erlab

Greenfumehood

Filtered fume hoods

A Global Solution
For Green Buildings

Greenfumehood

Fume hoods have a long history of issues, from enormous energy consumption to environmental impact, inflexible installation requirements to expensive operation. For many of today's laboratory, they are simply a necessary burden. Not any more !

Engineered with a range of patented innovations,GreenFumeHood offers a safe, high-performance, energy-efficient, fully fexible solution, ideal for virtually any environment from a cleanroom to a teaching lab. With a unique, modular filtration column and proprietary Neutrodine filtration technology, can handle multidisciplinary tasks involving everything from acids and solvents to liquids and powders while exhausting 100 times fewer contaminants than allowed by the offcial Threshold Limit Value (TLV).

With GreenFumeHood, saving energy doesn't mean compromising safety and performance. The system can be left on at all times sash up or down without consuming energy or polluting environment. At the same time, it maintains the industry's preferred face velocity of 0,5 m/s.

GreenFumeHood also offers the first ever remote communication software, developed with microsoft technologies, to provide unprecedented management capabilities for a network of up to 250 fume hoods.

welcome to a truly unique solution that is both user-friendly and environmental friendly. welcome to the fume hood of the future.

FAQ

Some of the most frequently asked questions about the fume hoods technologies used in GreenFumeHood designed for green laboratory building and about Erlab.

Question:
Apart from the crucial fact that GreenFumeHood emissions do not harm the environment, what are GreenFumeHood's other main advantages?

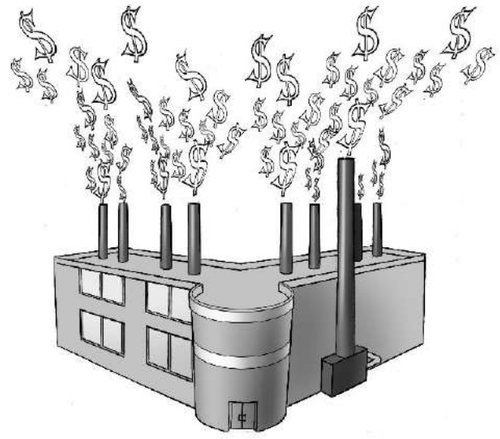
Answer:
The main advantage lies in energy efficiency. The GreenFumeHood system has been specifically designed as a replacement for conventional fume hoods. Because it is not ducted, it does not exhaust the air temperate in the lab, which saves on heating and air conditioning costs. This means that it quickly pays for itself, whereas conventional ducted fume hoods continue to use the same amount of energy resulting in accumulating energy costs over the years.

Another significant advantage is when incorporating GreenFumeHood into a new lab building, the building can be designed without exhaust ducts (other than for air renewal). This results in a tremendous amount of cost savings.

Since the GreenFumeHood is not connected to exhaust ducts, none of the toxins are expelled outside the building in to the atmosphere. Also, this means that the hoods can be easily repositioned in the lab if needed.

Thirdly, as GreenFumeHood are not connected to exhaust ducts, they can easily be repositioned.

The fourth advantage is that GreenFumeHood purifies the air in the laboratory at a rate of 800m³ an hour. This example is for the most commonly used GreenFumeHood, which is 1m60 wide and has four filtration modules, each of which recycles 200m³ of air per hour after filtration. This safeguards the health of people in the laboratory, as it ensures that they always have purified, odourless air to breathe.



LABORATORY WITH CONVENTIONAL FUME HOODS

LABORATORY WITH GREENFUMEHOOD

Question:
I see. But what makes a GreenFumeHood different from other ductless filtering fume hoods Captair Flex ?

Answer:
Lots of things, and in particular its new patented modular Neutrodine filtration system, which is what really makes GreenFumeHood stand out from common ductless filtering fume hoods: a face velocity of at least 0.40 m/s with exactly the same front opening as a fume hood. Toxic substances are still contained even if the sash is raised thanks to its unique filtration exhaust system. The Neutrodine system traps thousands of molecules, whether they are solvents, acids or bases, emitted separately or in combination. It has many other exceptional features too, which are not provided by a common ductless filtering fume hood.

CONTAINMENT TEST

Question:
What are the other exceptional features you mentioned?

Answer:
First and foremost, it's the revolutionary new technology incorporated in the Neutrodine filtration system, which enables large quantities of toxic molecules to be trapped before the filter is saturated. For instance, for a molecule of 35% HCl, which is particularly difficult to capture, one module can trap 2,734g before becoming saturated, whereas a conventional BE type filter used in traditional ductless filtering fume hoods only captures about 1,820g before saturation, which means a GreenFumeHood captures up to 50% more.

