COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Lead tellurite; $PbTeO_3$; [15851-47-5] 2. Nitric acid; HNO_3; [7697-37-2] 3. Sodium nitrate; $NaNO_3$; [7631-99-4] 4. Water; H_2O; [7732-18-5]	Ganelina, E.Sh.; Merzon, V.V.; Biryukov, V.P. *Izv. Vyssh. Ucheb. Zaved. Khim. Khim. Technol.* 1969, *12*, 1465-7.
VARIABLES: One temperature: 298 K pH varied.	PREPARED BY: Mary R. Masson

EXPERIMENTAL VALUES:

		Author		Compiler		
pH	$[Pb_{tot}] \times 10^3$ mol dm^{-3}	$\alpha_{L(H)}$	$K_{s0} \times 10^7$ mol^2 dm^{-6}	$\alpha_{L(H)}$	$\alpha_{Pb(OH)}$	K_{s0} mol^2 dm^{-6}
4.50	13.5	1.67×10^3	1.1	4.48×10^6	1.0	4.07×10^{-11}
5.55	3.5	1.54×10^2	0.62	4.49×10^4	1.005	2.72×10^{-10}
6.40	1.62	21.14	3.62	2.14×10^3	1.035	1.18×10^{-9}
7.47	0.50	2.849	0.87	1.29×10^2	1.412	1.37×10^{-9}
7.73	2.7	2.132	39.1	70.12	1.757	5.92×10^{-8}
7.78	2.62	2.004	36.5	62.46	1.852	5.93×10^{-8}

The results calculated by the author by using acid dissociation constants from (1) are given, along with values calculated by the compiler using constants from (2), which differ considerably. The values calculated by the compiler also take account of the hydrolysis of the lead ions (3). Only the last two values of K_{s0} are in agreement. The results obtained at lower pH values are likely to be unreliable for two reasons:
(1) tellurous acid has a very low solubility at pH values below 7, and
(2) soluble but inert polynuclear lead hydroxo complexes are formed in the pH region 4 - 9, and these could disturb analyses or equilibria (3).

Note: $[Te_{tot}] = [Pb_{tot}]$,
$[TeO_3^{2-}] = [Te_{tot}]/\alpha_{L(H)}$ and $[Pb^{2+}] = [Pb_{tot}]/\alpha_{Pb(OH)}$

AUXILIARY INFORMATION

METHOD APPARATUS/PROCEDURE:

Lead tellurite was stirred with nitric acid solutions of various concentrations until equilibrium was established. The pH was determined by means of an LPU-01 instrument and a glass electrode. The lead concentration was determined by complexometric titration in ammonia buffer, with Eriochrome Black T as indicator.

SOURCE AND PURITY OF MATERIALS:

Lead tellurite was prepared by reaction of sodium tellurite with lead nitrate.

ESTIMATED ERROR:

The spread in K_{s0} values is very large; a value for s would not be meaningful.

REFERENCES:

1. Blanc, E. *J. Chem. Phys.* 1920, *18*, 40.
2. Masson, M.R. *J. Inorg. Nucl. Chem.* 1976, *38*, 545-8.
3. Kragten, J. *Atlas of Metal-Ligand Equilibria in Aqueous Solution* Horwood, Chichester, 1977.