



ingenieurberatung

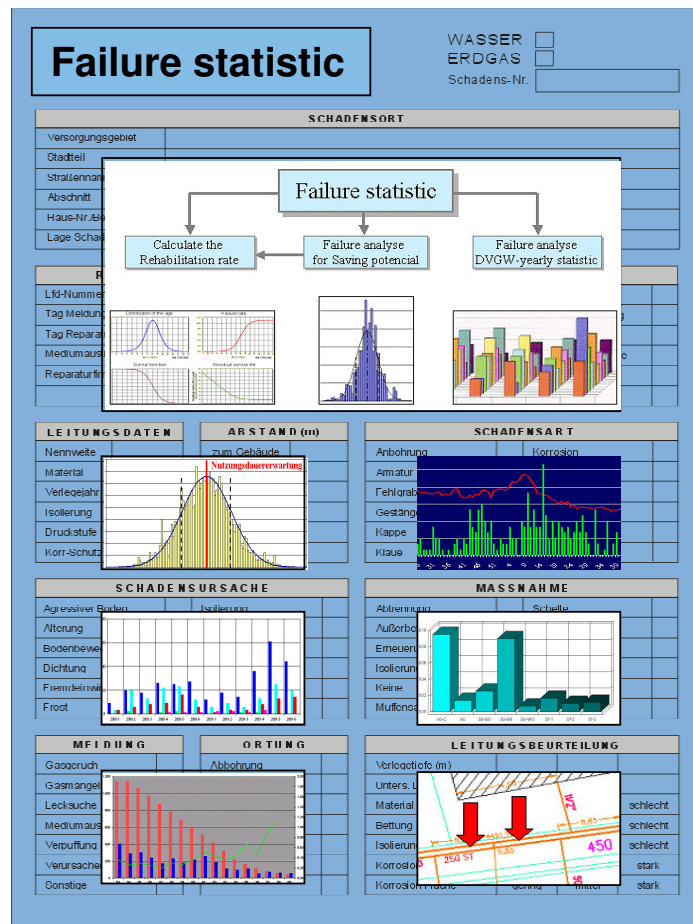
Ing. Max Hammerer

hammerer-system-messtechnik

Failure Statistics and Failure Analysis

computer aided

Failure recording – Data processing – Failure analysis

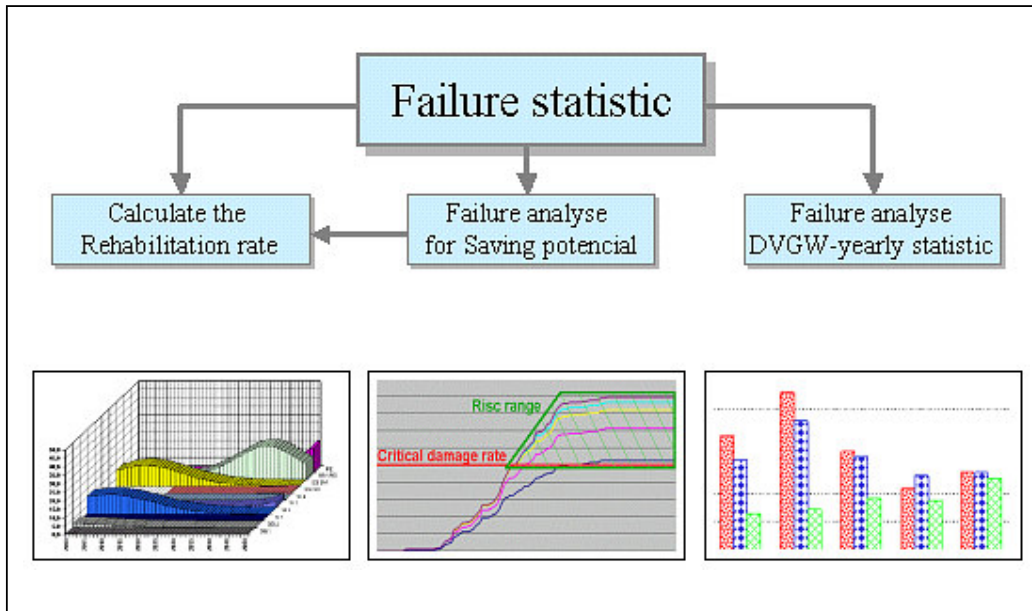


**Safety and Economy by
documented Failure Data Analysis**

Successful with PROF I
Programme for Pipe Network Organisation, Operation and Maintenance



Organization and implementation of failure statistics



The number of failures is a measurement of the network condition. The DVGW has compiled corresponding guidelines which incorporate the basis for gas network inspections and the analysis of failure locations. The DVGW asks its members for their failure data according to particular criteria every year to allow a nationwide analysis and comparison of the number, the development and the distribution of failures in the pipe networks. The documentation of failures and their according symptoms takes place in the course of repair activities, most on forms. From these form the data is stored electronically to allow further analysis in the future.

Data of failure statistics

The data in the failure statistics has to be clear, explicit and consistent to get appropriate results from the analysis. The aim of failure statistics are conclusions on the condition of the supply system to determine the inspection work and to ensure supply under economic and safety-relevant aspects by minimizing and detecting failures at an early stage. The number of failures is referred to the pipe length to estimate the failure dynamics expressed by failures per km and year. This allows an objective comparison with other material types. The failure data consists of master and repair data of the pipes.



Results of the failure statistics

- Conclusion on the condition of the pipe system
- Conclusion on the long-term development of failures
- Leakage reduction
- Determine inspection work
- Determine inspection intervals (gas supply)
- Conclusion on the avoidance of construction-based failures
- Basis of preventing actions to ensure safety
- Recommendation of appropriate pipe and fittings materials
- Basis for the development of rehabilitation strategies
- Optimization of maintenance management with respect to technical and economic aspects

The analysis of failures is done with tables, lists and pipe-specific in streets on the basis of a GIS data model in no. per km (failure dynamic). Selective analysis and evaluation is done with respect to asset types, material groups, installation year etc. In addition to the statistical analysis the failures are presented with their correct position in the GIS to evaluate concentration of failures in the network. Repaired failures are stored in an archive file. The current failure data file consists only of failures on still existing pipes. This archive management is done automatically within the GIS.

