COMPONENTS:
1. Cobalt tellurite; CoTeO₃; [15851-44-2]
2. Sulfuric acid; H₂SO₄; [7664-93-9]
3. Water; H₂O; [7732-18-5]

ORIGINAL MEASUREMENTS:
Ganelina, E.Sh.
*J. Appl. Chem. USSR (Eng. Transl.) 1967, 
40, 983-7.

VARIABLES:
One temperature, probably 298 K
pH varied.

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>pH</th>
<th>[Co²⁺] x 10³ mol dm⁻³</th>
<th>αₐ(H)</th>
<th>Kₛₒ x 10⁵ mol² dm⁻⁶</th>
<th>αₐ(H)</th>
<th>Kₛₒ x 10⁷ mol² dm⁻⁶</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.4</td>
<td>25.0</td>
<td>22.7</td>
<td>2.8</td>
<td>2138</td>
<td>2.92</td>
</tr>
<tr>
<td>6.75</td>
<td>22.6</td>
<td>10.7</td>
<td>4.8</td>
<td>785</td>
<td>6.51</td>
</tr>
<tr>
<td>6.35</td>
<td>18.8</td>
<td>25.6</td>
<td>1.3</td>
<td>2490</td>
<td>1.42</td>
</tr>
<tr>
<td>7.0</td>
<td>8.0</td>
<td>6.9</td>
<td>0.92</td>
<td>408</td>
<td>1.57</td>
</tr>
</tbody>
</table>

Mean = 1.95 x 10⁻⁵
Mean = 3.1 x 10⁻⁷
pKₛₒ = 6.51

The results calculated by the author by using acid dissociation constants said to be from (1) are given, along with values calculated by the compiler using constants from (2), which should be more reliable.

Note: [Te₅₋] = [Co₂⁺] and [TeO₃²⁻] = [Te₅₋]/αₐ(H)

The author does not give the temperature at which the investigations were done. The work on barium and lead tellurites was done at 25°C, and this work was probably done at this temperature also.

AUXILIARY INFORMATION

METHOD APPARATUS/PROCEDURE:
Cobalt tellurite was stirred with sulfuric acid solutions of various concentrations until equilibrium was established. The solution pH was measured by means of an LPU-01 instrument with a glass electrode. Cobalt in the filtrate was determined colorimetrically as the nitroso-R salt complex.

SOURCE AND PURITY OF MATERIALS:
Cobalt tellurite was prepared by the exchange reaction between sodium tellurite and a cobalt salt. The precipitate was dried over H₂SO₄ and analysed for cobalt, tellurium, and water of crystallization.

ESTIMATED ERROR:
Error in Kₛₒ (2s) = 4.8 x 10⁻⁷

REFERENCES:
1976 38, 545-8.