

DIN ISO 16000-3:2023-12 (E)

Indoor air - Part 3: Determination of formaldehyde and other carbonyl compounds in indoor and test chamber air - Active sampling method (ISO 16000-3:2022)

| Contents | | Page |
|---|---|-------------|
| National foreword..... | | 4 |
| National Annex NA (informative) Bibliography..... | | 5 |
| Foreword..... | | 8 |
| Introduction..... | | 9 |
| 1 | Scope | 10 |
| 2 | Normative references | 10 |
| 3 | Terms and definitions | 10 |
| 4 | Principle | 11 |
| 5 | Limitations and interferences | 11 |
| | 5.1 General..... | 11 |
| | 5.2 Ozone interference..... | 12 |
| 6 | Safety measures | 13 |
| 7 | Apparatus | 13 |
| | 7.1 Sampling..... | 13 |
| | 7.2 Sample preparation..... | 13 |
| | 7.3 Sample analysis..... | 15 |
| 8 | Reagents and materials | 16 |
| 9 | Preparation of reagents and cartridges | 16 |
| | 9.1 Purification of 2,4-dinitrophenylhydrazine..... | 16 |
| | 9.2 Preparation of DNPH formaldehyde derivative..... | 17 |
| | 9.3 Preparation of DNPH formaldehyde standards..... | 17 |
| | 9.4 Preparation of DNPH coated silica gel cartridges..... | 18 |
| | 9.4.1 General..... | 18 |
| | 9.4.2 DNPH coating solution..... | 18 |
| | 9.4.3 Coating of silica gel cartridges..... | 18 |
| 10 | Procedure | 19 |
| | 10.1 Sample collection..... | 19 |
| | 10.2 Process blanks..... | 21 |
| | 10.3 Sample analysis..... | 21 |
| | 10.3.1 Sample preparation..... | 21 |
| | 10.3.2 Sample desorption..... | 21 |
| | 10.3.3 HPLC calibration..... | 22 |
| | 10.3.4 HPLC analysis for formaldehyde..... | 24 |
| | 10.3.5 HPLC analysis of other aldehydes and ketones..... | 26 |
| 11 | Calculations | 28 |
| 12 | Performance criteria and quality assurance | 29 |
| | 12.1 General..... | 29 |
| | 12.2 Standard operating procedures (SOPs)..... | 29 |
| | 12.3 HPLC system performance..... | 30 |
| | 12.4 Sample loss..... | 30 |
| | 12.5 Measurement plan..... | 30 |

| | | |
|------------------------------|--|-----------|
| 13 | Precision and uncertainty | 30 |
| 14 | Test report | 31 |
| Annex A (informative) | Melting points of DNPH carbonyl derivatives | 32 |
| Annex B (informative) | Precision and uncertainty | 33 |
| Bibliography | | 35 |