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# Technical Rule – Standard **DVGW G 495 (A)** November 2015

**Gas Plants and Systems – Operation and Maintenance**

Gasanlagen – Betrieb und Instandhaltung

GAS

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ISSN 0176-3490

Price group: 5

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## Foreword

This standard has been elaborated by the “Gas Plants and Systems – Operation and Maintenance” project group of the Technical Committee on “Plant Engineering”. It serves as a basis for the operation and maintenance of gas plants and systems.

Maintenance is crucial for ensuring the availability and operational safety of gas plants and systems. The additional requirement to look at maintenance activities also from an economic point of view has initiated an ongoing optimisation process in this very field.

Since the introduction of condition-based maintenance with the publication in July 2006 of DVGW Standard 495, enterprises have been able to gain experience that proves the successful application of said maintenance strategy. Further deliberations and findings from operational experience have also contributed to it being firmly established by now.

Although condition-based maintenance continues to require better qualified staff and the long-term documentation of both the plant or system condition and the pertinent operating parameters, it offers the possibility to further exploit existing potentials for use without compromising the safety, reliability or availability of a plant or system.

The 2006 publication already directed the reader's attention towards the special requirements - which it describes in great detail [4] – ensuing from the introduction and application of condition-based maintenance. This publication of DVGW Standard G 495 at hand offers further guidance on its implementation in the field and discusses and widens the scope of application of condition-based maintenance in greater detail.

This standard therefore contributes considerably to ensuring a safe, reliable, efficient and environmentally compatible energy supply in the long run.

This Standard supersedes DVGW Standard G 495 of July 2006.

## Amendments

Compared to DVGW Standard G 495:2006-07, the following amendments were made:

- a) The title now addresses the operation of gas plants and systems.
- b) The chapter on operating requirements precedes the chapter on gas plant and system maintenance.
- c) Occupational safety and health requirements have been specified with reference to the applicable TRBS.

- d) The standard describes for the first time the preconditions a qualified person has to meet in order to carry out function tests on gas plants and systems on their own.
- e) The standard takes into account significant results obtained by the DVGW research project “Long-term Reliability of House Service Regulators” [1] and introduces in this context the sampling procedure as a key element for the condition-based maintenance of house service regulators, which is described in a new normative annex.
- f) The standard takes into account key findings from the DVGW research project “Obtaining Fundamental Information about the Implementation of CBM in Gas Plants and Systems” [2].
- g) The standard pays more attention to design features such as, for instance, redundant devices and bars installed with the intention to improve intrinsic safety and reduce failure probability.
- h) The standard takes into account device design improvement measures taken by the manufacturers.
- i) The monitoring process has been improved further, e.g. by analysing maintenance results using appropriate test and fault-finding methods.
- j) The evaluation process permits the clustering of plants and systems with similar operating conditions and equipment/components. An informative Annex explains the criteria that can be applied when clustering gas pressure regulating stations into maintenance units.
- k) The servicing intervals of safety devices can be adapted to those of the other system components if the necessary measures are taken.
- l) The clause on “Maintenance-related work” was restructured in order to differentiate between the maintenance of the actual gas plant or system and electrical and explosion protection tests.
- m) The monitoring requirements for heat transfer circuits [3] have been specified in greater detail.
- n) The maintenance requirements for lightning protection systems have been defined in accordance with DIN EN 62305.
- o) Integration of guidance on the operation of mobile gas pressure regulator and measuring stations and the use and maintenance of hoses.
- p) Editorial revision to bring the standard into harmony with the current set of rules (e. g. gaskets in flange connections).

#### **Earlier editions**

DVGW G 495:1963-02

DVGW G 495:1980-07

DVGW G 495:1994-11

DVGW G 495:2006-07