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Rainer Konersmann, Christiane Kühl, Jörg Ludwig

**On the risks of transporting liquid and gaseous fuels in pipelines**

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Because they are laid underground and because their job is to connect widely distant places, pipelines have some particular technical safety features. Chemical industry installations have fixed and instantly recognisable sites. Pipeline routes must be adapted to the constraints of infrastructure and topography, and environmental protection must be taken into account, as well as the possibility that the pipe system may be damaged by external influences. Even minor leakages can have considerable effects on watercourses and the soil, and in many cases, people are also injured.

Numerous incidents abroad have proved this. In the recent past, even Germany has not been spared from sudden damage to pipelines. However, not much notice was taken of these incidents, as the resulting damage was minor and there were no fatalities. With hindsight, when seeking the causes of the damage, it is often the case that the rupture of a pipeline is associated with certain recurring features. The scene of the damage is often located near traffic infrastructure. Pipelines must of necessity cross roads and railways or are laid in parallel to such lines of communication. As a result of vibrations caused by traffic, this proximity can lead to ruptures. Road or rail accidents can lead to stresses which pipelines are unable to withstand. But a pipeline failure can have many other causes which cannot be predicted with any certainty and which even show regional particularities. In the interests of safe transport and land planning, it would therefore be worthwhile to be able to evaluate at least the possible consequences in terms of damage that might result from a pipeline rupture. There are hardly any publications on pipeline accidents, at least in German speaking countries; most of what is available is in the form of reports by the fire services. However, these are not sufficient to provide an overview of the situation.

For this reason, the Federal Institute for Materials Research and Testing has evaluated many international reports of investigations and publications and summarised what they have to say about the risks inherent in pipeline failures, particularly the damage that results. This report is the outcome of this work.