

## Dental Series

### Professional Air Cleaning for Dental Environments

- Helps to protect dentists, dental staff and patients from airborne infections
- Helps to implement infection control measures by controlling airborne bacteria, viruses and drill aerosols
- Removes unpleasant odours
- Filters toxic mercury vapour
- Reduces exposure to disinfectant compounds
- Controls airborne allergens



## Air Quality – A Critical Issue in Dental Environments

The air we breathe can have a tremendous impact on our health and comfort. Dentists, staff and patients are being exposed to a wide variety of air pollutants during routine dental work. The use of chemicals and the execution of dental procedures itself leads to significant daily exposure. Even relatively low exposure levels to toxic compounds can, over time, lead to serious health problems. Exposure to airborne microorganisms can also increase the risk of infectious disease transmission in dental offices.

### Microbiological Air Contaminants



The air in a dental surgery acts as a carrier of a variety of microbiological particles. The generation of these contaminants within a dental practice occurs mainly during dental procedures. The use of high-speed drills and ultrasonic scaling equipment generates fine aerosols which consist of moisture droplets that contain blood, saliva and filling

particles. These droplets are usually between 0.5 and 5 micrometers ( $\mu\text{m}$ ) in diameter, and are light enough to stay airborne for hours. Bacteria and viruses which are contained in these micro-droplets are easily inhaled and constitute a potential source of infection to the dentist, staff and patients.

### Mercury (Hg)



Numerous studies show that dentists and their staff have higher than average levels of inorganic mercury (Hg) in their blood and urine. According to the WHO\* there is no evidence that there is a safe level of mercury in the body that does not kill cells and harm body processes. Since mercury is odourless and transforms from solid to gas at room

temperature, the dangers of chronic exposure to mercury can easily remain undetected. Mercury vapour is not only released and potentially inhaled when dental amalgam is placed, but also when these fillings are removed.

The dental practice itself can become a secondary source of mercury vapour exposure to dentists and staff. Over the years, mercury may have gotten into floors, cracks of chairs or sinks and may now continuously release mercury vapour to the room.

### Disinfectants

Chemical disinfectants are being used in the dental practice to decontaminate hands, instruments and surfaces. Disinfectants that kill germs, viruses, and fungal spores often contain aldehydes (especially formaldehyde and glutaraldehyde) or phenol. Aldehydes are well-known for their sensitising potential and their inhalation toxicity. Exposure to aldehyde at low doses on a continuous basis may lead to chronic toxic effects, the symptoms of which are mostly unspecific (nausea, impairment of the memory, motivation, reactivity or dexterity).

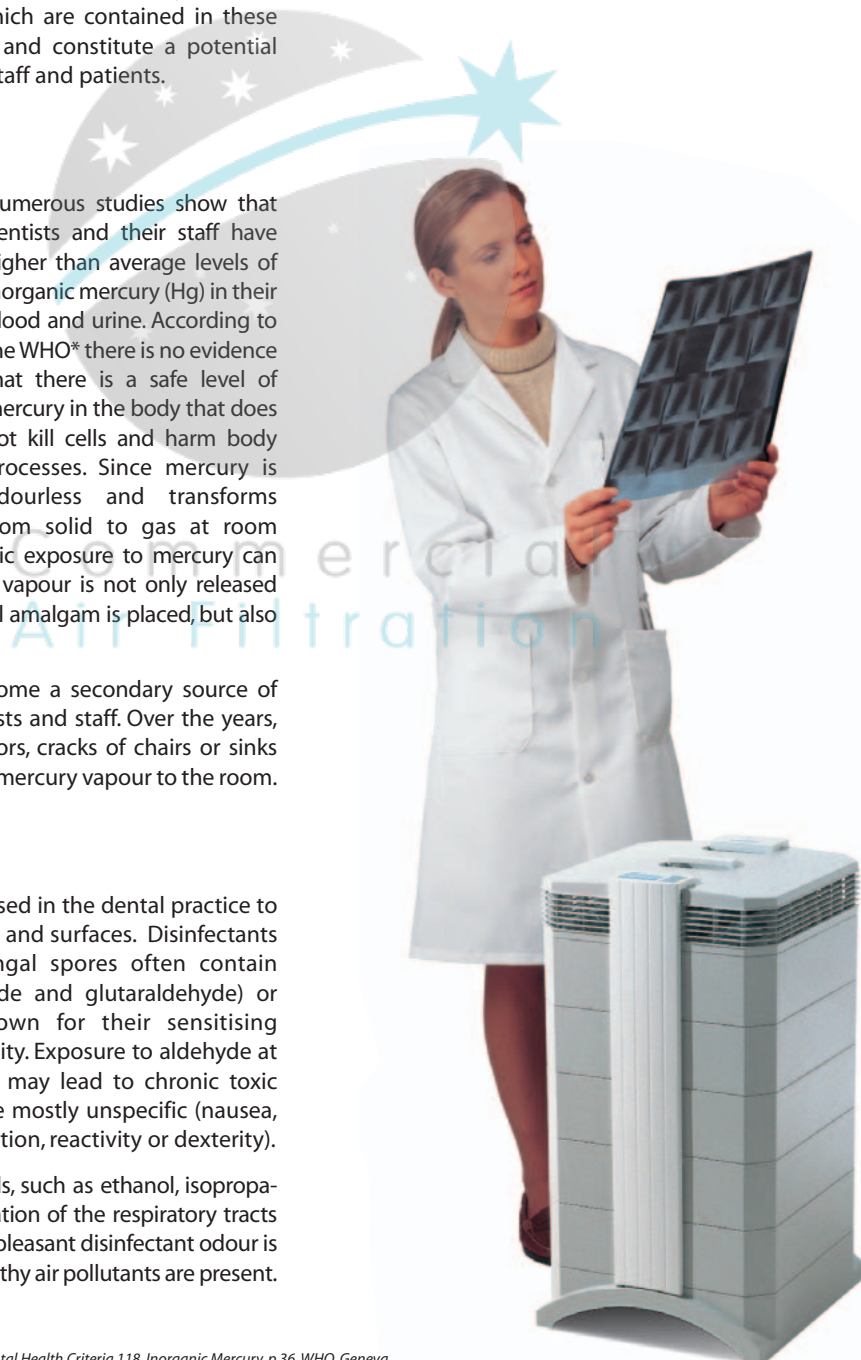
Even less toxic alcoholic compounds, such as ethanol, isopropanol, and n-propanol, can cause irritation of the respiratory tracts and the mucous membranes. An unpleasant disinfectant odour is often the only indication that unhealthy air pollutants are present.

