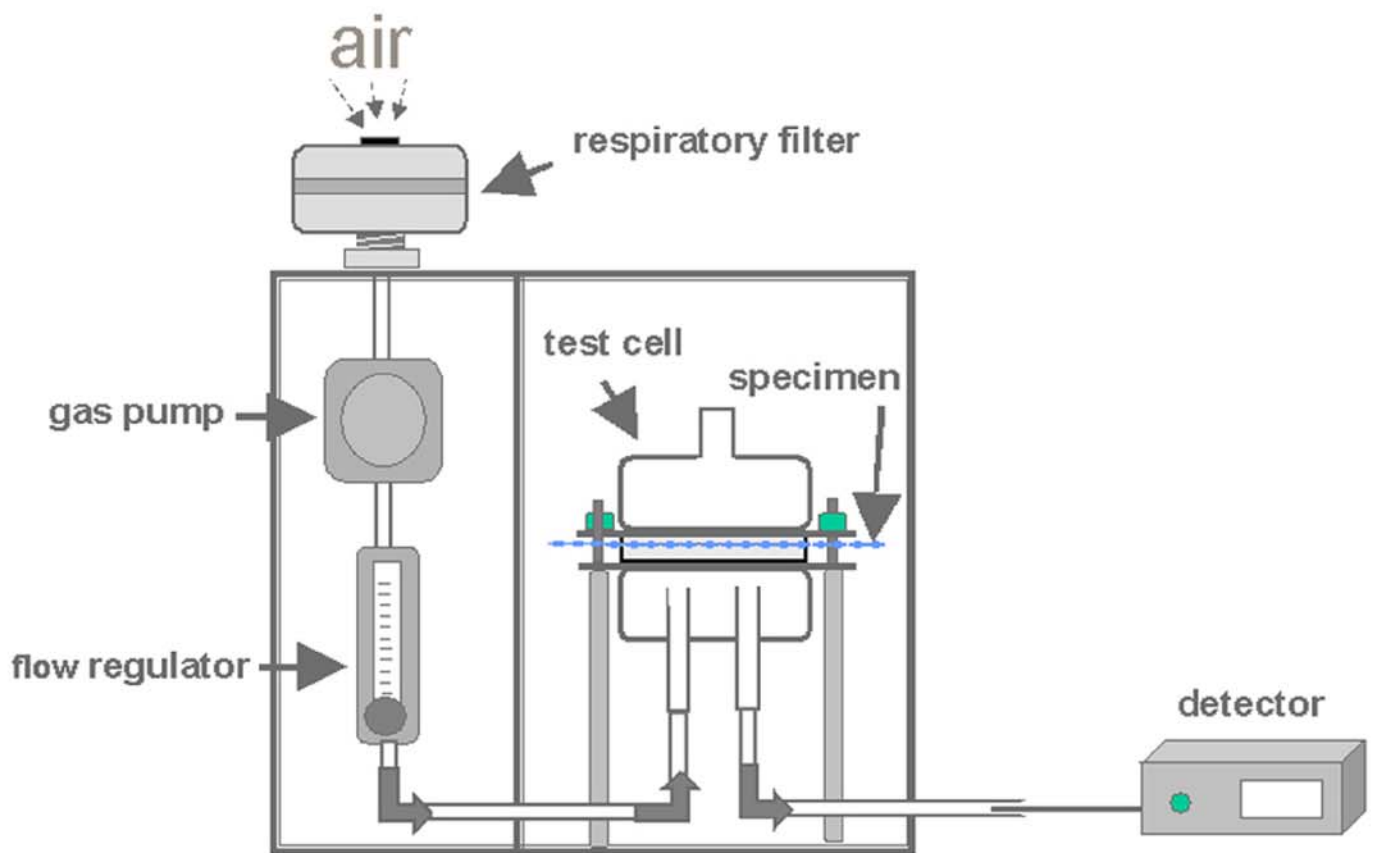


# PERMOBIL



# LABC

## LABORTECHNIK

Bedienungsanleitung / Manual Version 1.1

## PERMOBIL

Mobile permeation test rig according to IFA in compliance with EN 374 and EN ISO 6529

**(IFA = (Institute for Occupational Safety and Health of the German Social Accident Insurance; PID = Photoionisationsdetektor)**

The measurement is performed in a tempered Permeation – Measuringcell according to EN 374 & EN ISO 6529. In the measuring cell, the sample is clamped. After that the product chamber is filled with the test chemical, the collecting chamber is perfused with purified ambient air. Lead a substream of gas to a suitable detector (for example PID) for concentration measurement. The recording of the detector signal provides the permeation curve of the investigated material chemicals pair and allows the determination of the permeationrate.

