

Buy now on
shop.wvgw.de

Technical Standard

Standard W 270 | November 2007

**Microbial Enhancement on Materials to Come into
Contact with Drinking Water – Testing and Assess-
ment**

ISSN 0176-3504

Preisgruppe: 1

©DVGW, Bonn, November 2007

DVGW Deutsche Vereinigung des Gas- und Wasserfaches e.V.

Technisch-wissenschaftlicher Verein

Josef-Wirmer-Str.1-3

D-53123 Bonn

Telefon: +49 (0) 228 9188-5

Telefax: +49 (0) 228 9188-990

E-Mail: info@dvgw.de

Internet: www.dvgw.de

Nachdruck und fotomechanische Wiedergabe, auch auszugsweise, nur mit Genehmigung des
DVGW e.V., Bonn, gestattet.

Vertrieb: Wirtschafts- und Verlagsgesellschaft Gas und Wasser mbH, Josef-Wirmer-Str.3, 53123 Bonn

Telefon: +49 (0) 228 9191-40 · Telefax: +49 (0) 228 9191-499

E-Mail: info@wvgw.de · Internet: www.wvgw.de

Microbial Enhancement on Materials to Come into Contact with Drinking Water – Testing and Assessment

Content

Preface	5
0 Introduction	7
1 Scope	7
2 Normative References	7
3 Definitions	8
3.1 Site applied products	8
3.2 Biofilm.....	8
3.3 Negative Controls.....	8
3.4 Surface Colonisation	8
3.5 Surface Growth Biomass	8
3.6 Positive controls	8
3.7 Test Sample	8
3.8 Product	8
3.9 Test Piece.....	8
3.10 Test Water	8
3.11 Drinking Water	9
3.12 Factory made Product	9
3.13 Composite Materials.....	9
3.14 Material.....	9
4 Principle	9
5 Basic Requirements	9
5.1 General.....	9
5.2 Reference Materials	9
6 Apparatus and Reagents	10
6.1 Test Container and Test Module for Pipes and Hoses.....	10
6.2 Scraper	10
6.3 Centrifuge	10
6.4 Glassware for Centrifugation.....	10
6.5 Flowmeter	10

6.6	Reagents	11
6.6.1	Disinfectant	11
6.6.2	Test Water	11
6.6.3	Positive Control	11
6.6.4	Negative Control	11
7	Preparation and Pretreatment of Test Pieces	11
7.1	Test Pieces	11
7.2	Pretreatment of Test Pieces	11
7.3	Preparation of Test Container or Test Module for Pipes and Hoses.....	11
8	Test Procedure	12
8.1	General	12
8.2	Removal of Test Pieces	12
8.3	Examination of Test Pieces - Harvesting	12
8.4	Re-exposure after Harvesting	13
8.5	Centrifugation and Determination of Surface Growth Biomass	13
8.6	Examination of Surface Growth Biomass.....	13
8.7	Test Periods.....	13
9	Evaluation and Assessment	14
9.1	Evaluation of Satisfactory Test Performance	14
9.2	Assessment	15
9.2.1	General.....	15
9.2.2	Assessment (without Optional Monthly Data)	15
9.2.3	Assessment using the Optional Monthly Data.....	16
9.2.3.1	General.....	16
9.2.3.2	Joints and Gaskets of Larger Surface (D1).....	16
9.2.3.3	Joints and Gaskets of Smaller Surface (D2)	17
10	Test Report and Test Certificate	17
10.1	Details in the Test Report	17
10.2	Test Certificate.....	18
10.3	Period of Validity of Test Certificate	19
11	Requirements on Test Institutes	19
	Annex A (normativ): National Interrims Arrangement for DVGW W 270	20
	Annex B (informative):	21

Preface

This standard was revised by DVGW-Ad hoc Group "Microbial Enhancement on Materials" inside the Technical Committee "Water Quality". It describes testing of microbial enhancement on materials to come into contact with drinking water.

If materials from organic substances or containing organic substances are in contact with drinking water, organic substances of lower molecular weight may lead to the development of a surface biomass wherefrom bacteria can come into drinking water.

This standard was implemented firstly in 1984. Up till then, organic materials became tested and assessed only with regard to their hygienic and physiological properties versus drinking water. No decisions on microbiological behaviour were possible. This standard provides a test method concerning the microbiological testing of materials under real life conditions. The goal of this standard is to provide water utilities, companies and consumers with a choice of microbiologically assessed materials for the purpose contact with drinking water to ensure safety for the consumer in the distribution of drinking water.

The revision of this standard had three points of view to become improved with regard to version 11/99.

- a) To reduce the test duration of 6 months, hampering the development of new and better materials
- b) To improve the exactness of the procedure
- c) To reduce the limit of determination significantly under 0.1 ml/800 cm² which was up till now also the assessment limit.

Additional information concerning physical, chemical, technical and toxicological behaviour of the materials is not possible. Also the stability concerning contact with water, cleaning and disinfecting agents are not possible through this test method.

The DVGW-Standard W 270:1999-11 is replaced by the present standard.

Modifications

Compared to DVGW-Standard W 270:1999-11 following modifications were made:

- a) change of test periods
- b) change of determination of the volume of surface biomass
- c.) change of limit values

Former editions

DVGW W 270:1984-01

DVGW W 270 1990-12

DVGW W 270:1999-11