User Manual
Chemical hood
With charcoal filter

C-PURE
9-12-16

Foreword

The recirculating fume "C-PURE" is intended to protect people handling dangerous substances such as CMR (carcinogenic, mutagenic, and reprotoxic) of categories 1, 2, and 3 as well as the products subject to exposure limit.

For information, the regulatory request to substitute dangerous products with an equivalent with less danger to users. This applies mainly to CMR.

The C-PURE is validated by a third party and complies with the NF X 15-211: 2009 "Sorbonne in circulation."
The NF X 15-211 applies to filtration fume hoods used in the research, analysis, education ...
It applies to all laboratories using products subject to a limit value exposure.

Compliance with the NF X 15-211 imposes performance criteria related to:
- Filtration efficiency.
- the efficiency of containment.
- The air speed at the front opening.

In addition, documentation and user's specific instructions must be attached to the equipment.

Classes established by the standard.

Class 1	Class 2 (C-Pure)
Fume hood with safety reserve.	Fume hood without safety reserve
One level of main filtration and one security level of filtration	One level of filtration

Classification by type of filtration.

	Appellation according to NF X 15-211: 2009
Filtration of particles*	Type P
Filtration of vapors**	Type V
Filtration of particles and vapors**	Type PV

* : the particles filter efficiency must be at least type H14 according to NF EN 1822-1
** : the vapors filter has to be subjected to two successive performance tests with Cyclohexane and Isopropanol for the filters designed to retain Volatile Organic Compounds (VOC). Another test for acid vapors is carried out with hydrochloric acid.

Efficiency of filtration.

It is defined by the filter capacity to retain the dangerous molecules manipulated in the enclosure and characterizes the quality of the recirculated air downstream of the filter.

	Class 1	C-Pure (Class 2)
normal operating phase	normal operation phase during which the concentration of the filter exhaust fumes should be less than 1% of the PELV **(professional exposure limit value)**	
Detection phase	detection phase during which the concentration downstream of the filter must be less than 1% of the PELV and during which the automatic saturation detector has to alert the user	Detection phase during which the concentration downstream of the filter must be less than 50% of the PELV
Security phase	Security phase during which the concentration downstream of the filter must be less than 50% of the PELV, and the duration should not be less than 1/12 of the duration of the normal operating phase	

The confinement efficiency of the enclosure.

It is defined by the ventilation capacity of the hood to keep vapors or particles within the enclosure, without them is not dispersed into the environment.
To demonstrate this efficacy, a test is performed according to the protocol described in the standard.
tracer gas emissions SF6 (sulfur hexafluoride) are performed in the chamber. A grid of sensors is positioned opposite the handling openings. Samples are taken at the gate. Based on the emitted gas concentrations and samples taken when determining an average exposure of an operator to this tracer gas, it is possible to set a performance level of containment set by the NF X 15-211: 2009, which imposes a maximum concentration of 0.1 ppm SF6 gas, at the measurement points performed on the grid.

The air speed in the front.

It refers to the hood's ability to create a dynamic barrier between the manipulator and the handling.
For fume hoods that are front fixed, the front air velocity at any point of the openings must be between 0.4 and 0.6 m / s. They must also be equipped with a continuous ventilation monitoring device, which is a good indicator containment.

USER MANUAL
OF FUME HOOD RECIRCULATING
TYPE : C-PURE

Dear costumer,

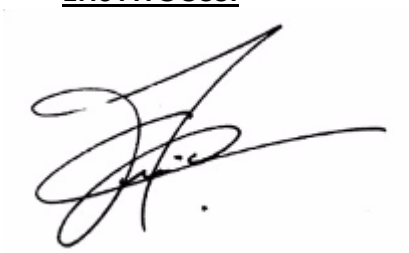
You have just acquired a fume hood recirculating "**C-PURE"** and we congratulate you.

This cabinet guarntees you :

- the protection of the handler
- the protection of the surrounding environment

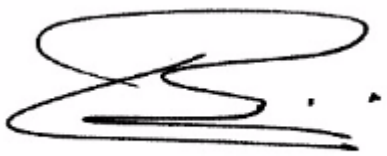
Your cabinet C-PURE is a recirculating fume hood manufactured in compliance with the NF X 15-211: 2009 (reference Report: B01A2ADL002B made by the company MAPE) on these positions.
Wish you a good use, and, remain at your disposal for any information or technical use.

Eric FITOUSSI



Managing Director

Bernard BIJAOUI



CEO

TABLE OF CONTENT

I. FRAME

a. Main frame

The supply unit is an epoxy painted frame, of 15/10 mm thickness which resits to most chemical products.
The side panels of the working area are in methyl methacrylate (6mm thickness) and the back is in chemically inert resin (Trespa, HPL…).
We use a manufacturing technique which help to avoid any type of leaks in the structure and around the filter(folding).
The frame is sturdy enough to avoid any damages and alteration.

b. Working area and drip tray

The working area and the drip tray are in HPPH (Homopolymer polypropylen). This material is known to resist to a lot of chemical products and high temperature. The drip tray is easy to access and to clean.

