



FRIDURIT® FUME SCRUBBERS

Reliable exhaust air cleaning at
laboratory fume cupboards

FRIDURIT® LABORATORY TECHNOLOGY FOR LABORATORY PERFECTION

FRIDURIT is a leading brand for laboratory work surfaces, for decentralised exhaust air and waste-water treatment. All our products are developed with our customers in mind. We look at customers individually to ensure that we supply the solution that exactly meets their needs.





**All over the world, hundreds
of companies and institutions
work with over 1,600 installed units.
At the end of the day it's
trust that counts!**

FOR THE ENVIRONMENT AND YOUR SAFETY THE CLEAN SOLUTION

Laboratory operators have great responsibility: Health protection and staff safety aspects as well as the preservation of material values are of vital importance.



**Fully-automatic
exhaust air cleaning
at the source of
emission.**



Extreme care must be taken when working with contaminated laboratory emissions such as those produced in fume cupboards and where hazardous substances are used. In addition, national environmental protection legislation along with general legislation requires that laboratory emissions are cleaned with a maximum degree of absorption of aggressive and toxic gases.

FRIDURIT fume scrubbers keep you on the right side of the law: They meet the legal requirements for adherence to limit values placed on vaporous and gaseous inorganic substances, for minimising emissions from laboratory fume cupboards (Guidelines for laboratories, DGUV Information 213-850) as for preventing the formation of poisonous gases in case of fire. The FRIDURIT fume scrubber also satisfies the recommendation for cleaning exhaust air directly at the fume cupboard in accordance with EN 14175-7.

Our product supplies lasting support in preserving your building substance – and this with minimal power and water consumption and the use of recyclable materials. A high degree of absorption efficiency minimises the threat of corrosion in technical ventilation components such as fans and fire dampers.

The FRIDURIT fume scrubber keeps you well ahead for the future. This investment increases for example the LEED Green Building Score, especially due to the fact that the FRIDURIT manufacturing process fulfils all ISO standards for general process management (ISO 9001:2008), for adherence to environmental aspects (ISO 14001:2004) and for implementing an energy management system (ISO 50001:2011).

COMPACT DESIGN HIGHEST ABSORPTION EFFICIENCY

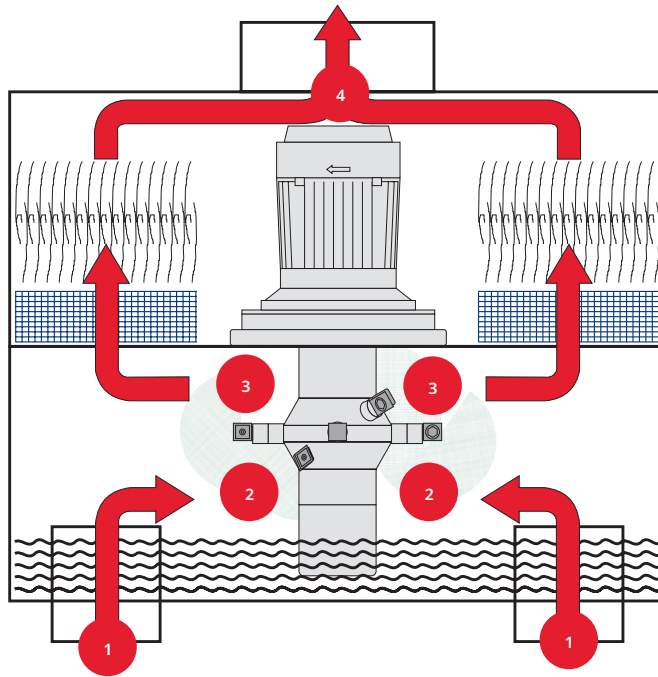
FRIDURIT fume scrubbers work according to a highly efficient absorption principle that has been developed and optimised during numerous practical tests. Intelligent air ducts make low air resistance inside the system possible. This means that the size of ventilation components – and as a result the energy costs for the entire system – can be kept to a minimum.



