

DIN EN ISO 5164:2014-10 (E)

Petroleum products - Determination of knock characteristics of motor fuels - Research method (ISO 5164:2014)

Contents		Page
Foreword		4
Introduction		5
1	Scope	6
2	Normative references	6
3	Terms and definitions	6
4	Principle	8
5	Reagents and reference materials	8
6	Apparatus	10
7	Sampling and sample preparation	11
8	Basic engine and instrument settings and standard operating conditions	11
8.1	Installation of engine equipment and instrumentation	11
8.2	Engine speed 6 8.3 Valve timing	12
8.4	Valve lift	12
8.5	Intake valve shroud	12
8.6	Carburettor venturi	12
8.7	Direction of engine rotation	12
8.8	Valve clearances	12
8.9	Oil pressure	12
8.10	Oil temperature	13
8.11	Cylinder jacket coolant temperature	13
8.12	Intake air temperature	13
8.13	Intake air humidity	13
8.14	Cylinder jacket coolant level	13
8.15	Engine crankcase lubricating oil level	14
8.16	Crankcase internal pressure	14
8.17	Exhaust back-pressure	14
8.18	Exhaust and crankcase breather system resonance	14
8.19	Belt tension	14
8.20	Rocker arm carrier support basic setting	14
8.21	Rocker arm carrier basic setting	14
8.22	Rocker arm and push rod length basic settings	14
8.23	Basic spark setting	15
8.24	Basic ignition timer control arm setting	15
8.25	Basic ignition timer transducer to rotor vane gap setting	15
8.26	Spark-plug gap	15
8.27	Basic cylinder height setting	15
8.28	Fuel-air ratio	16
8.29	Carburettor cooling	17
8.30	Knockmeter reading limits	17
8.31	Detonation meter spread and time constant settings	17
9	Engine calibration and qualification	17

9.1	General	17
9.2	Engine fit-for-use qualification	17
9.3	Fit-for-use procedure in the 87,1 RON to 100,0 RON range	18
9.4	Fit-for-use procedure below 87,1 RON and above 100,0 RON	19
9.5	Checking performance on check fuels	19
10	Procedure	20
10.1	General	20
10.2	Start-up	20
10.3	Calibration	20
10.4	Sample fuel	21
10.5	Primary reference fuel No. 1	21
10.6	Primary reference fuel No. 2	22
10.7	Additional measurement readings	22
10.8	Special instructions for ratings above 100,0 RON	22
11	Calculation	23
12	Expression of results	23
13	Precision	24
13.1	General	24
13.2	Repeatability, r	24
13.3	Reproducibility, R	24
13.4	Precision for ratings at barometric pressures below 94,6 kPa	24
13.5	Precision for fuels containing 15% to 25% (V/V) ethanol	25
14	Test report	25
Annex A (informative) Test variable characteristics		26
Bibliography		29