The construction of the compact and mobile system was based on a development of IFA: „Aus der Arbeit des IFA, Nr. 0304“ (Download : [www.dguv.de/ifa](http://www.dguv.de/ifa)). The device was designed for testing the permeability for chemicals of chemical protective gloves and chemical protective clothing materials.



### The delivery of the PERMOBIL includes:

- portable enclosure made of aluminum profiles and Plexiglas
- Integrated fan and temperature control, which under normal ambient temperature using heating (300 W) and Peltier cooling (> 100 W) ensures EN-compliance with the required test temperature of  $23\text{ °C} \pm 1\text{ °C}$
- Integrated pump with flow meter and regulator to the suction of the ambient air through a combination of commercially available filters (gas and particle)
- Permeation – Measuringcell according to EN 374 & EN ISO 6529
- Air-Expansion tank made from glass
- Technical Data: 230 V, Weight: ca.13 kg,
- Dimensions: Height = 365 mm (460 mm with filter!), Width = 450 mm, Depth = 300-375 mm,

**part-number: 717420**

### The PID – Detector is not included In the delivery:

We recommend as PID, the Sirius by MSA Auer GmbH – a portable measuring instrument

# PERMOBIL 1.1.2

## Nr. 717420 PERMOBIL

Mobile permeation test rig after IFA according to EN 374 & EN iso 6529 incl. measuring cell Nr.711988 side with the extended delivery and imaging (without PID!)



permeation  
edition for PID

Nr. 711988 permeation measuring cell after EN examination of foils (gloves, overalls) on the liquid media with collecting medium gas! made

Borosilicatglas, completely in mounting plate with three condition feet and PTFE tightener size NW50 inclusive O-ring seals silicone FEP encases



374-3 for the  
permeability of  
from

Nr. 711980 top for permeation measuring cell with sleeve NS 14.5

Nr. 711981 bottom for Permeation measuring cell Gas inlet and outlet pipes for the Collection medium air



Nr. 711982 PTFE jig for the permeation measuring cell clamping of films, protective gloves etc. PTFE with 3 piece O-rings made from VQM/FEP coated



Nr. 711978 O-rings (only) for PTFE-jig (SET= 3 piece. VQM/FEP)



Nr. 711987 mount for Permeation measuring cell of molding compound with screws and stand-feet

Nr. 717428 air expansion tank in PERMOBILaus glass for the collection with medium air



## PERMOBIL 1.1.3



Remove Filter protective cap.



Switch on PERMOBIL.



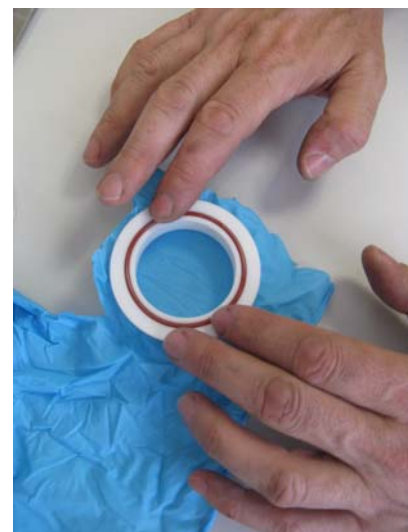
The temperature is automatically called for a test temperature of  $23\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$ .



Glove sample cut coarsely.

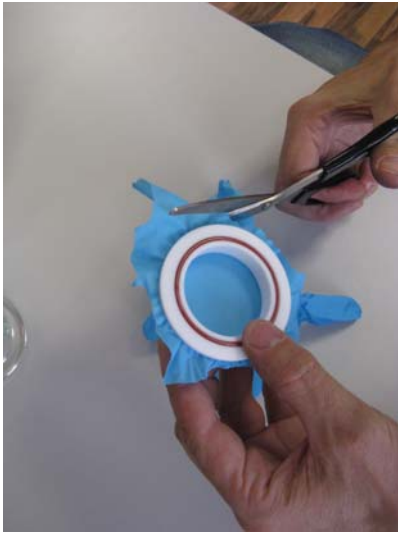


Set the glove sample on the lower part of the PTFE jig.



Glove sample holder clamp.

## PERMOBIL 1.1.4



Protruding film cut.



Prepare the permeation cell.



Put on the PTFE-jig and the cap.



Upper bracket molding compound (groove points down!) hang up and screw crosswise.

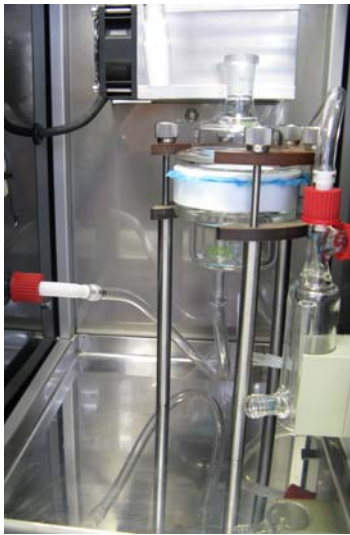


Hand tighten the thumbscrews. Do not use tools, because of breakage.



