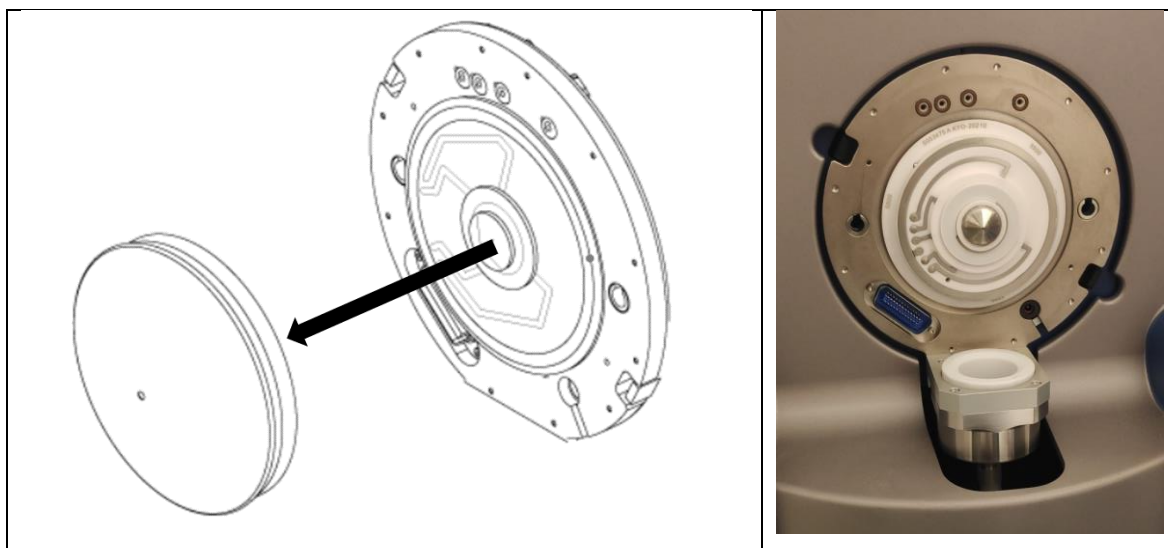


Figure 3: Removal of the curtain plate.

## 2.2 Installation of the SICRIT® MS Source housing and Ion source adapter assembly

For the installation of the SICRIT® Ion source to SCIEX MS systems, the SICRIT® MS Source housing is used on the ion source mount instead of the *Turbo V ion source* housing.

Gas-tight connection of the ion source to MS inlet (orifice plate) is ensured by the ion source adapter assembly. In case of first installation, the position of the PEEK fixing screw must be adjusted for tightening to the orifice plate by means of the inserted o-ring.

- Screw in the solid steel source adapter into the PEEK inlet adapter screw.
- Mount the PEEK fixing nut onto the inlet adapter screw (top positioning, see Figure 4)
- Screw the ion source adapter assembly into the source housing (starting position aligned with housing cone, see Fig. 4)