### Latex Allergens

The use of protective latex gloves can cause allergic reactions due to body contact or inhalation of latex allergens. These allergens adhere to the talcum powder particles of the glove and can thus become airborne.

### X-Ray Development Chemicals

For the development of x-ray films several organic chemicals, such as glutaraldehyde, are being used. These chemicals give off gases that can contribute to the contamination of the ambient air in dental environments.



\* World Health Organization (WHO), 1991, Environmental Health Criteria 118, Inorganic Mercury, p.36, WHO, Geneva.

## IQAir® – The Source of Clean Air in Dental Environments

The IQAir® Dental Series has been specifically developed to deal with contaminants commonly found in dental environments. These high-efficiency air cleaning systems feature state-of-the-art filtration technologies which effectively remove harmful airborne contaminants and unpleasant odours. Two distinct IQAir® models are available: the IQAir® Dental Hg™ with FlexVac™ and the IQAir® Dental Pro™.



*IQAir® Dental Hg™ with FlexVac™  
Direct source-capture of drill aerosols and mercury vapour for peace of mind.*



*IQAir® Dental Pro™  
Ambient air filtration for gaseous and particulate pollutants in dental practices.*

The **IQAir® Dental Hg™ with FlexVac™** captures mercury vapour and drill aerosols right at the source. A flexible suction duct can be positioned close to the procedure area to remove harmful aerosols and vapours before they can be inhaled or disperse in the ambient air. The system's outstanding ability to reduce room levels of mercury has been documented in a research report by the renowned Institute of Hygiene at the University of Heidelberg, Germany.

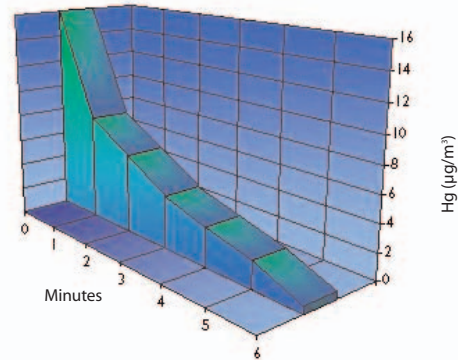
The **IQAir® Dental Pro™** is a multi-purpose air cleaning system that has been developed specifically to remove dental pollutants from ambient air by recirculation.

### This is how the air is filtered

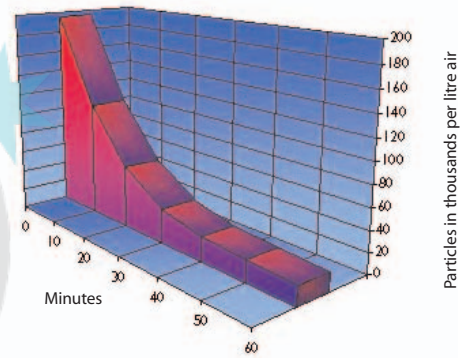
First, the polluted air is drawn in through a high-efficiency pre-filter where it is stripped of bacteria, viruses, allergens and larger aerosols.

