CANADA CENTRE FOR MINERAL AND ENERGY TECHNOLOGY

NON-FERROUS DUST PD-1

CERTIFICATE OF ANALYSIS

Recommended Values ± 95% Confidence Interval			
Pb	2.75	±	0.02%
As	0.77	±	0.03%
Hg	389	±	18 µg/g

WARNING

Bottles of PD-1 have been sealed under nitrogen in laminated foil pouches to provide long-term protection against oxidation during storage at CANMET. The recommended values for the certified elements pertain to the date of issue and the Canadian Certified Reference Materials Project cannot be responsible for changes occurring after receipt by the user. It is strongly recommended that opened bottles be stored under an inert gas in a desiccator or in a new heat sealed foil pouch. Also the contents of the bottle should be exposed to air for the shortest time possible when taking subsamples. Unless these precautions are followed, the recommended values for PD-1 are potentially subject to change.

DESCRIPTION

PD-1 is a composite of dust samples from the two baghouses and of smaller quantities of electrostatic precipitator dusts from the zinc and copper roaster stacks of Hudson Bay Mining and Smelting Company Limited in Flin Flon, Manitoba. It is composed of minor, varying amounts of chalcocite, chalcopyrite, covellite, ferrites, galena, iron oxides, quartz, pyrite, pyrrhotite, sphalerite, elemental sulfur and complex sulfates, silicates and arsenates in a zincite matrix.

PD-1 was dry-ground to pass a 74-µm screen, blended, sampled systematically for analysis by chemical methods to demonstrate homogeneity sufficient for use as a compositional reference material and bottled in 200-g units.

The homogeneity of PD-1 was verified by analysis of randomly-selected bottles for lead.

CERTIFICATION

PD-1 was characterized by an inter-laboratory analysis procedure. The recommended values for arsenic and mercury are the unweighted means of 131 and 88 results from 27 and 18 laboratories, respectively. The determination of arsenic was performed by atomic absorption, ICP- and DCP- atomic emission, colorimetric, and titrimetric procedures. The cold vapour-atomic absorption procedure for mercury was used exclusively.

The recommended value for lead is based on 45 accepted determinations by 9 laboratories of which the individual mean was calculated to lie within 2σ of the overall mean of those results submitted by 7 laboratories which had demonstrated their accuracy in the analysis for lead in the ores, concentrates, etc., previously certified by CCRMP. Atomic absorption methods predominated in the determination of lead. ICP-atomic emission and titrimetry were also employed.

INSTRUCTIONS FOR USE

PD-1 should be dried in a dessicator for 16 hours.

LEGAL NOTICE

The Canadian Certified Reference Materials Project has prepared this reference material and statistically evaluated the analytical data of the interlaboratory certification program to the best of its ability. The Purchaser by receipt hereof releases and indemnifies the Canadian Certified Reference Materials Project from and against all liability and costs arising out of the use of this material and information.

REFERENCE

The preparation and certification procedures used for PD-1 are described in CANMET Report 81-7E "PD-1: A Certified Non-Ferrous Reference Dust" available free of charge on application to:

Coordinator, CCRMP
CANMET
555 Booth Street
Ottawa, Ontario
Canada
K1A 0G1

This Certificate of Analysis is available in French on request to the Coordinator, CCRMP.