

ISO/TS 12901-2:2026-02 (E)

Nanotechnologies - Occupational risk management applied to engineered nanomaterials - Part 2: Use of the control banding approach

Contents

Page

| | |
|---|----------|
| Foreword..... | v |
| Introduction..... | vi |
| 1 Scope..... | 1 |
| 2 Normative references..... | 1 |
| 3 Terms and definitions..... | 1 |
| 4 Symbols and abbreviated terms..... | 2 |
| 5 General framework for control banding..... | 2 |
| 5.1 General..... | 2 |
| 5.2 Information gathering and data recording..... | 3 |
| 5.3 Hazard banding..... | 3 |
| 5.4 Exposure banding..... | 4 |
| 5.5 Control banding..... | 4 |
| 5.5.1 Proactive implementation of control banding..... | 4 |
| 5.5.2 Retroactive implementation approach: evaluation of control banding and risk banding..... | 4 |
| 5.6 Review and data recording..... | 4 |
| 6 Information gathering..... | 5 |
| 6.1 Characterization..... | 5 |
| 6.1.1 General..... | 5 |
| 6.1.2 Information and identification..... | 5 |
| 6.1.3 Physicochemical properties and characterization..... | 5 |
| 6.1.4 Toxicological data..... | 6 |
| 6.2 Exposure characterization..... | 6 |
| 6.2.1 General exposure characterization elements..... | 6 |
| 6.2.2 Physical form..... | 7 |
| 6.2.3 Amount..... | 7 |
| 6.2.4 Potential for dust generation..... | 7 |
| 6.2.5 Quantitative exposure measurements..... | 7 |
| 6.3 Characterization of control measures..... | 7 |
| 6.3.1 General..... | 7 |
| 6.3.2 Reduction of emission..... | 7 |
| 6.3.3 Reduction of transmission..... | 8 |
| 6.3.4 Reduction of immission..... | 8 |
| 6.3.5 Workplace area and personal exposure monitoring data..... | 8 |
| 7 Control banding implementation..... | 8 |
| 7.1 Preliminary remarks..... | 8 |
| 7.2 Hazard band setting..... | 8 |
| 7.2.1 Hazard categorization of chemicals and general hazard banding process for bulk materials..... | 8 |
| 7.2.2 Allocation to a hazard band..... | 10 |
| 7.3 Exposure band setting..... | 13 |
| 7.3.1 Preliminary remarks..... | 13 |
| 7.3.2 Synthesis, production and manufacturing..... | 14 |
| 7.3.3 Material dispersed in a solid matrix..... | 15 |
| 7.3.4 Material in suspension in a liquid..... | 16 |
| 7.3.5 Material in powder form..... | 16 |

| | | |
|---------------------|---|-----------|
| 7.3.6 | Option for modifying the process to reduce exposure levels..... | 17 |
| 7.4 | Control band setting and control strategies..... | 17 |
| 7.5 | Evaluation of controls..... | 18 |
| 7.6 | Retroactive approach — Risk banding..... | 19 |
| 8 | Performance, review and continual improvement..... | 21 |
| 8.1 | General..... | 21 |
| 8.2 | Objectives and performance..... | 22 |
| 8.3 | Data recording..... | 22 |
| 8.4 | Management review..... | 22 |
| Annex A | (informative) Health hazard class according to GHS..... | 23 |
| Annex B | (informative) Nanomaterial risk assessment (NaRA)..... | 24 |
| Annex C | (informative) Modified occupational hazard band (OHB)..... | 26 |
| Bibliography | | 29 |