Next, the air enters the four filter cartridges where a wide variety of gaseous contaminants are removed by several types of gas control media. These gas filter stages remove VOCs, mercury vapour, formaldehyde, glutaraldehyde, odours and many other gaseous and odourous contaminants.

The final filter stage consists of an electrostatically charged post-filter which traps even the smallest of particulate pollutants and microorganisms.



*Reduction of mercury vapour with IQAir® in a room of 34.5 m³ (1220 cu.ft.) at an air flow of 220 m³/h (130 cfm)*



*Reduction of particle concentrations with IQAir® in a room of 34.5 m³ (1220 cu.ft.) at an air flow of 220 m³/h (130 cfm)*

## Advanced Air Cleaning Technology

### 320° Air Outlet

- Returns low turbulence filtered air

### High-Performance Centrifugal Fan

- With an air handling capacity of 1200 m³/h (700 cfm)

### Air Intake

- Draws in polluted air from both sides



### Post-Filter Sleeves

- Electrostatically charged
- Provide final particle filtration

### Gas Phase Filter Cartridges

- IQAir® Dental Hg™ with FlexVac™ contains special mercury binding media
- IQAir® Dental Pro™ contains wide-spectrum media to help remove VOC's, mercury vapour, formaldehyde, glutaraldehyde and many other gaseous chemicals and odours

### High-Efficiency Pre-Filter

- HEPA-type 99% efficiency at 0.3 µm
- Holds back viruses, bacteria etc.

## Model Overview

### IQAir® Dental Hg™ with FlexVac™

This mobile source-capture system has a flexible, self-supporting suction arm. Positioned close to the patient's head, it is designed to remove:



- Mercury Vapour
- Drill Aerosols
- Bacteria
- Viruses
- Latex Allergens

### IQAir® Dental Pro™

This mobile recirculating air cleaning system has been specially developed to filter those gases and particulates found in the ambient air of dental environments, such as:



- VOCs
- Microorganisms
- Formaldehyde, Glutaraldehyde
- Disinfectant Vapours
- Mercury Vapour
- Odours
- Dust Particles

## IQAir® – The Choice of Hospitals, Laboratories & Controlled Areas



Hospital infection control units, laboratories and cleanroom facilities around the world rely on IQAir® to maintain their air quality requirements.

The advanced nature of the IQAir® product line is documented in numerous patents which have been granted or are pending in the United States, Europe and Asia. These patents cover the revolutionary modular housing design, filter design and the sophisticated control panel which allows the detailed programming of the IQAir® to suit individual requirements.

### IQAir® U.S. Patent



### The IQAir® Advanced Control Panel

Unique air cleaning power at your fingertips

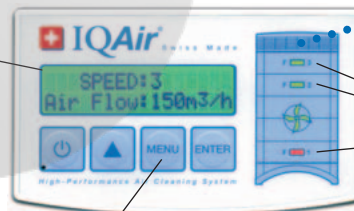


**Remote Control**  
for convenient operation

**Intelligent Filter Life Monitor**  
tracks the life of each separate filter to maximise performance and yield

**AUTOTIMER: ON**  
07:00 → 20:00

**Automatic Timer**  
allows hourly and daily programming



**Indicator LEDs**  
light up when it is time to replace individual filters

**Easy Scroll Menu**  
allows access to a range of menu options found on no other air cleaner

## Swiss Precision & Quality

Every IQAir® system is an example of Swiss precision-engineering, superior craftsmanship and the result of ongoing research and development. With a 40-year history, the



### The IQAir® Warranty

IQAir® systems are an investment in clean air for many years to come.

We are proud to cover the IQAir® Dental Series for 2 years against defects in parts and labour. Filters, as consumables, are exempt from this warranty.

manufacturers of IQAir® have the experience to build the best value-for-money air cleaning systems in the world, providing filtration solutions for even the most challenging indoor

Contact your IQAir® Authorised Dealer for more information:

**Commercial Air Filtration.**  
**UK Supplier for IQAir.**  
**Experts in Air Purification.**  
[www.CommercialAirFiltration.co.uk](http://www.CommercialAirFiltration.co.uk)

Visit [www.iqair.com](http://www.iqair.com)

The indoor air quality (IAQ) improvements that can be achieved with IQAir® systems depend not only on the system performance, but also on factors which are specific to that particular indoor environment, such as room size, type and concentration of contaminants and source intensity. Consult a qualified IAQ specialist to determine an effective and comprehensive IAQ strategy. Source control and ventilation should be considered first in solving any IAQ problem.

© 2003 IQAir® Group. All rights reserved. Technical specifications are subject to change without prior notice. IQAir® is a registered trademark of the IQAir® Group. Dental Pro™, Dental Hg™ and FlexVac™ are trademarks of the IQAir® Group. Covered by U.S. patent 6,001,145 and US 6,159,260. Other U.S., European and Asian patents pending.

