

# ISO 18938:2008-09 (E)

## Imaging materials - Optical discs - Care and handling for extended storage

---

| <b>Contents</b> |   | <b>Page</b> |
|-----------------|---|-------------|
| <b>1</b>        | <b>Scope .....</b>                            | <b>1</b>    |
| <b>2</b>        | <b>Normative references .....</b>             | <b>2</b>    |
| <b>3</b>        | <b>Terms and definitions .....</b>            | <b>2</b>    |
| <b>4</b>        | <b>Composition of optical discs .....</b>     | <b>6</b>    |
| 4.1             | General .....                                 | 6           |
| 4.2             | Polycarbonate substrate (plastic) layer ..... | 6           |
| 4.3             | Data layer .....                              | 6           |
| 4.4             | Reflective layer .....                        | 7           |
| 4.5             | Protective layers .....                       | 7           |
| 4.6             | Adhesive layers .....                         | 7           |
| 4.7             | Additional layers .....                       | 8           |
| <b>5</b>        | <b>Failure mechanisms .....</b>               | <b>8</b>    |
| 5.1             | General .....                                 | 8           |
| 5.2             | Physical stress .....                         | 8           |
| 5.3             | Layer sensitivity .....                       | 8           |
| 5.4             | Scratches .....                               | 9           |
| 5.5             | Effects of disc play .....                    | 9           |
| <b>6</b>        | <b>Handling techniques .....</b>              | <b>10</b>   |
| 6.1             | General .....                                 | 10          |
| 6.2             | Flexing .....                                 | 10          |
| 6.3             | Contamination .....                           | 10          |
| 6.4             | Disc enclosures .....                         | 10          |
| <b>7</b>        | <b>Identification .....</b>                   | <b>11</b>   |
| 7.1             | Basic concepts .....                          | 11          |
| 7.2             | Adhesive labels .....                         | 11          |
| 7.3             | Printing on optical discs .....               | 11          |
| 7.4             | Thermal printing .....                        | 11          |
| 7.5             | Inkjet printable surface .....                | 12          |
| 7.6             | Silk screening .....                          | 12          |
| 7.7             | Marking .....                                 | 12          |
| <b>8</b>        | <b>Contamination .....</b>                    | <b>12</b>   |
| 8.1             | Fingerprints, smudges, dirt, dust .....       | 12          |
| 8.2             | Moisture .....                                | 12          |
| 8.3             | Organic solvents .....                        | 12          |
| 8.4             | Gaseous impurities .....                      | 13          |
| 8.5             | Consumables .....                             | 13          |
| <b>9</b>        | <b>Use environment .....</b>                  | <b>13</b>   |
| 9.1             | General .....                                 | 13          |
| 9.2             | Temperature and humidity .....                | 13          |
| 9.3             | Water avoidance .....                         | 14          |
| 9.4             | Air quality .....                             | 14          |
| 9.5             | Light exposure .....                          | 14          |
| 9.6             | Acclimatization .....                         | 14          |
| 9.7             | Vibrations .....                              | 15          |

|  |   |    |
|--|---|----|
| 10   | Transportation and shipping .....             | 15 |
| 10.1                                       | Enclosures .....                              | 15 |
| 10.2                                       | Cartons .....                                 | 15 |
| 10.3                                       | Exposure .....                                | 16 |
| 10.4                                       | Security .....                                | 16 |
| 10.5                                       | External fields .....                         | 16 |
| 10.6                                       | Biological irradiation .....                  | 16 |
| 11   | Inspection .....                              | 16 |
| 11.1                                       | General requirements .....                    | 16 |
| 11.2                                       | Error rate monitoring .....                   | 17 |
| 12   | Cleaning and maintenance .....                | 17 |
| 12.1                                       | General .....                                 | 17 |
| 12.2                                       | Solvents and cleaning compounds .....         | 17 |
| 12.3                                       | Cleaning methods .....                        | 17 |
| 13   | Disasters .....                               | 18 |
| 13.1                                       | General .....                                 | 18 |
| 13.2                                       | Water .....                                   | 18 |
| 13.3                                       | Fire .....                                    | 18 |
| 13.4                                       | Dry debris .....                              | 18 |
| 13.5                                       | Impact from disasters .....                   | 19 |
| 13.6                                       | Repair .....                                  | 19 |
| 14   | Disaster response .....                       | 19 |
| 14.1                                       | General .....                                 | 19 |
| 14.2                                       | Wet discs .....                               | 19 |
| 14.3                                       | Dry discs .....                               | 19 |
| 15   | Staff training .....                          | 19 |
| 15.1                                       | General .....                                 | 19 |
| 15.2                                       | Purpose .....                                 | 20 |
| 15.3                                       | Training paths .....                          | 20 |
| 15.4                                       | Schedule for training .....                   | 20 |
| 15.5                                       | Update of training .....                      | 20 |
| 15.6                                       | Content of training .....                     | 20 |
| 16   | Minimum handling requirements checklist ..... | 21 |
| 16.1                                       | General .....                                 | 21 |
| 16.2                                       | Do list .....                                 | 21 |
| 16.3                                       | Not-to-do list .....                          | 21 |
| Annex A (informative) Disc structure ..... |   | 22 |
| Bibliography .....                         |   | 24 |