# DIN EN ISO 3990:2023-12 (E)

## Dentistry - Evaluation of antibacterial activity of dental restorative materials, luting materials, fissure sealants and orthodontic bonding or luting materials (ISO 3990:2023)

## Contents

Page


**European foreword**

**Foreword**

**Introduction**

**1 Scope**

**2 Normative references**

**3 Terms and definitions**

**4 Requirements**
- 4.1 General
- 4.2 Extract
- 4.3 Direct contact

**5 Sample preparation and control material preparation**
- 5.1 General
- 5.2 General requirements and recommendations for sample preparation
- 5.3 Specific requirements and recommendations for light-curing materials
- 5.4 Specific requirements and recommendations for chemically setting materials
- 5.5 Specific requirements and recommendations for CAD/CAM milled or subtractive manufactured materials
- 5.6 Sterility of samples
- 5.7 Preparation of liquid extracts of material
  - 5.7.1 Principles of extraction
  - 5.7.2 Extraction vehicle
  - 5.7.3 Extraction conditions
  - 5.7.4 Consecutive elution cycles
- 5.8 Preparation of materials for direct contact tests
  - 5.8.1 Form of samples
  - 5.8.2 Principles of direct contact tests

**6 Bacterial strains, nutrient broths and preparation of bacterial cultures**

**7 Test procedures**
- 7.1 General
- 7.2 Test on extracts
  - 7.2.1 Tests on extracts toward planktonic cultures of bacteria
  - 7.2.2 Test on extracts toward bacterial biofilms
- 7.3 Test by direct contact
  - 7.3.1 Test by direct contact toward planktonic cultures of bacteria
  - 7.3.2 Test by direct contact toward bacterial biofilms
- 7.4 Determination of antibacterial effects
  - 7.4.1 General
  - 7.4.2 Assessment of the reduction of the bacterial ability to replicate
  - 7.4.3 Assessment of bacterial membrane damage
  - 7.4.4 Assessment of the reduction in bacterial metabolic activity

**8 Assessment of results**

**9 Final test report**

**Annex A** (informative) **Bacterial strains and corresponding nutrient broths**

**Bibliography**