Careful, avoid long term contact with 90°C temperature or more.

c. Frontal window

The access to the working area will be close by the frontal window which can be open with thanks to the hinges. There is as well 2 arms opening for the access to the working area when in use.

d. Lighting

The lighting is a light tube installed outside the working area, which insure that according to the norm NFX-15-211 the electrical components are not in contact with the working area.

There is 700 lux of lighting level on the working area.

e. Fan

The hood is equiped with a plastic fan set on a normal air flow speed which guarantee the right exhaust of air flow and a low sound level.

The motor is protected according to the electrical norms and rules.

f. Filtration

The hood is equipped with:

- A chalcoal filter (Type V)
- An HEPA filter (Type P)
- A charcoal + HEPA filter (Type PV)

- **Charcoal filter**

Different types of charcoal filters can be used according to the type of chemical product used :

- Organic vapors and solvents
- Acid vapors
- Basic vapors
- Formaldehyde vapors
- Vapors containing mercury

- **HEPA filter**

The panel HEPA filter are efficient at 99.995% on particules @ 0,3µ (H14) and ensure a filtration of all the particles in the working area.

II. SAFETY AND WORKING PRINCIPLE

a. Fonctionning sketch

Inflow air

Exhaust air

b. Fonctionning principles

The C-Pure is working in **negative pressure**. The air of the room go through the openings of the front window and is filtered by the charcoal or/and HEPA filter(s). This hood is protecting the user and the environment against chemical gas thanks to the charcoal filters and/or HEPA filters. Thanks to the filtration all the air is recycled and we don't need to connect the hood to an exhaust duct.
The charcoal filter is soaking up all the fumes.

c. Safety

To ensure a good safety this hood has a timer. A visual and sound alarm tells us when the hood has been use more than 60 hours.
Some samples of the charcoal filter can taken to test its efficiency every 60 hours.

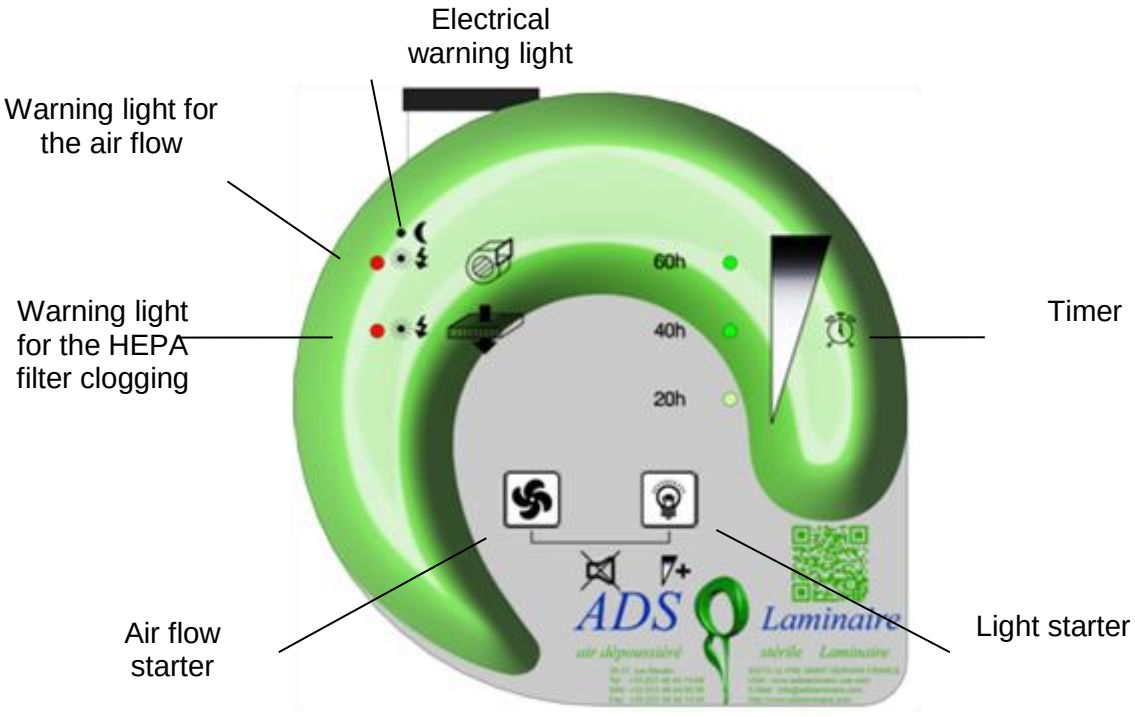
A velocimeter can let you know the air flow performance.

