Erlab's 5 step process guarantees personnel safety and laboratory success.

Express Ductless Filtering Fume Hoods Compliant with USP 800 for Non-Sterile HD Preparation and AFNOR NF X 15-211: 2009 Standard

1 Our expertise – to keep you safe
State-of-the-Art Laboratory

For over 50 years our expertise in the field of molecular filtration has kept thousands of users safe, worldwide. Our continued investment in technology, highly qualified staff, and state-of-the art analytical equipment ensures that we provide the best protection to the lab users.

2 We measure the safety of our filters
Published Chemical Listing

We publish the efficiency of our filters for over 700 chemicals, tested under six different concentrations, twice! Compliance with the AFNOR NFX 15-211 is not just producing results from a set of specific chemicals, but rather a complete comprehensive list of the chemicals that are approved to be used with our filters. The chemical listing consists of not only the chemicals which can be retained, but also the overall molecular weight in grams. We can retain each chemical before we have detected release at the filters exhaust no greater than 1% of the chemicals TLV. The retention listed for each chemical is based on this strict criterion and is the retention capacity in which we validate the filters efficiency (filter life cycle).

3 You will never be exposed to harmful chemicals or powders
Independent Testing

Proof of our claims. Independent testing is performed to validate the results of the chemical listing, efficiency of HEPA/ULPA filters and containment of our enclosures

- Carbon filters – AFNOR NFX 15-211 & ANSI z9.5 2012
- HEPA/ULPA filters – EN 1822
- Enclosures – ASHRAE 110

For more information:
1-800-964-4434, www.erlab.com
captairsales@erlab.com, Specific questions Contact Us

4 We are responsible for your safety
Chemical Assessment for Your Chemical Handlings

For every hood sold, we implement a complete assessment study of the handlings performed within the hood enclosure. This validation is possible due to our knowledge of the actual filters performance for each chemical as tested by our team of PhD chemists. The assessment provides a validation of the filter's life cycle, guaranteeing that during the life cycle, there will never be release greater than 1% of the TLV released at the filters exhaust under normal operating conditions. It also must comply with strict safety criteria during a number of different operating conditions; such as the detection and safety phase, which guarantees that release at the filters exhaust never exceeds 50% of the TLV, of the cumulative chemicals used within the fume hood.

5 We put it in writing, guaranteeing your safety for life
Certificate of Validation

A certificate of validation is provided with every hood enclosure, listing the filters efficiency (filter life cycle), list of chemicals the hood was approved for, filter configuration and means of chemical detection (both manual and automatic). This is provided electronically and can be printed and posted on the front of each enclosure. As part of the Erlab Safety Program (ESP), a safety specialist will regularly follow up with you to be sure the hood is in proper working order, check if any chemicals used in the hood have changed, and inform you when your filters need replacement.

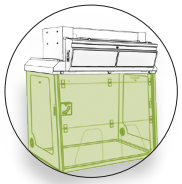
Experts in air filtration for the protection of laboratory personnel

The AFNOR NF X 15-211: 2009 standard

A performance standard for the protection of laboratory technicians

The AFNOR NF X 15-211:2009 Standard, as referenced by ANSI Z 9.5:2012, was established by a team of experts (INRS, government bodies and professional unions), mandated by AFNOR. This standard applies to filtering fume hoods (also known as recirculating fume hoods or ETRAF) designed for research work, analysis, teaching, etc. for all laboratories in which chemicals subject to occupational exposure limits (OEL or TLV-TMA) are handled. This text requires performance criteria relating to:

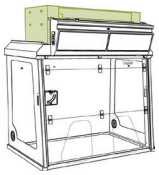
Filtration efficiency



Containment efficiency

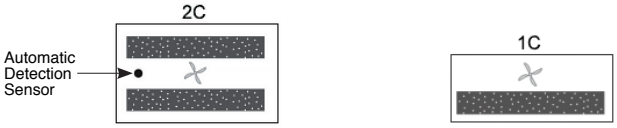
Air Face Velocity

Documentation



Filtration efficiency

Filtration efficiency is defined by the capacity of the filter to capture dangerous molecules handled inside the enclosure and determines the quality of air filtered downstream of the filter.