The filtration capacity is multiplied by however many modules are used, which depends on the width of the GreenFumeHood. For example, a rate of a mix of acids, solvents and bases of 3,786g retention per module will be doubled for a 1200 mm wide GreenFumeHood, tripled for a 1600 mm wide GreenFumeHood, multiplied by four, i.e. 15,144g of these chemicals mix, for the most common size of GreenFumeHood used, which is 1800 mm wide, and multiplied by five if the GreenFumeHood is 2400 mm wide. Furthermore, GreenFumeHood has numerous probes which continually check that it is working properly. GreenFumeHood also has a remote communication and monitoring system that is as powerful as a laptop computer, enabling safety engineers to use ***e Guard*** software to check that all GreenFumeHood modules are working properly.

Question:
In what way is the filtration exhaust system you mentioned earlier the only one of its kind?

Answer:
Each module has its own fan and lighting so, for instance, a GreenFumeHood comprising four modules and 1800 mm wide will have four fans, whose speed is dictated by how high the sash is opened. The fans spread the air suction across the whole surface of the ceiling. This is possible because of the pre-filters, which have the dual role of pre-filtering and air-distribution. This is what ensures that toxic gases are contained within the handling enclosure, as well as providing exceptional turbulence-free respiration of the air circulating inside the GreenFumeHood.

Question:
Do these remarkable levels of performance comply with safety standards? And if they do, are they checked by recognised independent laboratories?

Answer:
The GreenFumeHood performances described in this document comply with a number of international standards, primarily the new Chinese JG/T 385-2012 standard, specially designed to impose recognised filtration results for all recirculating fume hoods. Other standards with which GreenFumeHood complies include the French Standard NFX 15-211, the American Standard SEFA9, the American containment standard ASHRAE 110-1995 and the European standard EN 14175-3. Compliance with these standards is tested by independent laboratories, such as Tongji University laboratories, SGS and Intertek.

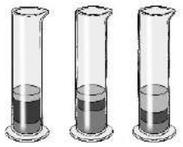
CONVENTIONAL SYSTEM
THREE FILTERS WHICH
MUST BE USED SEPARATELY

AS BE K

NEUTRODINE SYSTEM

WITH NEUTRODINE A SINGLE FILTER
TRAPS UP TO 50% MORE

CONVENTIONAL CONTAINMENT CAPACITY WITH MULTIPLE FILTERS



AS-BE-K
SOLVENTS-ACIDS-BASES

SINGLE NEUTRODINE FILTER FOR SIMULTANEOUS HANDLING

SOLVENTS
ACIDS
BASES

ADAPTABLE MODULAR FILTRATION
COLUMNS ERLAB patent

TEST REPORTS

Question:
Can you tell me something about the history of Erlab, the company that developed the GreenFumeHood and the technology used in the Neutrodine filtration system?

Answer:
Erlab was founded in 1968, and for the past 45 years it has been the recognised specialist in molecular filtration systems. Erlab's research and development laboratory has the most sophisticated investigative and monitoring equipment available (gas chromatograph, FID detectors, mass spectrophotometer, Fourier transform infrared spectrophotometer, ASTM test bench, NFX 15-211 standard test chamber) and six specialist laboratory staff, including two chemists and two PhDs in physics and chemistry, who are all constantly looking for ways to further improve the filters used in our Neutrodine filtration system.
Erlab has three production and sales units, one in the USA, Erlab Inc., one in Europe, Erlab Sas, and one in China, KunshanErlab DFS, as well as sales offices in Malaysia, Spain and China. Erlab also has an Asura division which specialises in recirculating fume hood and GreenFumeHood maintenance.

Question:
Do you have any references for GreenFumeHood installations?

Answer:
We have numerous references for GreenFumeHood installations in highly-regarded companies in the USA, Europe and Asia, all of which have adopted our GreenFumeHood.

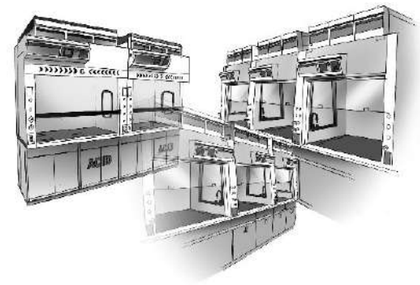
Question:
Does Erlab have a sales and maintenance network that I can contact to install a GreenFumeHood?

Answer:
As soon as GreenFumeHood was launched, many manufacturers of conventional fume hoods were quick to see that GreenFumeHood represented a new way of thinking about lab safety and lab design. We have created partnerships with some of the leading manufacturers in the industry, enabling them to integrate GreenFumeHood technology and its Neutrodine filtration system. (See list of partners).

Question:
What is the payback capacity of a GreenFumeHood, and how do operating costs compare with those of a fume hood?