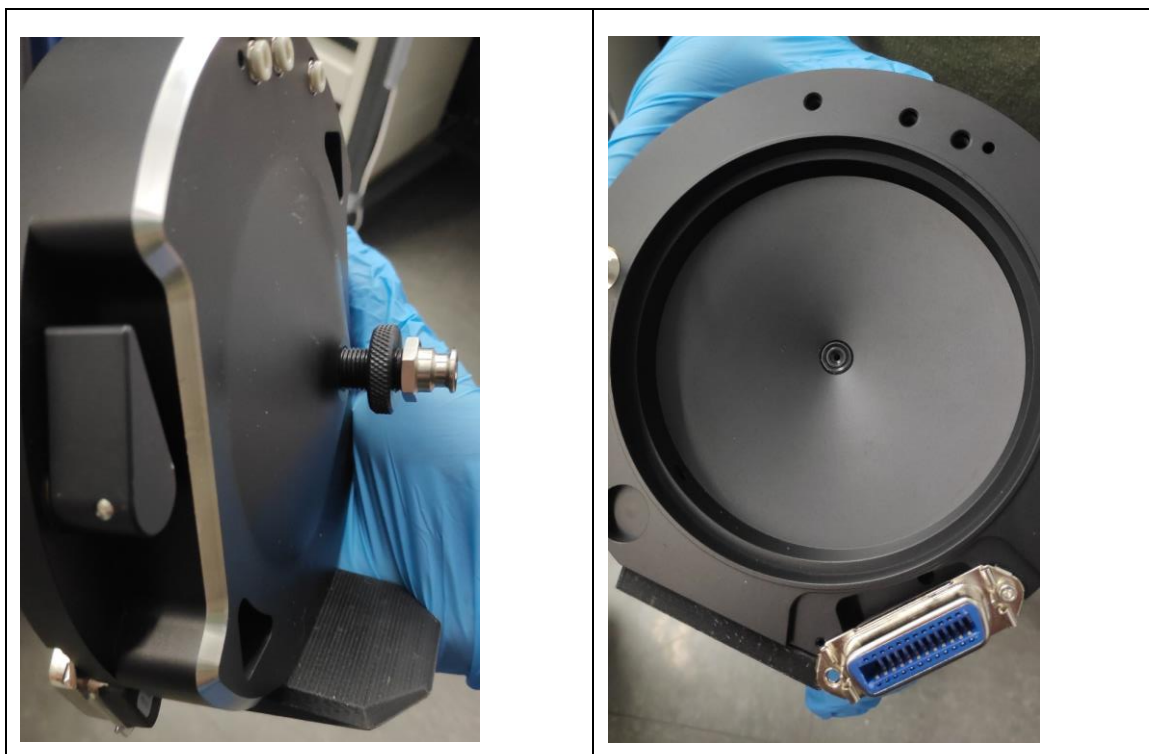


Figure 4: Installation of ion source adapter assembly.

- Press the source housing gently onto the mount and ensure that the housing slides in place using the two holes and the guiding pins (see Figure 5).
- Lock the two levers on the housing by turning them 180 degrees (see Figure 5).
- Check the correct installation by the green status message in the *Analyst* control software.



Figure 5: Installation of the SICRIT® MS Source housing onto the mount of the SCIEX MS-instrument.

- Screw in the adapter assembly until you feel the o-ring is getting in contact with the orifice plate (see Figure 6)
- Fix the position of ion source adapter by the fixing nut (see Figure 6, Figure 7)

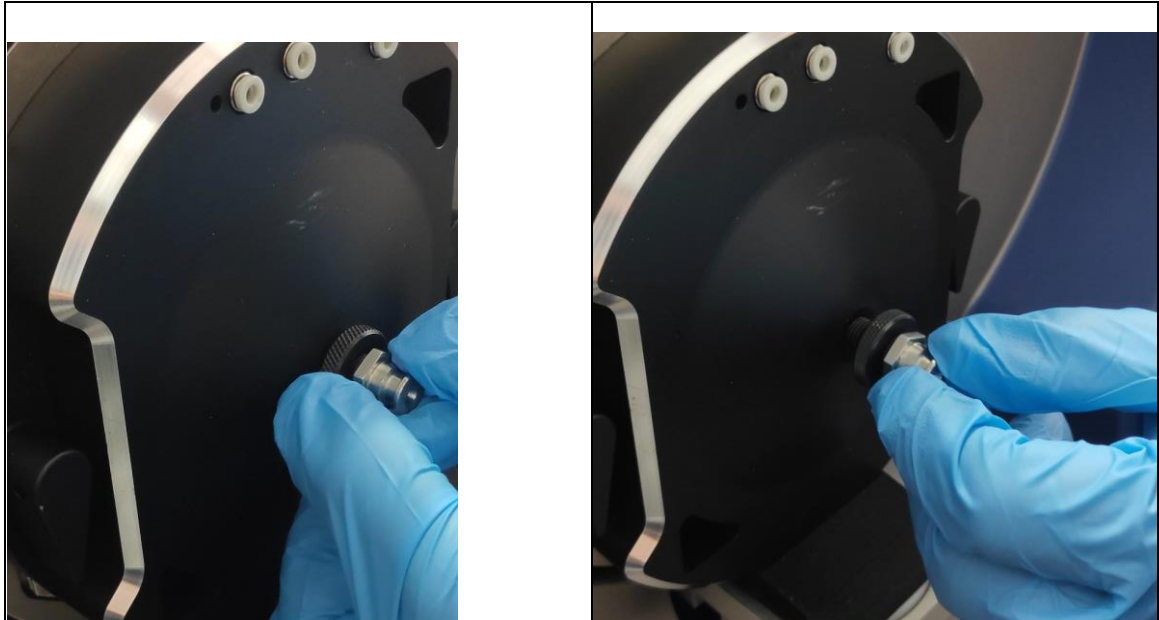


Figure 6: Installation and adjustment of the ion source adapter assembly.