Put the permeation cell back to the left.

# PERMOBIL 1.1.5



Connect the PTFE hose with the air (left!) and the permeation cell. Screw lightly through, tight connection.



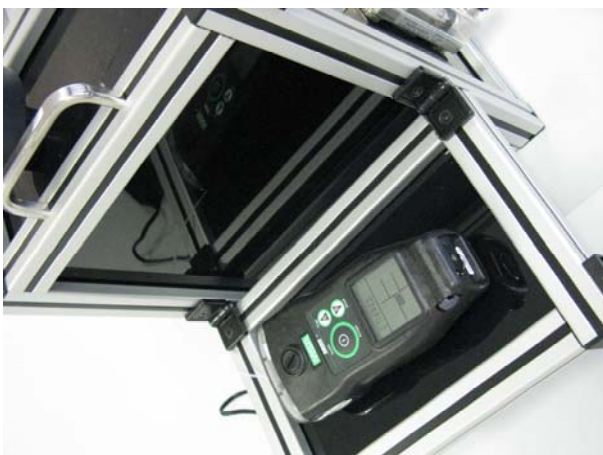
Connect the PTFE hose with the air expansion tank. Screw slightly.



Join the PTFE-sleeve core of the charge hose with the sleeve NS 14 of the permeation cell.



Close the door of the Permobil. Temper the permeation cell about 30 minutes at 23 ° C.



Set up the PID Sirius (MSA Auer).



Put the PTFE hose of the PID (Sirius) loosely insert into the exhaust stream ...

## PERMOBIL 1.1.6



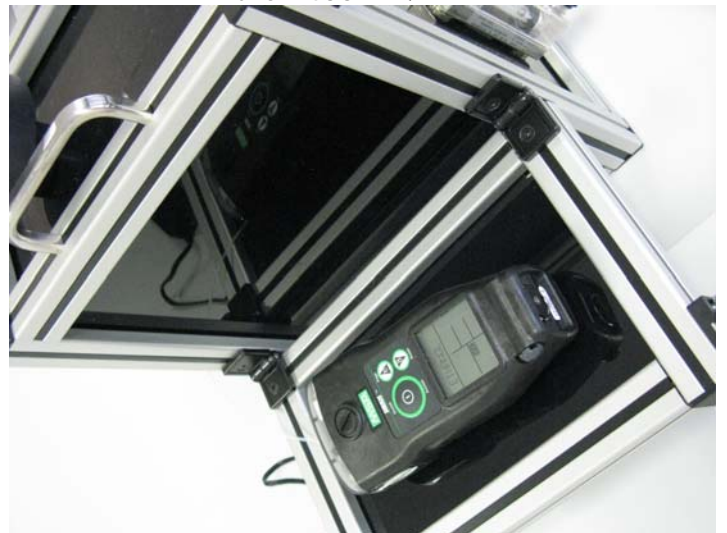
... so that the PTFE hose of the PID projects about 2-3 cm into the exhaust hose.



On air regulator is set to value 25 (the lower edge of the ball on line marking 25!). The carrier gas flow through the Permeationsmesszellen lower part is then 400 ml / min.



The sample is injected through the funnel with a disposable syringe.



Start the PID after sealing the funnel with the enclosed Petri dish.



**After measurement** remove the PTFE-sleeve-core of the charge hose from the NS 14 sleeve of permeation cell.

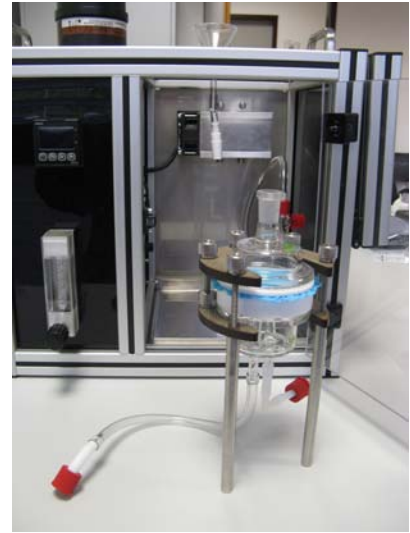


Remove the connected PTFE tubing to the air expansion tank.

## PERMOBIL 1.1.7



Remove the PTFE-tube from the permeation cell with the air (left!).



Take out the permeation cell from the PERMOBIL.



empty the permeation cell.



completely empty the permeation cell.



Remove and clean thoroughly the permeation cell.



Switch off the PERMOBIL and evaluate the PID.