

# DIN EN 14879-2:2007-02 (E)

## Organic coating systems and linings for protection of industrial apparatus and plants against corrosion caused by aggressive media - Part 2: Coatings on metallic components

---

| <b>Contents</b> |  | <b>Page</b> |
|-----------------|--|-------------|
| Foreword .....  |  | 5           |
| <b>1</b>        | <b>Scope .....</b>                           | <b>6</b>    |
| <b>2</b>        | <b>Normative references .....</b>            | <b>6</b>    |
| <b>3</b>        | <b>Terms and definitions .....</b>           | <b>7</b>    |
| <b>4</b>        | <b>General .....</b>                         | <b>8</b>    |
| 4.1             | Selection criteria .....                     | 8           |
| 4.1.1           | General .....                                | 8           |
| 4.1.2           | Exposing media .....                         | 8           |
| 4.1.3           | Type and frequency of fluid loading .....    | 11          |
| 4.1.4           | Thermal loading .....                        | 11          |
| 4.1.5           | Changes in temperature .....                 | 11          |
| 4.1.6           | Mechanical loading .....                     | 12          |
| 4.1.7           | Climatic influences .....                    | 12          |
| 4.1.8           | Additional requirements .....                | 12          |
| 4.2             | Load profile .....                           | 12          |
| 4.3             | Requirements .....                           | 12          |
| 4.3.1           | Components .....                             | 12          |
| 4.3.2           | Coating materials .....                      | 12          |
| 4.3.3           | Coating system .....                         | 13          |
| 4.3.4           | Coated components .....                      | 14          |
| <b>5</b>        | <b>Coating systems .....</b>                 | <b>14</b>   |
| 5.1             | Laminate coating systems .....               | 14          |
| 5.1.1           | Coating system design .....                  | 14          |
| 5.1.2           | Description of layers .....                  | 15          |
| 5.1.3           | General requirements .....                   | 15          |
| 5.1.4           | Coating process .....                        | 17          |
| 5.1.5           | Requirements for the coating system .....    | 19          |
| 5.2             | Trowelled coating systems .....              | 20          |
| 5.2.1           | Coating system design .....                  | 20          |
| 5.2.2           | Description of layers .....                  | 21          |
| 5.2.3           | General requirements .....                   | 21          |
| 5.2.4           | Coating process .....                        | 22          |
| 5.2.5           | Requirements for the coating system .....    | 24          |
| 5.3             | Sprayed coating .....                        | 26          |
| 5.3.1           | Coating system design .....                  | 26          |
| 5.3.2           | Description of layers .....                  | 26          |
| 5.3.3           | General requirements .....                   | 27          |
| 5.3.4           | Application .....                            | 28          |
| 5.3.5           | Requirements for the coating system .....    | 29          |
| 5.4             | Powder coating .....                         | 31          |
| 5.4.1           | Coating system design .....                  | 31          |
| 5.4.2           | Description of layers .....                  | 32          |
| 5.4.3           | Component design and surface condition ..... | 33          |
| 5.4.4           | Coating materials .....                      | 33          |