After correct installation of the ion source adapter, there should be a slight suction into the adapter.

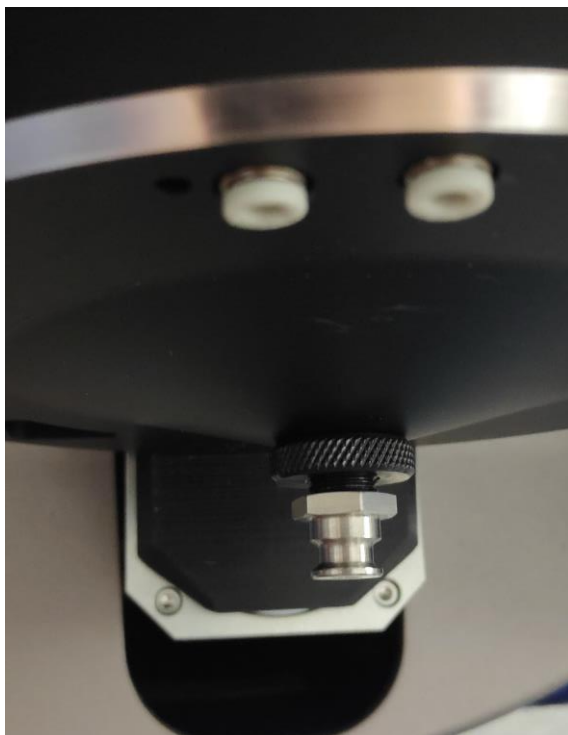


Figure 7: Ion source adapter assembly after correct installation.

## 2.3 Installation of the SICRIT® Ion Source

After installation of the SICRIT® MS Interface, you can now mount the SICRIT® Ion source by means of the quick lock mount (Figure 8).

- Press the ion source onto the adapter.
- Firmly hold the source and rotate the lock about  $\frac{1}{4}$  turns clockwise, until you hear a “click” sound. This signalizes that the lock is secured, and mounting is finished.

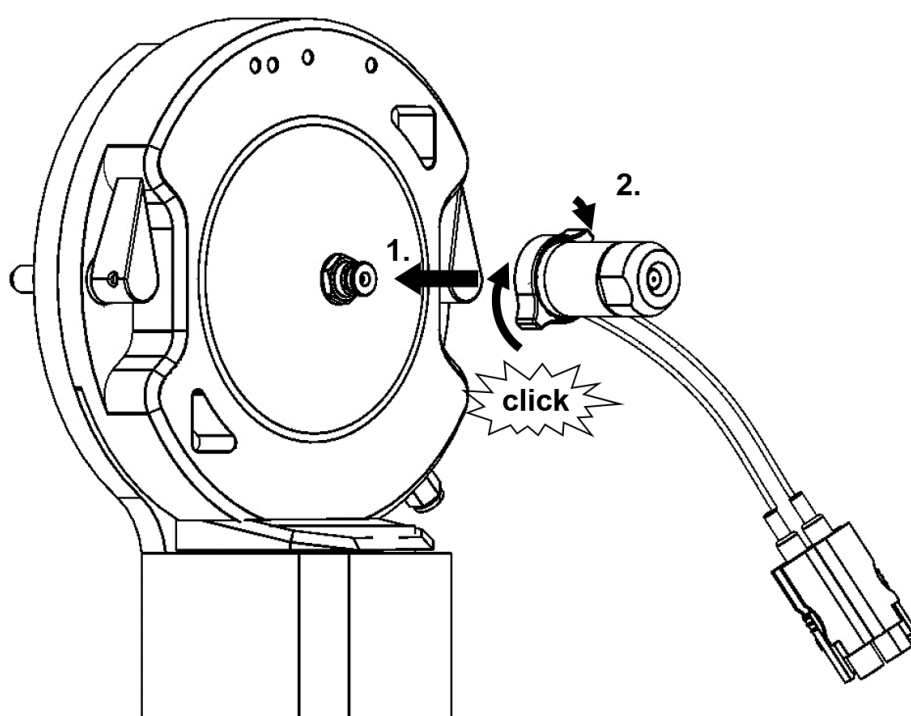


Figure 8: Installation of the SICRIT® Ion source to the MS Source housing.



On new sources the locking might require some force. The locking mechanism becomes easier after a few installations.

