

# Laboratory Fume Cupboards

*with hinged front glass*

<<>> UNIEQUIP has designed and manufactured CHEMFREE 2000 fume cupboards using the latest molecular filtration technology. This provides a safe working environment together with fume containment for protection from chemicals, vapours and aerosol in the laboratories.

CHEMFREE 2000 fume cupboards are available in two different versions:

- CHEMFREE 2000 "S" series fume cupboards meet all routine requirements.
- CHEMFREE 2000 "M" series units have additional microprocessor control.

This ensures that all functional and operational parameters are monitored, facilitating the fume cupboards.

## Applications

CHEMFREE 2000 fume cupboards are used for the containment and removal of toxic vapours and aerosol, providing operator safety in a wide range of disciplines.

Applications for CHEMFREE 2000 fume cupboards may be found in many laboratories, including those in clinical diagnostic testing, biological and medical research, analytical chemistry, Q.C., biotechnology, pharmaceutical industries, food, fine chemical, petrochemical, cosmetic, photographic laboratories and the electronics industries.

## Filtration

A wide range of filters is available, from activated charcoal adsorbing filters to chemical adsorbing filters for specific applications such as the use of formalin, gluteraldehyde or radioactive iodine labelled compounds and for others applications.

The filters (for "M" series) have a built in microchip device for their manage control. The Chemfree 2000 "60" unit incorporates a carbon filter which weights approximately 13/21,5 Kg., the CHEMFREE 2000 90 unit incorporates two carbon filters with a total weight of approximately 18/28,8 Kg and the CHEMFREE 2000

"120" unit incorporates two carbon filters with a total weight of about 26/43 Kg.

Each fume cupboard is equipped with disposable type prefilters, with an efficiency of about 75%/85% dust weight arrestance (ASHRAE) to protect the main activated charcoal filter.

## Design Features

Each Chemfree 2000 cupboard contains an IP54 centrifugal motor fan, capable of maintaining a constant airflow by compensating for the clogging of the prefilters, which occurs during normal operation.

The CHEMFREE 2000 "S" series is equipped with a manual device for adjusting the air velocity to obtain the appropriate air velocity for each specific contaminant used.

The CHEMFREE 2000 "M" series is equipped with a microprocessor based monitoring system. Each unit has a liquid crystal display to show the face speed and a digital setting system to select the most suitable velocity for each specific contaminant used.

## Technical Specifications

### CHEMFREE 2000 "S"

- High level of protection from toxic vapours
- High level of filtration efficiency
- Large adsorption capacity
- Filter monitoring systems
- Ductless
- Low cost

### CHEMFREE 2000 "M"

- Microprocessor controlled monitoring system
- Highly effective protection from toxic vapours
- High filtration efficiency
- Large adsorption capacity
- Filter monitoring system
- Ducting



CHEMFRE "S" is designed to meet all the routine safety requirements encountered by both the operator and the environment through the use of chemical reagents.

Units are equipped with a manual device to set the inlet air velocity when heavy or volatile chemicals are used and are supplied with fluorescent lighting.

Gas/Vacuum taps, power points and gas detectors for monitoring filter efficiency are supplied as options.

CHEMFRE "M" is designed with a microprocessor controlled system for a range of data which includes type and code number of the filter being used, installation date, maximum time allowance for filter use and a warning date for its replacement. Built in with five different languages like Italian, English, German, French and Spanish. Audible and visual alarms are also available to protect the operator.

These alarms cover out of range minimum and maximum air velocity, filter saturation, prefilter clogging, anemometer failure, gas detector failure and motor fan malfunctioning. CHEMFRE 2000 "M" is equipped with fluorescent lighting as well as optional gas/vacuum tap and power point.

### Activated Charcoal Filters

The filters used in the fume cupboards are manufactured from high grade coconut shell charcoal.

All types of activated charcoal used in these filters are of amorphous structure obtained from the heat controlled oxidation of coconut shells.

The cellulose structure of the coconuts provides the highest adsorption efficiency through a large surface area of up to 1050 m<sup>2</sup>/g.

### Filter Types

#### a) Pre-Filters

High performance pre-filters are designed to remove particulates from the air stream. The filter material is based on electrets, which are permanently charged dielectrics. They remove particulates from polluted air by strong electrostatic forces generated by the fibres from which they are made.

The combination of strong electric charges and open structure provides a filter with high efficiency, low airflow resistance and high loading capacity.

Pre-filters efficiency is equal to 75/85% dust weight arrestance (ASHRAE).

#### b) Main Filters

Eight types of filter media are available.

Most of these are impregnated activated carbon, to provide a higher filter capacity for lower molecular weight organic compounds and inorganic gases and vapours.

A number of filter efficiency studies have been carried out, and all results using single bed filters show efficiencies very close to 100%.

Filter Types:

- A/C Filter - ACR Filter - Form Filter - Sulf Filter - UR Filter - CYAN Filter - MER Filter - AM Filter

Model	Useful Dimensions in mm			Overall Dimensions in mm			Weight W/o filter Kg	Flow Rate M3/h	Air Speed m/sec
	D	W	H	D	W	H			
CHEMFRE 2000 60-S	603	533	655	750	595	1118	60	300	>0.6
CHEMFRE 2000 90-S	603	823	655	750	885	1118	70	400	>0.6
CHEMFRE 2000 120-S	603	1123	655	750	1185	1118	80	600	>0.6
CHEMFRE 2000 60-M	603	533	655	750	595	1118	60	300	>0.6
CHEMFRE 2000 90-M	603	823	655	750	885	1118	70	400	>0.6
CHEMFRE 2000 120-M	603	1123	655	750	1185	1118	80	600	>0.6