Another visual warning light let you know when the HEPA filter is clogged. This warning light has nothing to do with the charcoal filter.

The last warning light let you know if there is any issue with the fan.

III. CONTROL PANEL

a. Presentation



b. Warning and starter buttons :

On the control panel , 2 light signals show that the hood is fonctionning correctly (fan and HEPA Filter).

When the fan is on, the timer is showing the decrease of the number of hours used. The hood starts at its maximum 60 hours and decrease during the use:

From 60 hours to 41 hours, the 3 green lights are on.
From 40 hours to 21 hours, the 2 bottom green lights are on.
From 20 hours to 11 hours, the last green light is on.
From 10 hours to 0 hours, the last green light is blinking.

<0 hours, the last lgiht is blinking in red with an alarm (3 bips/minute).

The control panel has 2 buttons:

- On/off fan
- On/off light

Pushing both buttons giving you the opportunity to desactivate the sound alarm for 2 hours.
Pushing both buttons for a longer time give you the opportunity to restart the timer to 60 hours.

IV. USE

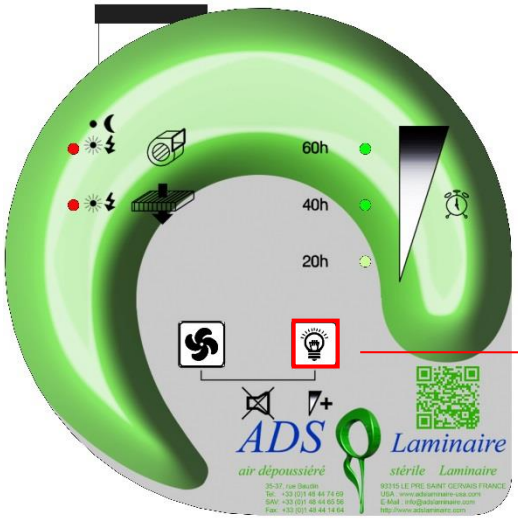
a. Use Conditions

The following environmental conditions must be met for proper operation of your fume hood:
Ambient temperature: + 5°C to + 40°C.
Humidity: 30% to 95%.
The Sorbonne should not be installed near a window or a draft.
In the case of a C-PURE PV (HEPA filter and CA), the standard configuration is to place the HEPA filter before the CA.
If the equipment is placed in a safety box, we reverse positions in order to avoid polluting the room.

b. Getting Started with the fume cupboard

The recirculating fume cupboard is supplied with an electrical outlet 220V.
To turn on the ventilation of the fume cupboard, press the «ventilation» button.

To turn on or off the lighting, press the «lighting» button.



V. TECHNICAL DATA

	C-Pure 9	C-Pure 12	C-Pure 16
Flow rate (m^3/h)	250	250	250
Effective width (mm)	966	1166	1566
Overall width (mm)	1000	1200	1600
Effective height (mm)	855	855	855
Overall height (mm)	1150	1150	1150
Effective depth (mm)	520	520	520
Overall depth(mm)	577	577	577
Fan Type	RG 160	RG 160	RG 160
Blowing absolute filter	M3/9	M3/9	M3/9
Carbon filter	CA 3/9	CA 3/9	CA 3/9
Lighting	ARIC 21W Ref. TL2001-6 IP20	ARIC 21W Ref. TL2001-6 IP20	ARIC 21W Ref. TL2001-6 IP20

