

# DIN EN ISO 20130:2021-02 (E)

## Soil quality - Measurement of enzyme activity patterns in soil samples using colorimetric substrates in micro-well plates (ISO 20130:2018)

---

<b>Contents</b>		<b>Page</b>
European foreword .....		3
Foreword .....		4
Introduction .....		5
1	Scope .....	6
2	Normative references .....	6
3	Terms and definitions, symbols and abbreviated terms .....	6
3.1	Terms and definitions .....	6
3.2	Symbols and abbreviated terms .....	6
4	Principle .....	7
5	Reactives .....	7
5.1	Buffers and reagents .....	7
5.2	Substrates and standards .....	10
5.2.1	Preparation of standard solutions .....	10
5.2.2	Preparation of substrate solutions .....	10
6	Apparatus and materials .....	12
7	Procedure .....	13
7.1	Establishment of calibration curves .....	13
7.1.1	General .....	13
7.1.2	Solution of PNP .....	13
7.1.3	Solution of -naphthylamine .....	13
7.1.4	Solution of ammonium chloride .....	13
7.2	Sampling .....	14
7.2.1	Sample preparation .....	14
7.2.2	Addition of substrate .....	15
7.2.3	Absorbance measurements .....	16
7.2.4	Measurements of urease activities .....	17
8	Calculation of results .....	17
9	Expression of results .....	17
10	Validity criteria .....	17
11	Interlaboratory validation .....	18
12	Test report .....	18
Annex A (informative)	Validation of the method and intralaboratory tests for evaluating soil enzymatic activities with colorimetric method .....	19
Annex B (informative)	International ring test for evaluating soil enzymatic activities with colorimetric method .....	24
Bibliography .....		33