

National Bureau of Standards

Certificate of Analysis

Standard Reference Material 2676b

Metals on Filter Media (Cd, Mn, Pb, Zn)

This Standard Reference Material (SRM) is intended primarily for use as an analytical standard for the determination of cadmium, manganese, lead, and zinc in industrial atmospheres. SRM 2676b consists of a duplicate set of membrane filters, each containing one of the four levels of metals certified in Table 1.

Table 1

Filter No.	Metal Content, $\mu\text{g}/\text{filter}$			
	<u>Cadmium</u>	<u>Manganese</u>	<u>Lead</u>	<u>Zinc</u>
IB	0.99 ± 0.02	1.88 ± 0.03	7.55 ± 0.10	10.01 ± 0.14
IIB	2.49 ± 0.04	9.41 ± 0.13	14.9 ± 0.2	49.7 ± 0.7
IIIB	10.14 ± 0.12	18.5 ± 0.3	30.4 ± 0.4	99.5 ± 1.2
Blank	(≤ 0.01)	(≤ 0.01)	(≤ 0.04)	(0.4 ± 0.1)

Each of the filters containing the added elements was prepared by depositing onto it a fixed volume of a composite solution prepared by dissolving high-purity metals in dilute nitric acid. The procedure is described in NBS report NBSIR 73-256. The Blank filter is as received from the manufacturer and has had no additional treatment.

The certified values are based on the weight/weight compositions of the composite solutions and the average weights of the aliquot volumes deposited on the filters. Confirmation of the certified values was made by analyzing a selected number of filters at each level by inductively-coupled plasma (ICP) spectrometry. Note: The values in parentheses are not certified but are provided for information only. In all instances the results obtained were consistent with the certified values stated in Table 1. The uncertainty given with each certified value is two times the standard deviation prescribed for the individual filter variability.

The filters are identified as IB, IIB, IIIB, and Blank. This identification is printed on the outside of each petri dish. Each dish contains duplicate membrane filters each having the designated amounts of cadmium, manganese, lead, and zinc on it. Note: In all instances, an entire filter must be dissolved for each set of measurements as the metals may not be uniformly distributed on the filter.

SRM 2676b was prepared and characterized in the Inorganic Analytical Research Division. Preparation was performed by R.W. Burke and M.V. Smith. ICP analyses were made by R.L. Watters, Jr.

The statistical assessment of the certification data was performed by R.C. Paule of the National Measurement Laboratory.

The technical and support aspects involved in the certification and issuance of this Standard Reference Material were coordinated through the Office of Standard Reference Materials by T.E. Gills.