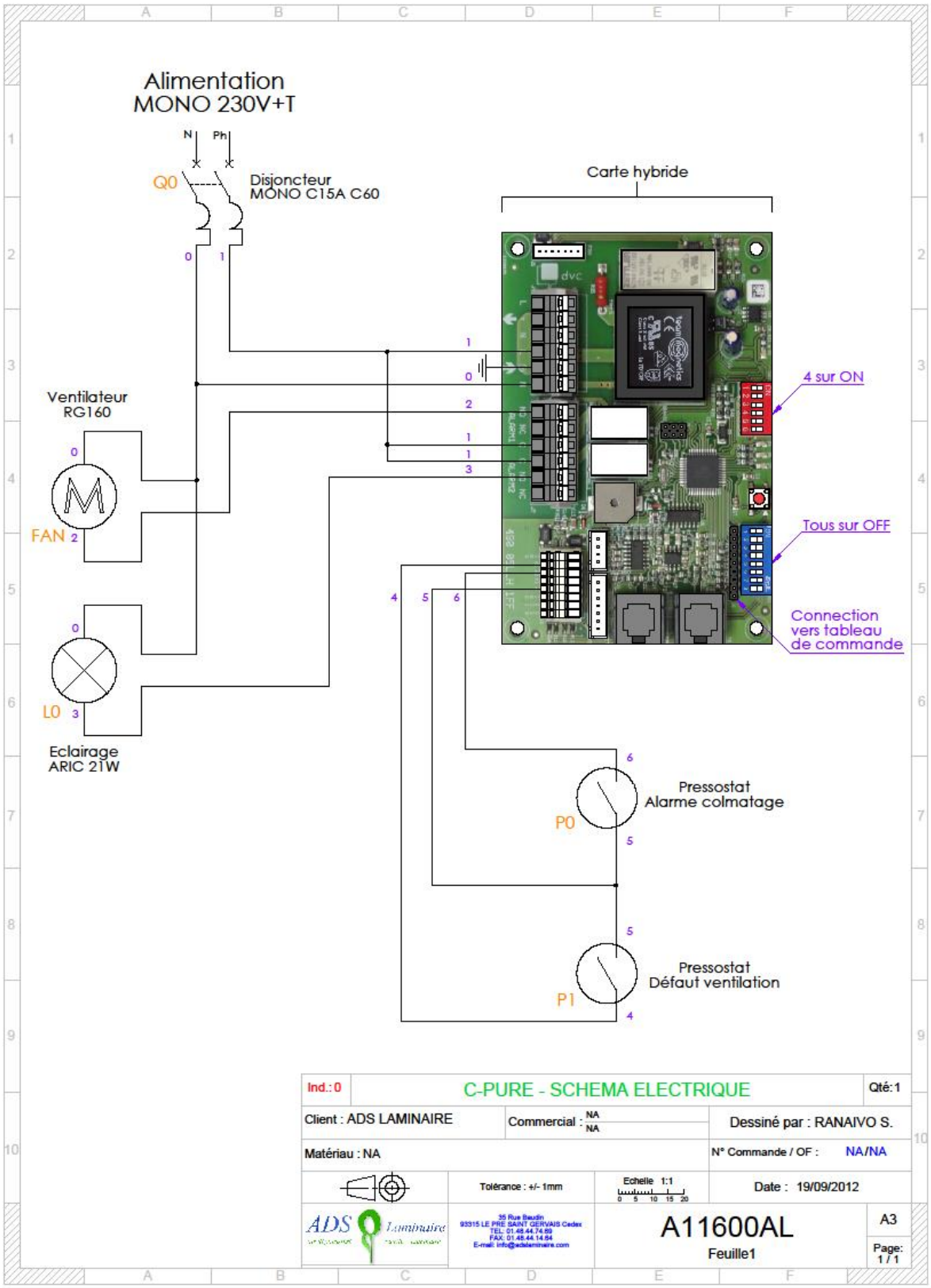
Power supply: 220 mono + T - 15A - 50Hz - Φ cable 3 x 1.5 mm

Noise level: <64 dBA

Light level: more than 700 Lux

ADS Laminaire reserves the right to change the references of the components of the C-Pure.

VI. ELECTRICAL SKETCH



VII. MAINTENANCE

a. Filters

Every 60 hours, an audible and visible singal will appear for the necessity to test the activated carbon. When the clogging indicator lights, provide for the replacement of the absolute filter and possibly activated carbon.
Thanks to very easy access and a simple mounting system by tightening the filters are easily replaced without tools.

Used filters must be packed tightly and destroyed according to current regulations concerning the products picked up by filters (that is to say the products handled in the cabinet)

The opening is done by opening the quick locker and then lift the cover using the handle provided for this purpose.

The filter change is done without tools by sliding the filter in his tray.

b. Motor fans

Without maintenance.

c. Fluorescent lighting

Access under the hood in front of the equipment.

d. Periodic control

The equipment must be checked periodically to ensure the effectiveness of the equipment and bearing possible abuses of the system or use.

See below Part IX. The maintenance contract.

VIII. GUARANTEE AGREEMENT

The C-Pure is guaranteed 1 year parts and labor (in France, Benelux and Switzerland) for any manufacturing defect (excluding consumables).

CONDITIONS OF WARRANTY APPLICATION:

-during the warranty period, the costumer benefits in case of failure of free parts and labor (in France).

-The warranty does not apply to consumable whose renewal is necessary.

- The warranty is excluded : -in case of damage due to misuse a lack of maintenance (non-compliance with instructions), or those resulting from external causes (theft, water damage, fire, fall, etc ..., see the your insurance institution).
-in case of external intervention, other than the company **ADS LAMINAIRE** during the warranty period.

The fume hood recirculating C-Pure is certified to NFX15211 standard.
Under no circumstances, ADS Laminaire cannot be held responsible for changes in standards taken into account in the construction of the hood.