FUME SCRUBBER TYPES

FRIDURIT fume scrubbers are available in four variants. The built-in types can be easily integrated into the fume cupboard systems of laboratory furniture manufacturers.

In case of low ceilings or when connecting up to two fume cupboards there are types available that can be installed as free-standing units either beside the fume cupboard or in an adjoining room. For treating the chemically contaminated waste-water from the fume scrubber, a FRIDURIT neutralisation unit can be installed.



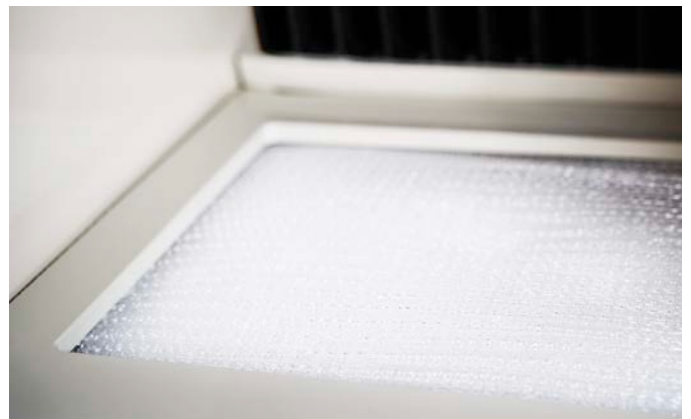
THE FUNCTIONAL PRINCIPLE

- 1 The contaminated exhaust air is suctioned directly into the absorption room through noxious gas tubes.
- 2 Intensive scrubbing of the pollutants in the scrubbing liquid spray, which is produced by the spray wheel, takes place there.
- 3 Absorption is optimised and the residual liquid is separated by means of agglomerators and droplet separators.
- 4 The purified waste-air is led into the downstream duct system through the clean air connector.

THE FUNCTIONAL PRINCIPLE



The patented spray wheel leads to maximum absorption efficiency at low differential pressures.



Synthetic fabrics specially developed and manufactured for the application ensure minimum moisture content in the waste air and thus provide the highest possible degree of efficiency.

ECONOMICAL. EFFICIENT. SUSTAINABLE. IN A NUTSHELL

Sustained development and viability are the maxims for using FRIDURIT fume scrubbers. We have been a reliable partner to our customers for more than 20 years, ensuring smooth implementation of your requirements.



**Simple operation
and reliable service
worldwide.**

FRIDURIT fume scrubbers are hallmarked by the following:


- ▶ Highest degree of absorption efficiency of up to 97% despite compact design.
- ▶ Approx. 30% less air resistance than when using comparable equipment.
- ▶ Significantly lower investment and operating costs than central cleaning systems.
- ▶ The units can be mounted in the fume cupboard, beside the fume cupboard or in an adjoining room.
- ▶ Extremely simple operator guidance in 4 different languages.
- ▶ Spray function remains in operation during the fully automatic exchange of scrubbing liquid. Work in the fume cupboard can continue without interruption.
- ▶ The level of pollutants in the scrubbing liquid can be measured and used for controlling scrubbing liquid exchange.
- ▶ A comprehensive range of accessories, e.g. fans, ventilation components or special control units, allow for individual system adjustments to respective application.
- ▶ The system has been optimised for the use of process water as scrubbing liquid. The addition of hazardous substances, such as sodium hydroxide can be avoided.
- ▶ Materials that come in contact with media are largely resistant to chemicals, separable according to type and are recyclable.
- ▶ A well-organised service network together with numerous trade partners both at home and abroad provide support for any maintenance and repairs needed.
- ▶ Sanitary, electrical and ventilation connections are constantly improved in cooperation with our customers.
- ▶ Each FRIDURIT fume scrubber is checked for functionality as well as for adherence to internal quality criteria prior to dispatch.
- ▶ Spare parts are generally available for the entire lifetime of the units. Constant care is taken that newly-developed parts are compatible with those used so far.
- ▶ In order to reduce interfaces, control, operation and measurement technology are combined to a single unit.
- ▶ The operating module included in the scope of supply allows easy operation of the fume scrubber from the fume cupboard.
- ▶ If no central unit is available for the chemically contaminated waste-water from the fume scrubber, the FRIDURIT neutralisation unit will take on this task.

