

ISO 14224:2016-09 (E)

Petroleum, petrochemical and natural gas industries - Collection and exchange of reliability and maintenance data for equipment

Contents		Page
Foreword		v
Introduction		vi
1	Scope	1
2	Normative references	2
3	Terms and definitions	2
4	Abbreviated terms	18
5	Application	20
5.1	Equipment coverage	20
5.2	Time periods	20
5.3	Users of this International Standard	20
5.4	Limitations	21
5.5	Exchange of RM data	22
6	Benefit of RM data collection and exchange	23
7	Quality of data	25
7.1	Obtaining quality data	25
7.1.1	Definition of data quality	25
7.1.2	Planning measures	25
7.1.3	Verification of quality	26
7.1.4	Limitations and problems	27
7.2	Data collection process	27
7.2.1	Data sources	27
7.2.2	Data collection methods	28
7.2.3	Organization and training	28
8	Equipment boundary, taxonomy and time definitions	29
8.1	Boundary description	29
8.2	Taxonomy	30
8.3	Timeline issues	32
8.3.1	Surveillance and operating period	32
8.3.2	Data collection periods	33
8.3.3	Maintenance times	34
9	Recommended data for equipment, failures and maintenance	35
9.1	Data categories	35
9.2	Data format	35
9.3	Database structure	36
9.3.1	Description	36
9.3.2	Logical structure	36
9.3.3	Database architecture	37
9.4	Equipment data	38
9.5	Failure data	40
9.6	Maintenance data	42
9.6.1	General	42

9.6.2	Maintenance categories	42
9.6.3	Reporting maintenance data	43
Annex A (informative)	Equipment-class attributes	46
Annex B (normative)	Interpretation and notation of failure and maintenance parameters	176
Annex C (informative)	Guide to interpretation and calculation of derived reliability and maintenance parameters	205
Annex D (informative)	Typical requirements for data	229
Annex E (informative)	Key performance indicators (KPIs) and benchmarking	238
Annex F (informative)	Classification and definition of safety critical failures	251
Bibliography		260