

DIN EN 16299:2013-06 (E)

Cathodic protection of external surfaces of above ground storage tank bases in contact with soil or foundations

Contents		Page
Foreword		4
Introduction		5
1	Scope	6
2	Normative references	6
3	Terms and definitions	7
4	Abbreviations and symbols	8
5	Competence of personnel	8
6	Corrosion risks and their prevention by cathodic protection	9
6.1	General	9
6.2	Corrosion risks of external surfaces of above ground storage tank bottoms in contact with soil or foundations	9
7	Pre-requisites for the application of cathodic protection	12
7.1	General	12
7.2	New tanks	12
7.3	Existing tanks	15
7.4	Tank design and feasibility of cathodic protection	17
8	Criteria for cathodic protection and measurement techniques	18
8.1	General	18
8.2	Criteria	18
8.3	Alternative criteria and methods	19
9	Design of cathodic protection systems	20
9.1	General	20
9.2	Structure details and data	21
9.3	Environment	22
9.4	Electrical isolation	22
9.5	Current requirements	23
9.6	Cathodic protection systems and anode configuration	23
9.7	Cable connections to the tank	23
9.8	Reference electrodes, coupons and test stations	24
9.9	Explosion hazard prevention	25
9.10	Galvanic anode systems	26
9.11	Impressed current systems	26
9.12	Cables	27
9.13	Interference	28
10	Installation of cathodic protection systems	28
10.1	General	28
10.2	Installation of cables	29
10.3	Isolating joints	30
10.4	Anodes	30
10.5	Impressed current stations	31

10.6	Test stations, measuring points, permanent reference electrodes, and coupons	31
10.7	Bonding	32
10.8	Labelling	32
10.9	Installation checks	32
10.10	As-built documentation	33
11	Commissioning	33
11.1	General	33
11.2	Preliminary checking	33
11.3	Start-up	34
11.4	Verification of the cathodic protection effectiveness	35
11.5	Determination of relevant measuring points	35
11.6	Commissioning documents	35
12	Inspection and maintenance	35
12.1	General	35
12.2	Inspection	35
12.3	Maintenance	37
	Annex A (informative) Groundbed data	39
A.1	General considerations	39
A.2	Types of ground beds	39
A.3	Anodes types	40
	Bibliography	42