ABOUT KYOCERA



The global Kyocera corporation - a strong partner.

- ▶ **Headquarters:** Kyoto, Japan
- ▶ **Foundation:** 1959
- ▶ **Employees:** over 83.000 worldwide
- ▶ **European headquarters:** Esslingen, Germany
- ▶ **European production sites:** Mannheim, Germany
Selb, Germany
(further subsidiaries in Europe)

 **KYOCERA** = **KYOTO CERAMICS**

KYOCERA – it all began with ceramics

KYOCERA Fineceramics Europe GmbH is part of KYOCERA Corporation, headquartered in Kyoto, Japan, one of the world's leading manufacturer of high-performance ceramic components for the technology industry. Today, the Kyocera Group offers over 200 different ceramic materials and state-of-the-art technologies and services tailored to the individual needs of each market

KYOCERA Fineceramics Europe GmbH has grown steadily in recent years – and is now a leading European supplier of customised solutions made of technical ceramics. Working in partnership, we develop and manufacture products that offer our customers added value in their respective markets and secure their technological lead in the long term. We are committed to this every day.

Throughout Europe, we are represented by two production and development sites in Mannheim and Selb, as well as six sales offices –

in Mannheim, Selb, Esslingen, Neuss, Rungis (France) and Frimley (United Kingdom).

Our hearts beat completely for ceramics. Our team provides comprehensive advice on the selection of ceramic materials, product design and project execution – from the development stage to prototyping.

We supply system components for high-tech applications in numerous industries. Our products are characterised by high quality, precision and durability.

Our business partners benefit from the fact that we think and work across divisions within the Kyocera Group. Because innovations and real milestones can only be achieved together – across industries and national borders.

This is what we believe.

About the KYOCERA Group

KYOCERA Corporation (Kyoto) is one of the world's leading manufacturers of high-performance ceramic components for the technology industry.

Strategically important business areas of the Kyocera Group, which consists of around 300 subsidiaries, are information and communications technologies, products to improve the quality of life, and environmentally friendly products. The technology group is also one of the most experienced producers of smart energy systems worldwide.

The products marketed by the company in Europe include printers, digital copying systems, semiconductor-, fine ceramic-, automotive- and electronic components as well as printing devices and ceramic kitchen products. Kyocera is represented in Germany by four independent companies:

- KYOCERA Europe GmbH (Esslingen and Neuss),
- KYOCERA Fineceramics Europe GmbH (Mannheim, Selb, Esslingen and Neuss)
- KYOCERA Automotive and Industrial Solutions GmbH (Dietzenbach)
- KYOCERA Document Solutions GmbH (Meerbusch)

The company also takes an active interest in cultural affairs. The Kyoto Prize, a prominent international award, is presented each year by the Inamori Foundation – established by Kyocera founder Dr. Kazuo Inamori – to individuals worldwide who have contributed significantly to the scientific, cultural, and spiritual betterment of humankind.





KYOCERA Fineceramics Europe GmbH

Steinzeugstrasse 92
68229 Mannheim / Germany
Tel: +49 621 40547-300
E-mail: info@kyocera-fineceramics.de
www.kyocera-fineceramics.de

Plant Selb

Lorenz-Hutschenreuther-Strasse 81
95100 Selb / Germany
Tel: +49 9287 807-0

Sales office Esslingen

Fritz-Müller-Strasse 27
73730 Esslingen / Germany
Tel: +49 711 93 93 4-0

Sales office Neuss

Hammfelddamm 6
41460 Neuss / Germany
Tel: +49 2131 16 37-0

Sales office Nordics

KYOCERA Fineceramics Nordics AB
Jan Stenbecks Torg 17
164 40 Kista / Sweden
Tel: +46 8 44 66-910