

QUMAT-401

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Permeation testing instrument QUMAT®-401 According to EN 374-3

From different quarters it is demanded to give precise data for personal protection equipment (PPE), e.g. in safety data sheets. Therefore the determination of break-through-times (BTT) becomes important more and more. Doubtless, the quantity of testing will increase!

Up to now the determination of BTT was often carried out with a home-made apparatus under high loss of time. Reports, which describe problems to keep constant measurement results, high fluctuation in test values and poor reproduction of data, are not unusual.

QUMAT®-401 is the development of the first buyable integrated system of a glove-testing apparatus'. It determines the break-through-time (BTT) of chemicals by contact with gloves, chemical protecting clothing and films (e.g. instance packing material). The integrated system effects highest accuracy of measurement and gives reproducible measurement results. The measurements occur in agreement with the European standard DIN EN 374-3*.

* DIN EN 374-3: Protective gloves against chemicals and micro-organisms – Part 3: Determination of resistance to permeation by chemicals"



Characteristics:

- Apparatus-box made out of aluminium and safety-glass with built-in station for 6 measuring-cells and air outtake.
- 6 DIN-measuring-cells (20 ml), which are sampling vessels simultaneously.
- 6 gas streams each with automatic on/off valve and automatic gas-sampling-valve.
- Air-conditioning by ventilation (+10 to +50 °C) and peltier cooling/heating (> 100 W) to reach the desired temperature.
- An FID for detection is integrated, optional PID (option 1). An addition FPD detector is also possible with Sulfur or Phosphor filter (option 2).
- Automatic simultaneous analysis of: nine patterns, the zero-gas and the reference-gas will determine the evidence-limit.
- Control of gas-supply by the measuring-cells.
- Calculating integrator which shows the results by a software in form of a schedule ($\mu\text{g min}^{-1} \text{cm}^{-2}$).
- Software for data transfer in a schedule calculation program (e.g. Microsoft® Excel).

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Advantages:

- **High accuracy of measurement and reproduction**
The DIN-measuring-cells are in the interior room of an integrated system, so that the calibration and measurements occur most exact. The measurement results are of high reproduction. This allows reliable comparisons between different glove materials.
- **Highest efficiency**
In one trial-run the nine patterns, the zero-gas and the reference-gas can be checked simultaneously.
- **Lower consumption of chemicals**
The reduced size of the measuring-cells minimizes the quantity of chemicals [1ml per each cell].
- **Possibilities of variation**
Determination of the break-through-times and rates of permeation:
 - of chemicals (pure substances and mixtures)
 - under influence of carriers measuring-cell
 - with different materials
 - with different areas of gloves
 - with physical and chemical declined material
 - with different temperatures

Order number: Q401.001HR

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