	Class 1	Class 2
The classes established by AFNOR NF X 15-211	Filtration fume hood with safety reserve	Filtration fume hood without safety reserve
	One main filtration level and one safety filtration level	One filtration level
Normal operating phase	Emissions concentration at the filter exhaust must be lower than 1% of the TLV	
Detection phase	The concentration at the filter exhaust must be lower than 1% of the TLV, and the automatic detection sensor must warn the user of any concentration spike at the main filter exhaust	The concentration at the filter exhaust must be lower than 50% of the TLV which the automatic sensor will indicate if equipped.
Safety phase	The concentration at the filter exhaust must be lower than 50% of the TLV, and maintain it's efficiency for 1/12 of the filter life cycle as determined by the initial feasibility study	Not Applicable

Classification according to the type of filtration

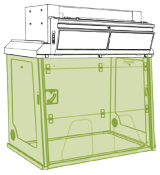
	Filtration type according to the AFNOR NFX 15-211:2009 standard	Equivalent Erlab filtration type
Particulate filtration*	Type P	HEPA
Vapor filtration**	Type V	AS - BE+ - F - K
Particulate and vapor filtration**	Type PV	HEPA AS - HEPA BE+ - HEPA F - HEPA K

* The particulate filter must be at least type H14 in accordance with standard NF EN 1822-1

** Vapor filters must undergo two successive tests using cyclohexane and isopropanol for filters designed to capture Volatile Organic Compounds (VOC). Another test designed for acid vapors is performed with hydrochloric acid.

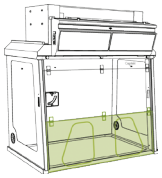
The AFNOR NF X 15-211: 2009 standard

A performance standard for the laboratory technicians protection



Containment efficiency of the enclosure

Containment efficiency is determined by the ability of the hood to keep the vapors or particles inside the enclosure preventing their release into the laboratory environment. To prove this efficiency, a test is performed according to the protocol described in the AFNOR NF X 15-211. SF_6 (Sulfur Hexafluoride) tracer gas is released into the enclosure and a grid holding sensors is placed opposite the handling ports.The concentration measurements at the sampling point of the grid must be less than 0.1 ppm SF_6 gas.



Air face velocity

Air face velocity is described as the ability of the hood to create a dynamic barrier between the operator and the handling.

For filtering fume hoods with fixed front panels, the air face velocity at all openings must be between 0.4 and 0.6 m/s, therefore, they must be equipped with a device to continuously monitor ventilation which is also an indication of good containment.

Documentation

Filtering fume hoods must be delivered with a booklet containing a list of approved chemicals for our filters, certified by the manufacturer, that can be handled in the conditions described by the AFNOR NF X 15-211:2009 standard. The following information must be indicated in the booklet for each chemical listed:

- The chemical name, formula, CAS number, boiling point, molecular weight, saturation and vapor pressure.
- The suitable filter type and its retention capacity during the normal operating phase.
- The type of detection sensor for the recommended filter(s).
- The name of the laboratory performing the test(s).

Erlab's R&D Laboratory has developed a booklet called the *Chemical Listing* which demonstrates their expertise in the field of molecular and particulate filtration. This booklet contains a list of approved chemicals for about 700 chemicals commonly used in laboratories. Every Erlab ductless fume hood is supplied with a *Chemical Listing* booklet and is in compliance with the AFNOR NF X 15-211:2009 standard.

International standards

Erlab products comply with the following standards to guarantee your safety:
Germany: DIN 12927 - France: AFNOR NF X 15-211: 2009 - U.K.: BS 7989 - USA: ANSI/AIHA Z9.5 / ASHRAE 110: 1995

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Erlab above

About Erlab

We provide safety, we protect your health

Inventor of the ductless fume hood, Erlab is an expert in air filtration for the protection of laboratory personnel since 1968. With over 50 years of experience and 150,000 units installed in 40 countries, Erlab offers advanced technologies that protects lives, saves money, and enhances environmental sustainability. All our products our certified by experts for individual applications, ensuring that our products fully meet customer expectations.

With manufacturing facilities in the US, China, and Europe, employing highly trained engineers and scientists worldwide, we deliver solutions globally.

1 Erlab R&D Laboratory

The engineers and chemists in our state-of-the-art R&D laboratory understand molecular filtration. We are committed to designing products that are safe and of the highest quality as we strive to improve our products, and continuously develop new products that provide greater protection in the laboratory.

2 Strict Safety Standards

We hold ourselves to the highest standard and adhere to the strict AFNOR NF X 15-211: 2009 filtration safety standard as recognized by ANSI Z9.5-2012.

3 A Published Chemical Listing

It all begins here. Our chemical listing directory insures we are compliant with AFNOR NFX 15-211. Our in-house laboratory tests and independent testing verifies the retention capacity of over 700 chemicals for our filters.

4 Independent Testing

Erlab filters have been independently tested multiple times at various concentrations guaranteeing that our safety solutions adhere to the strict performance criteria of the AFNOR NF X 15-211:2009 standard ensuring that the emissions concentration at the filter exhaust will always be lower than 1% of the TLV.

5 Application Questionnaire

Our laboratory specialists will recommend the appropriate filtration fume hood, type of filter, and personalized advice.

6 Certificate of Validation for the chemicals used in the hood

A certified PhD chemist issues a Certificate of Validation with a list of the chemicals approved for use in the hood.

7 Our Safety Program

We support our products 100%. This program includes your specialized chemical evaluation, validation of your hood upon installation, and your filtration safety specialist that ensures your hood is operating to its full potential.