Further steps about the intended use of the SICRIT® Ion source and the implementation of SICRIT®-MS-measurements or measurements with coupling of GC or SPME can be found in the corresponding manuals of Plasmion GmbH.

If you need further assistance or support, please contact Plasmion via [support@plasmion.com](mailto:support@plasmion.com).

### 3. Launching the MS instrument with SICRIT® Ionization Technology



If the system is used in a way not specified by the manufacturer, the warranty of the manufacturer can be impaired.

#### SCIEX MS software setting for the Operation with SICRIT® Ion source

The SICRIT® Ion source replaces the standard *API ion sources* like ESI or APCI. Before assembling and launching the SICRIT® ion source the following parameters must be set in the *Hardware profile* of the MS:

- Create a new MS Hardware Profile called “SICRIT” in SCIEX MS software.
- Go to manual Tuning.
- Set the default values for *spray voltage* as well as the streams for *all gases* to zero, except curtain gas, which is set to minimum value (usually 10 l/min).
- Start a Q1 Scan from 50-300 m/z
- Turn on the voltage at the SICRIT® Control unit (usually 1.5 kV) -> you should see a background spectrum of room air.
- The intensity may be optimized now by tuning the declustering or entrance potential.

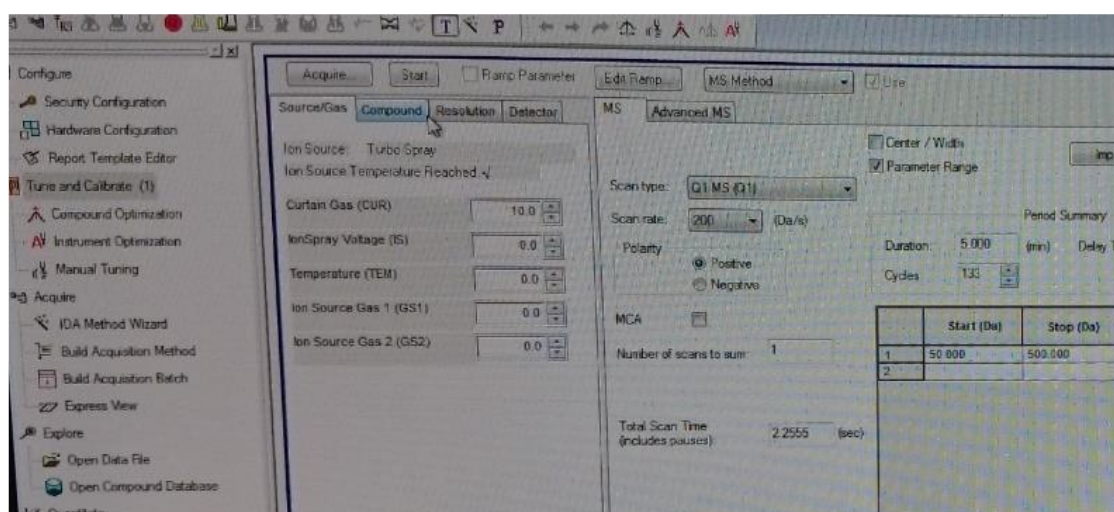


Figure 9 : Software parameters to be set in the SCIEX MS software.

## 4. Service and Maintenance of the SICRIT® MS Interface SX1 / SX2

### 4.1 Maintenance of the SICRIT® Ion source adapter assembly

We recommend cleaning the adapter parts periodically to avoid the formation of contamination in form of deposits and to ensure an optimum performance of the ion source. For disassembly follow the steps described for installation in reverse order:

- Put your MS to standby mode.
- Turn off the high voltage at the SICRIT® control unit.



Attention!

Ensure the MS instrument is in standby and HV is turned off at SICRIT® HV supply before continuing.

- Disconnect the HV cables.
- Dismantle the ion source turning the lock counterclockwise.
- Unscrew the ion source adapter assembly.
- Unlock the SICRIT® MS Source housing and remove the housing carefully.



Attention!

All parts of the adapter might be very hot!  
Let it cool down first and wear appropriate protective gear.

### 4.2 Cleaning the SICRIT® Interface parts

Follow the procedure below to clean the SICRIT® Interface parts:

- Use an ultrasonic cleaning bath to clean stainless steel and PEEK adapter parts for 15 min in a 50:50 methanol/water mixture. Use only LC-grade solvents or better.
- If necessary, clean the source housing using a moist linen tissue.
- Make sure all parts are dry and clean before reinstallation