

ISO 5165:2017-12 (E)

Petroleum products - Determination of the ignition quality of diesel fuels - Cetane engine method

Contents		Page
Foreword		v
1	Scope	1
2	Normative references	1
3	Terms and definitions	1
4	Principle	3
5	Reagents and reference materials	3
6	Apparatus	4
7	Sampling and sample preparation	8
8	Basic engine and instrument settings and standard operating conditions	8
8.1	Installation of engine equipment and instrumentation	8
8.2	Engine speed	8
8.3	Valve timing	9
8.4	Valve lift	9
8.5	Fuel pump timing	9
8.6	Fuel pump inlet pressure	9
8.7	Direction of engine rotation	9
8.8	Injection timing	9
8.9	Injector nozzle opening pressure	9
8.10	Injection flow rate	9
8.11	Injector coolant passage temperature	9
8.12	Valve clearances	9
8.13	Oil pressure	10
8.14	Oil temperature	10
8.15	Cylinder jacket coolant temperature	10
8.16	Intake air temperature	10
8.17	Basic ignition delay	10
8.18	Cylinder jacket coolant level	10
8.19	Engine-crankcase lubricating oil level	10
8.20	Crankcase internal pressure	10
8.21	Exhaust back-pressure	10
8.22	Exhaust and crankcase breather system resonance	10
8.23	Piston over-travel	11
8.24	Belt tension	11
8.25	Injector opening or release pressure	11
8.26	Injector spray pattern	11
8.27	Indexing handwheel reading	11
8.27.1	General	11
8.27.2	Basic setting of variable compression plug	11
8.27.3	Setting handwheel micrometer drum and scale	11
8.27.4	Setting handwheel reading	12
8.28	Basic compression pressure	12
8.29	Fuel pump lubricating oil level	12
8.30	Fuel pump timing gear-box oil level	13

8.31	Setting instrumentation reference pickups	13
8.32	Setting injector pickup gap	13
9	Engine qualification	13
9.1	Engine conformity	13
9.2	Checking performance on check fuels	13
9.3	Check in the case of nonconformity	14
10	Procedure	14
10.1	General	14
10.2	Sample introduction	14
10.3	Fuel flow rate	14
10.4	Fuel injection timing	14
10.5	Ignition delay	14
10.6	Equilibration	15
10.7	Handwheel reading	15
10.8	Reference fuel no. 1	15
10.9	Reference fuel no. 2	15
10.10	Number of blends of reference fuels	16
10.11	Repeat readings	16
11	Calculation	17
12	Expression of results	18
13	Precision	18
13.1	General	18
13.2	Repeatability, r	18
13.3	Reproducibility, R	18
13.4	Precision basis	19
14	Test report	19
	Bibliography	20