Breathe clean and healthy air

Air pollutants and its prevention, elimination and reduction

An optician remains more than 90 percent of the time indoors, mostly at the working place. The air inhaled here must be cleanly and healthy. Air is near water the most valuable element which we have on earth.

By the treatment of new, modern glass materials like High Index, Polycarbonat and TRIVEX appear incriminating odors and fine dust in optician workshops and sales rooms.

You can smell odors. They can represent a potential load for body and spirit. The olfactory sense warns person and animal, besides, about material dangers.

You cannot smell fine dust. You cannot taste it and dusts are not visible to the naked eye also. Fine dusts are tiny particles which not even reach the tenth of the diameter of a hair. Their effect is nevertheless big. The particles penetrate about the lung into the organism and can cause near breath way illnesses also illnesses of the heart-cycle system.

You can very simply protect yourself from smells and fine dusts.

Effective improvement of the air quality

The most effective way for the improvement of inside air is the elimination of the pollutant source. With a few expenditures this is possible today at the optician. The CNC edging machine is sucked off with the help of an air cleaning device which was developed completely specially on this task.

So the air pollutants can be intercepted directly in the source and will be eliminated. At the same time the air from the treatment space is sucked off about the waste water system or appropriate connections at the machine.

Therefore, the air loaded with smell cannot get at all into the room, with correct clarification the area remains virtually free of smell and dust.

There are appropriate connections today for all usual CNC edging machines, so that clean and healthy air is simple in nearly every eye-optical enterprise practicable at reasonable price.

Device technology for the air cleaning

The conditions existing with the optician put quite special demands in the device technology. There has to be removed special smell materials as well as fine dusts.

Air pollutants? And why air cleaning?

Examinations of the last 20 years prove that the air shows a higher concentration of air pollutants than the air at a crossing loaded with waste gas in closed rooms generally. Because we spend about 90 per cent of our time in interiors, the health load on our body can be substantial.

Which pollutants are from special importance for the optician?

Air pollutants accept many forms, however, there can be assigned two main groups: the particulate and those of the gaseous air pollutants. Those particle are air pollution which are

so light that they float in the air. Dust and fine dust are typical examples. Healthy questionable are, first of all, smaller particle which can penetrate deeply in the lung, as well as bigger particle which do not penetrate so deeply but can release allergies. Particle of less than 5 micrometers (0.005 mms) are mostly not registered by the endogenic defensive system and can deposit in the lung unrestricted.

Gaseous pollutants consist, first of all, of organic chemical compounds and combustion gases. Frequent sources of combustion gases are tobacco smoke and vehicle waste gases. Nearly all air loads which you can recognize by the smell belong to the group of the gaseous pollutants.

At the optician air pollutants appear by the treatment of the lenses in the edging machine.

If these were during earlier years, first of all, mineral and Cr39 glasses which were treated, today the interest of innovative materials like Polycarbonat, Trivex and, first of all, to HI synthetic materials increases strongly, to the use of the customers.

Caused by their chemical composition and the process guidance, now gases will be free during the edging process of these new materials which causes an intense "stench" and load the engines operator. Typically, for these gases is the high part of sulphur-organic connections like Thiophen derivatives and Disulfide.

Furthermore dust occur caused by the fine cutting, particularly due to the dry treatment of materials like PC and Trivex, but also if the coolant supply is not regulated optimally while edging Cr39 or HI materials. These dusts can be very fine and respirable.

Near artificially produced fine dusts and gases there are also many biological "air pollutants" which are to be found in our air.

Simple to install

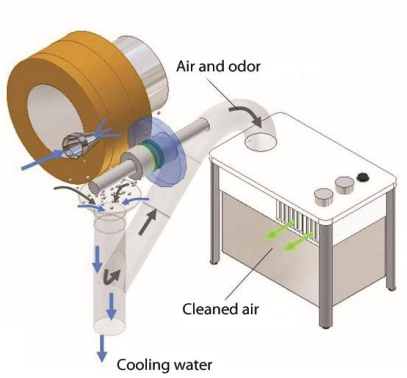
The ***AIRmini*** is compact and fits in (almost) every gap. It is simple to install. Connect - plug purely – finish.

Simple and effective - the ***AIRmini*** is connected directly to the CNC edging machine and sucks off the air from the edger about the waste water system with an appropriate connection. It prevents the direct emission of the contaminated air.

It works with a combined top performance filter system which is equipped with special high tech filter materials which remove almost 100% of the smells and the fine dusts.

First, fine and very fine dust is removed in several steps from the air and bound in fine dust filters. Then a filter removes the gaseous, strong-smelling particles.

Image: AIRmini frees the air in the optician's workshop of odors and fine dust



A simple operation of the device ensures easy handling and easy operation.

Economical operation

The costs of air cleaning are lower than you think. With an average volume of a grinding ophthalmic operation the expected costs are less than 2 cents per eyeglasses. Also available are attractive possibilities of financing for rent and leasing.

Impact on sales, health and well-being

Particularly important are pleasant odors in stores, because they have a great influence on our behavior. They arouse emotions (positive and negative) that are beyond our conscious control and influence the buying behavior of customers. Unpleasant odor should be avoided at all, because it is economically directly noticeable.

It is well known that different odor-producing substances, even at low concentrations can be toxic wrestle. Amazingly, it was designed by nature that the person perceives the most odor-producing pollutants at concentrations that cause no adverse health effects. The gases and odors arising during the processing of the lenses seem to be physiologically harmless. The need for this assessment studies (e.g. measurements in the workplace) must be within the scope of product safety laws of the glass manufacturers performed to reduce the risk of their products, so the lenses to exclude certain.

However, odors have furthermore impact. From scientific studies a number of reactions harassment within the meaning of psychological defense mechanisms are known:

• nausea / vomiting
• loss of appetite
• irritability / aggression

• depression
• headaches

• sleep disorders
• and much more

These negative reactions can be explained by linkage of the olfactory brain with autonomic centers. Whenever odors on the olfactory brain (the part of the brain, that "evaluate" the odor information) set "alarm signals", stress reactions in the body are caused, which may lead to consequences.

Specific groups of people (at risk) are particularly affected by odors. Well known are problems with asthmatics and allergics.

In summary it can be concluded that harassment reactions and spontaneous complaints, do not only depend on the extent and nature of the odors, but also very much on the individual person. For example, women often react to odors much more sensitive than men do.

In case of doubt only the person concerned is able to estimate how strong he is burdened by the smell.

The effect of dust on health depends on several factors:
• type of dust
• particle Size
• air concentration
• exposure time and dose

and the individual circumstances
• differences in the anatomy of the respiratory tract
• breathing patterns (nasal and mouth breathing)
• respiratory rate, severity of physical work (minute volume)

It is well known that dust can cause allergy, obstructive respiratory diseases and lung fibrosis. There are no studies on the effects of the grinding of lens materials resulting from particulate matter. In principle, there are again the regulations of product safety law. According to the current state of knowledge a physiological safety can be expected.