

# DIN EN ISO 23470:2018-12 (E)

## Soil quality - Determination of effective cation exchange capacity (CEC) and exchangeable cations using a hexamminecobalttrichloride solution (ISO 23470:2018)

Contents	Page
European foreword.....	3
Foreword.....	4
Introduction.....	5
<b>1 Scope</b> .....	<b>6</b>
<b>2 Normative references</b> .....	<b>6</b>
<b>3 Terms and definitions</b> .....	<b>6</b>
<b>4 Principle</b> .....	<b>6</b>
<b>5 Reagents</b> .....	<b>7</b>
<b>6 Apparatus</b> .....	<b>8</b>
<b>7 Procedure</b> .....	<b>9</b>
7.1 Test portion.....	9
7.2 Exchange reaction.....	9
7.3 Determination of CEC.....	9
7.3.1 General.....	9
7.3.2 Determination of ammonia nitrogen by distillation.....	9
7.3.3 Spectrophotometric determination.....	10
7.3.4 Spectrometric determination of cobalt.....	12
7.4 Determination of cobalt and exchangeable cations.....	12
7.4.1 General.....	12
7.4.2 Standard solutions for exchangeable cations.....	13
7.4.3 Standard solutions for cobalt.....	13
7.4.4 Spectrometric determination of exchangeable cations.....	14
7.4.5 Spectrometric determination of cobalt.....	14
7.4.6 Calculation of exchangeable cations.....	14
<b>8 Test report</b> .....	<b>15</b>
<b>9 Validation</b> .....	<b>15</b>
<b>Annex A (informative) Comparison of different methods for the determination of effective CEC</b> .....	<b>16</b>
<b>Annex B (informative) Results of the interlaboratory comparison for extraction with hexamminecobalt(III)chloride</b> .....	<b>20</b>
<b>Annex C (informative) Results of the interlaboratory comparison for extraction with calcite saturated hexamminecobalt(III)chloride solution</b> .....	<b>22</b>
<b>Annex D (informative) Carbonate and sulfate field model</b> .....	<b>23</b>
<b>Annex E (informative) Effect of minimization of Ca errors by calcite saturation of hexamminecobalt</b> .....	<b>25</b>
<b>Bibliography</b> .....	<b>27</b>