

ISO 27919-2:2021-10 (E)

Carbon dioxide capture - Part 2: Evaluation procedure to assure and maintain stable performance of post-combustion CO₂ capture plant integrated with a power plant

Contents		Page
Foreword		v
Introduction		vi
1	Scope	1
2	Normative references	1
3	Terms, definitions, abbreviated terms and symbols	1
3.1	Terms and definitions	1
3.2	Abbreviated terms	6
3.3	Symbols	7
4	Principles	8
4.1	General	8
4.2	Reliable performance	9
4.3	Ensuring and maintaining reliable performance	9
4.4	Procedure outline	9
4.4.1	Outline of procedure flow	9
4.4.2	Process step 1 to 3 outline -- Main part	10
4.4.3	Process step 4 to 6 outline -- Evaluations of items peculiar to a PCC plant with some uncertainty	11
4.5	Governing principles	11
5	Availability, reliability and maintainability - basic concepts for a PCC plant	12
5.1	General	12
5.2	Spatial and temporal evaluation boundary	13
5.3	Evaluation and quantification of availability	13
5.4	Evaluation and quantification of reliability	14
5.5	Evaluation and quantification of maintainability	17
5.6	Combined aspect of availability, reliability and maintainability	17
5.7	Unavailability (three categories)	18
6	Defining reliability, availability and maintainability in the basic design phase	18
6.1	General	18
6.2	PCC plant description	19
6.3	Basic design phase	19
7	Determining reliability and availability in the operational phase	20
7.1	General	20
7.2	Review of operation result	20
7.3	Basic load pattern for evaluation and reporting of operation	20
7.4	Normal operation (transient and steady)	22
7.5	Start-up and shut-down	23
7.6	Emergency operations	23
7.7	Downtime	24
7.8	Plant operator organization and training	24
8	Implications for maintenance	24
8.1	General	24
8.2	Maintainability and downtime	25

8.3	Maintenance strategies	25
9	KPIs of availability for reporting	26
9.1	General	26
9.2	PCC plant capacity availability and product CO ₂ producibility	27
9.3	Schedule compliance	29
9.4	Time availability	30
9.5	On-stream factor	31
Annex A (informative)	Detailed evaluation procedure to assure and maintain stable performance of a post-combustion CO ₂ capture plant	33
Annex B (informative)	The reference plant and its component experience	41
Annex C (informative)	Technology Qualification	47
Annex D (informative)	Classification of influences for PCC plant capacity availability and Product CO ₂ producibility in Clause 9	48
Annex E (informative)	PCC plant achievability	49
Annex F (informative)	Calculation example of each KPI	51
Annex G (informative)	Map of key issues and items to be checked relating the performance requirement ..	56
Bibliography	60