Answer:
Annual operating costs for a conventional fume hood have been estimated in a study done by the Lawrence Berkeley National Laboratory at the University of California in the U.S... The report was conducted in 2003 and resulted in an estimated annual operating cost. The sum has been readjusted to account for the increase in the price of a kilowatt/h in the USA, which rose from 7 cents at the time the study was conducted to 10 cents in 2011. The annual cost of operating a fume hood 1500 mm width, totaling therefore US$8500 (53,800 RMB), to compare to the annual cost of running a GreenFumeHood 1600 mm width, which are USD1550 (9,800 RMB), leaves an annual difference of USD6950 (44,000 RMB) for amortization of a GreenFumeHood.
NOTE: Installing a number of GreenFumeHood in a new building can result in significant savings on venting ducts.

THE ERLAB RESEARCH
AND DEVELOPMENT LABORATORY



GREENFUMEHOOD INSTALLATIONS
CARRIED OUT BY OUR PARTNERS

CONVENTIONAL FUME HOOD

greenfumehood

LIFECYCLE PAYBACK QUESTIONNAIRE
Tell us about your handlings

Please return this completed questionnaire by e-mail to erlab
sales. china@erlab. com. cn

Calculated Payback

Based on the calculated life-cycle from step 1 we forecast the savings of using Neutrodine versus the energy cost associated with the classic approach of ducting to atmosphere.

All data collected by erlab for the purpose of the L. P. Life-cycle Pay Back Survey will remain confidential.
Erlab undertakes not to disclose any data to third parties.
Erlab shall restrict disclosure of any data to its employees with a need to know.
All data will be processed only for the purpose of the L. P. Life-cycle Pay Back Survey.

Company Name:		Country:	
User name:			
Address:			
Post code:		City:	
Tel. :		Fax. :	
E-mail:		Date:	

Additional comments:	

	Type of handling	Chemical name	Type of container	Opened /closed	Dilution (100%)	Temperature (°C)	Handling frequency	Handling quantity	Duration (min)
1									
2									
3									
4									
5									
6									
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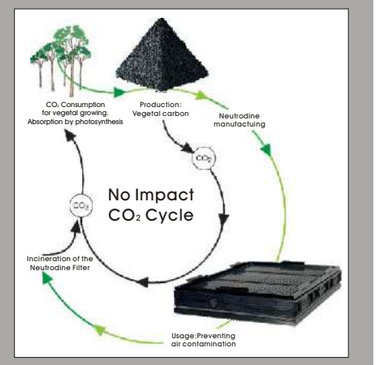
Proprietary Neutrodine filtration technology

The result of 45 years of Research and Development , Neutrodine represents one of the most significant advancements in the history of carbon filtration technology.

Neutrodine advantages

* Multiusage of acids, bases and solvents, separated or combined.
* Airflow speed within the adsorption media increased by 25% , which ensures a face velocity of 0,5 m/s at a comfortable height without the need to use a variable volume system.
* 50% + increase in retention capacity, which double filter life
* increased variety of retained molecules to 99,9% of commonly used chemicals within laboratories. the remaining are either non-toxic or rare molecules used by few laboratories



Exclusive twin-sensor saturation detector

Able to detect both solvents and acids, this innovative system uses 2 sensors, one located inside a detection chamber between 2 filters and the other one within the laboratory environment, enabling a constant recalibration of the detection system relative to the ambient air, therefore avoiding false alarms triggered by non-toxic molecules and monitoring permanently the laboratory air toxicity.

User identification and approval system

GreenFumeHood can only be operated with a personalized RFID card. One specifically for the User which allows full operation for approved applications and activate all safety alarms, one for the Administrator, responsible for a network of fume hoods and give unrestricted access to important historical data such as recorded usage and alarm history, one for the Service Engineer that enables calibration functions and repair.

Advanced e*Guard* communication technology

Developed with Microsoft technologies and optionally embedded within the **GreenFumeHood, *eGuard*** communication system informs remotely in real time an administrator (on his computer or PDA) about the status of the hood, such as filter identification and condition, face velocity, sash position, user identification, blower motor Speed, ambient laboratory air, usage time data,...

Optional remote control for turning on/off ventilation and lighting

Electronic filter identification system

Installing and monitoring filters is simple and foolproof with the GreenFumeHood electronic filter identification system that not only indicates the filter presence, but also ensures proper filter use and distinguishes between new and used filters.

Greenfumehood

a range of 4 fume hoods with various capacities

GFH 4200		
L	D	H (mm)
1225	978	1590–1673
Filtration columns		
2		
Volume of air treated		
460 m³/h		

GFH 5300		
L	D	H (mm)
1433	978	1590–1673
Filtration columns		
3		
Volume of air treated		
690 m³/h		

GFH 6400		
L	D	H (mm)
1849	978	1590–1673
Filtration columns		
4		
Volume of air treated		
920 m³/h		

GFH 7500		
L	D	H (mm)
2265	978	1590–1673
Filtration columns		
5		
Volume of air treated		
1150 m³/h		

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