

# ISO 15009:2016-02 (E)

## Soil quality - Gas chromatographic determination of the content of volatile aromatic hydrocarbons, naphthalene and volatile halogenated hydrocarbons - Purge-and-trap method with thermal desorption

---

<b>Contents</b>		<b>Page</b>
Foreword .....		iv
<b>1</b>	<b>Scope .....</b>	<b>1</b>
<b>2</b>	<b>Normative references .....</b>	<b>1</b>
<b>3</b>	<b>Principle .....</b>	<b>2</b>
<b>4</b>	<b>Reagents .....</b>	<b>2</b>
4.1	Water, free of volatile aromatic and volatile halogenated hydrocarbons .....	2
4.2	Internal standards .....	2
4.3	Standard compounds .....	3
4.3.1	Volatile aromatic hydrocarbons .....	3
4.3.2	Volatile halogenated hydrocarbons .....	3
4.4	Methanol .....	4
4.5	Adsorbing agent .....	4
4.6	Cooling water for purge and trap .....	4
4.7	Inert gas for the gas chromatograph .....	5
4.8	Nitrogen or helium as inert gas for the purge equipment .....	5
4.9	Standard solutions .....	5
4.9.1	Standard stock solutions for volatile aromatic and halogenated compounds in methanol, 4 g/l .....	5
4.9.2	Internal standard solutions in methanol, 4 g/l .....	5
4.9.3	Calibration solutions .....	5
4.10	Methanol containing internal standards .....	6
<b>5</b>	<b>Apparatus .....</b>	<b>6</b>
<b>6</b>	<b>Sampling, preservation and sample pretreatment .....</b>	<b>7</b>
6.1	General .....	7
6.2	Sampling using vials pre-filled with methanol .....	8
6.3	Sampling using coring tube method .....	8
<b>7</b>	<b>Procedure .....</b>	<b>8</b>
7.1	Blank determination .....	8
7.2	Extraction .....	9
7.3	Purge and trap .....	9
7.4	Gas chromatographic analysis .....	9
7.4.1	Gas chromatographic conditions .....	9
7.4.2	Calibration .....	10
7.4.3	Measurement .....	11
<b>8</b>	<b>Calculation .....</b>	<b>12</b>
8.1	Calculation of the concentration of a volatile compound in the water sample .....	12
8.2	Calculation of the concentration of a volatile compound in the soil sample .....	12
<b>9</b>	<b>Expression of results .....</b>	<b>13</b>
<b>10</b>	<b>Precision .....</b>	<b>13</b>

11	Test report .....	13
Annex A (informative)	Relative retention time with respect to ethylbenzene-D10 of volatile aromatic hydrocarbons and volatile halogenated hydrocarbons on following columns: CP-Sil 5 CB and CP-Sil 13 CB .....	14
Annex B (normative)	Check on internal standards .....	16
Annex C (informative)	Validation .....	17
Annex D (informative)	Information on purge and trap instruments .....	20