



## KEEPING TRANSFORMER NOISE INSIDE, WHERE IT BELONGS

**Location:** Aspern, Hardegg/Vienna in Austria

**Product(s) used:** Tektalan A2-E-31

**Building:** Transformer stations

**Client:** Kaefer Isoliertechnik GmbH & IC consulenten Ziviltechniker GmbH

*"The Tektalan boards provided an exact fit to obtain highly efficient acoustic performance. Also the fact that the Tektalan panels provide thermal insulation and have an A2 fire classification made this the perfect all-around solution for our project."*

- Robert Frieden, Kaefer Isoliertechnik Project Manager

### Challenge:

Every electrical transformer produces an audible, low-frequency hum during normal operation. Consequently, transformers that are located in populated areas must be housed in enclosures designed to contain the noise and protect the surrounding neighbourhoods from exposure.

The city of Vienna employs thousands of electrical transformers, some of which have been in operation for decades. Most of these transformers belong to the Vienna U-Bahn underground railway, whose operators are aware of the potential noise problem that transformers can create and are committed to taking the measures necessary to contain the noise.

In one case, complaints from residents along the U2 underground line made it necessary to improve the acoustic insulation measures in the Aspern and Hardegg transformer station housings.

### Solution:



According to Manfred Zaiser of the Kaefer Technical Sound Insulation Department, the measures required to address transformer station noise depend on the severity of the problem. In some cases, for example, the transformer enclosure can be lined with material that possesses sound-absorbing characteristics in the low-frequency range. When doing so, it is especially important to address the door area, where the weight and sound absorbency of the lining material is critical - and sometimes it is also necessary to construct special wall claddings, which may not be comparable to those used in dry-lining construction.

In severe noise circumstances, the transformer station air intake and exhaust openings can be equipped with silencers that are matched to the most disturbing frequencies emitted by the transformers.





For the Aspern and Hardegg transformer stations, the Kaefer team developed a two-pronged approach based on expert reports, prompting Project Manager Robert Frieben to offer: "Thanks to the reports, we know exactly what needs to be done." And that approach involved the use of Heraklith Tektalan A2-E-31 insulation panels.

Between May and June 2011, Kaefer employees installed prefabricated intake and exhaust silencers on the stations and fitted the enclosure interiors with Tektalan A2-E-31 insulation panels which are highly efficient acoustic and thermal insulation panels that contain a non-flammable rock mineral wool core and a mineral-bonded Heraklith cover layer on both sides. They provide optimum heat and acoustic insulation performance and remain cool in case of fire (Euroclass A2). And because the visible surface of the panels is white (similar to RAL 9010), and the edges are beveled (edge version AK-01), they look great while doing their job.

Kaefer is especially proud of its sites currently under construction in Vienna, Portugal, and Dubai, where sound insulation housings are being built that meet the very highest acoustic requirements, including redundant ventilation systems for large transformers.



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