PLEXIGLAS®
THE ORIGINAL BY RÖHM

# PLEXIGLAS® Soundstop
## for Noise and Windbarriers


RÖHM

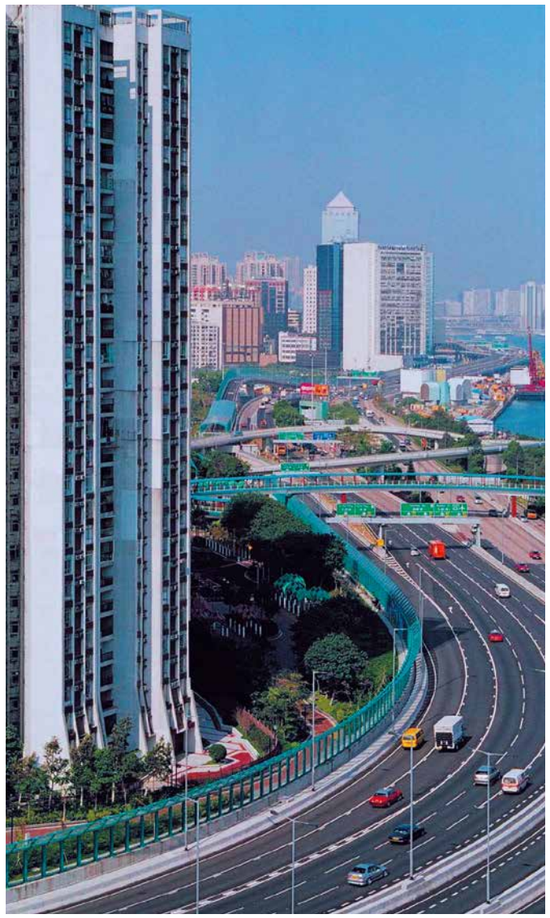
Noise is a complex phenomenon in our modern, mobile society.

# Noise and the Environment

**The growing noise level of rail and road traffic is detrimental to our health in the long term.**

Noise is the term we give to a sound we subjectively feel to be a nuisance. A good example is music, which may be “pleasant” or “obtrusive”, depending on the listener. On the other hand, noise is also a physical factor that can be precisely measured in the form of sound pressure, sound frequency and sound level.

The effects of noise on society and the physical burden imposed by noise have been the focus of numerous scientific studies in the recent past. Noise and its consequences are also the subject of a special report by the German experts’ council on environmental issues “Umwelt und Gesundheit” (Health and the Environment). Noise on our roads, for example, continues to rise and has long become one of the gravest problems in industrialized countries.



In densely populated industrialized countries, more people are affected by noise than by any other form of environmental pollution.

**Road traffic is clearly responsible for most noise in cities, before air and road traffic.**

An estimated 20% of the population in the European Union (some 80 million people) are exposed to daily traffic noise of more than 65 dB(A). The main source of noise is road traffic (approx. 70%), followed by air traffic (50%) and rail traffic (20%*).

According to a field study by HAINES et al (1998) on whether people become accustomed to traffic noise, our perception of noise remains the same at constant noise levels. The study gives no indication that the human ear gets used to noise.

If exposure to noise endures for a prolonged period, this is classified as negative stress that is often accompanied by physical reactions. One result of stress through noise are hormone reactions, including the release of adrenaline, noradrenaline and cortisone. These hormones act on the cardiovascular system, the metabolism, the blood fat level and blood pressure. A long-term increase in cortisone levels may lead to arteriosclerosis and higher cholesterol levels. Sleeping disorders may be one of the secondary results.

* Proportion of persons affected by noise among all those interviewed



Noise prevention and noise control have the highest priority.

**Noise barriers along heavily frequented traffic routes reduce the load on the environment without taking up too much space.**

The limiting value for the risk of heart attack due to noise is a level of 60 dB(A) during the day and 50 dB(A) at night, because this level provokes the release of higher quantities of stress hormones even while people sleep, and even if they are not wakened by the noise. At this noise level, the risk of heart attack goes up by 20%.

Noise is therefore a serious health risk to which we are exposed and to which we must react.

Despite a variety of steps, such as the noise limits for motor vehicles spelled out in EU Directive 2001/43/EG, the development of quieter tires and noise-reducing road surfaces, noise cannot be prevented completely.

Noise control along traffic routes is increasingly gaining in importance to control noise levels in the face of rising traffic volume.

**Functional and aesthetic noise control with PLEXIGLAS® Soundstop**

Earthberms and noise barriers of sufficient height are the number one noise control instrument. Since earthberms (usually landscaped) take up a lot of space, noise barriers are normally given preference in built-up areas. As the space between buildings and roads is becoming ever smaller, these barriers need to be attractive-looking as well as functional. Transparent sections in noise barriers help to avoid the tiring tunnel effect for drivers, and offer a better view without casting shadows on the road surface or neighbouring properties. Noise barriers made from PLEXIGLAS® Soundstop combine functionality and attractiveness with protection for residents. At the same time, they create a more interesting environment for road users, and successfully dispel the impression of driving through a tunnel.

When noise barriers are installed along bridges, the inherent weight of the structure, its resistance to bridge vibrations and lightweight architecture play an important role in addition to space saving. Here too, highly transparent PLEXIGLAS® Soundstop, which is much lighter than silicate glass, and above all, much more break-resistant, has proved increasingly suitable in recent years.

**United Nations Sustainable Development Goals: How PLEXIGLAS® supports sustainable action**

The United Nations' 2030 Agenda for Sustainable Development aims to shape global economic progress in a socially just manner and within the Earth's environmental limits. At the heart of this agenda are 17 Sustainable Development Goals (SDG). These goals are to be achieved by 2030 through the joint efforts of states, companies and civil society. We at Röhm GmbH are also contributing toward this necessary change – through both our PLEXIGLAS® products and our company's sustainability strategy.

Find out which SDGs are particularly relevant for us and how PLEXIGLAS® supports sustainable action at www.plexiglas.de/eco.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