|                       |  |    |
|-----------------------|--|----|
| 5.4.5                 | Ambient conditions .....   | 34 |
| 5.4.6                 | Surface preparation .....  | 34 |
| 5.4.7                 | Application .....  | 34 |
| 5.4.8                 | Requirements for the coating system .....                          | 34 |
| 5.5                   | Protection of existent coatings .....                              | 36 |
| 5.5.1                 | General .....  | 36 |
| 5.5.2                 | Packaging and handling .....                                       | 36 |
| 5.5.3                 | Storage .....  | 37 |
| 5.5.4                 | Assembly .....   | 37 |
| 5.5.5                 | Repair .....   | 37 |
| 6                     | Designation .....  | 38 |
| 6.1                   | Laminate coating .....   | 38 |
| 6.2                   | Trowelled coating .....  | 38 |
| 6.3                   | Sprayed coating .....  | 39 |
| 6.4                   | Powder coating .....   | 39 |
| 7                     | Testing .....  | 39 |
| 7.1                   | General .....  | 39 |
| 7.2                   | Suitability testing .....  | 39 |
| 7.3                   | Receiving inspection of coating material .....                     | 40 |
| 7.3.1                 | General .....  | 40 |
| 7.3.2                 | Container marking .....  | 40 |
| 7.3.3                 | Viscosity or flow time .....                                       | 40 |
| 7.3.4                 | Density .....  | 40 |
| 7.3.5                 | Colour .....   | 40 |
| 7.3.6                 | Non-volatile matter content .....                                  | 40 |
| 7.3.7                 | Gel time .....   | 40 |
| 7.3.8                 | Binders .....  | 40 |
| 7.4                   | Testing of coating systems during application .....                | 40 |
| 7.4.1                 | General .....  | 40 |
| 7.4.2                 | Suitability of component for coating .....                         | 40 |
| 7.4.3                 | Ambient conditions .....   | 41 |
| 7.4.4                 | Application method .....   | 41 |
| 7.4.5                 | Thickness of coating layers .....                                  | 41 |
| 7.5                   | Acceptance testing .....   | 41 |
| 7.5.1                 | General .....  | 41 |
| 7.5.2                 | Acceptance testing of coated component .....                       | 41 |
| 7.5.3                 | Acceptance testing of specimens .....                              | 41 |
| 7.6                   | Routine testing .....  | 42 |
| 7.7                   | Inspection report .....  | 42 |
| 8                     | Suitability verification and tests .....                           | 42 |
| 8.1                   | Requirements .....   | 42 |
| 8.1.1                 | General .....  | 42 |
| 8.1.2                 | Laboratory testing .....   | 43 |
| 8.1.3                 | In-service testing (field tests) .....                             | 45 |
| 8.1.4                 | Testing on reference objects .....                                 | 45 |
| 8.2                   | Tests .....  | 45 |
| 8.2.1                 | Sample bodies .....  | 45 |
| 8.2.2                 | Fluid load, resistance and tightness .....                         | 45 |
| 8.2.3                 | Thermal loading .....  | 47 |
| 8.2.4                 | Temperature change loading .....                                   | 47 |
| 8.2.5                 | Adhesion strength .....  | 47 |
| 8.2.6                 | Ageing behaviour .....   | 47 |
| 8.2.7                 | Dissipation capability .....                                       | 48 |
| Annex A (informative) | Specimen form .....  | 49 |
| Annex B (informative) | Information to be given by the coating material manufacturer ..... | 50 |
| Annex C (informative) | Information to be given by the coating manufacturer .....          | 51 |

|   |           |
|---|-----------|
| <b>Annex D (informative) Resistance of resins to various chemicals at ambient temperature .....</b>   | <b>52</b> |
| <b>Annex E (normative) Testing the dissipation capability .....</b>   | <b>53</b> |
| <b>E.1 General .....</b>  | <b>53</b> |
| <b>E.1.1 Dissipation resistance .....</b>   | <b>53</b> |
| <b>E.1.2 Ground dissipating resistance .....</b>  | <b>53</b> |
| <b>E.2 Testing the dissipation resistance of test samples .....</b>   | <b>53</b> |
| <b>E.2.1 Instruments .....</b>  | <b>53</b> |
| <b>E.2.2 Test procedure .....</b>   | <b>53</b> |
| <b>E.2.3 Test report .....</b>  | <b>53</b> |
| <b>E.3 Measuring the ground dissipation resistance on the laid surface protection system .....</b>  | <b>54</b> |
| <b>E.3.1 Instruments .....</b>  | <b>54</b> |
| <b>E.3.2 Preparation .....</b>  | <b>54</b> |
| <b>E.3.3 Test procedure .....</b>   | <b>54</b> |
| <b>E.3.4 Test report .....</b>  | <b>55</b> |
| <b>Annex F (normative) Test fluid groups for verification of suitability for material/media combinations .....</b>  | <b>56</b> |
| <b>Annex G (informative) Selection criteria for surface protection systems .....</b>  | <b>58</b> |
| <b>G.1 Load profiles and suitable protection for gutters, trenches, pipes etc .....</b>   | <b>58</b> |
| <b>G.2 Load profiles and suitable protection for containers .....</b>   | <b>59</b> |
| <b>Annex H (informative) Sample form for acceptance inspection report .....</b>   | <b>60</b> |
| <b>A-Deviation: National deviation due to regulations, the alteration of which is for the time being outside the competence of the CEN/CENELEC member .....</b> | <b>61</b> |
| <b>Bibliography .....</b>   | <b>62</b> |