



INSTITUTE OF NON-FERROUS METALS

Analytical Chemistry Department

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CERTIFICATE OF ANALYSIS

Electrolytic zinc

The average results of chemical analysis in wt %

No. Element	ZE 1	ZE 2	ZE 3	ZE 4	ZE 5
Cu	0,011	(0,00037)	0,0032	0,013	0,0049
Pb	0,018	0,0078	0,0052	0,0012	0,0004
Cd	0,0019	0,0031	0,0050	0,00023	0,0060
Fe	0,020	0,0052	--	(0,00035)	0,011
Sn	0,0018	0,0074	0,015	0,0017	0,00045
Al	0,012	0,0035	0,028*	--	0,0011

* value after recertification

Director of the Institute

Prof. Ph.D. Zbigniew Śmieszek

The confidence intervals in wt % at the probability level of 0,05

No. Element	ZE 1	ZE 2	ZE 3	ZE 4	ZE 5
Cu	0,00039	--	0,00018	0,00082	0,00029
Pb	0,00072	0,00036	0,00021	0,000076	0,0000095
Cd	0,000090	0,00014	0,00032	0,000038	0,00013
Fe	0,00086	0,00033	--	--	0,00056
Sn	0,00011	0,00034	0,0018	0,00023	0,00011
Al	0,00048	0,00027	0,0022	--	0,00011

Analytical methods applied:

Cu - AAS directly, ICP AES

Pb - AAS directly and after coprecipitation on $Fe(OH)_3$, ICP AES

Cd - AAS directly, ICP AES

Fe - AAS directly and after coprecipitation on $La(OH)_3$, ICP AES

Sn - AAS after coprecipitation on $Fe(OH)_3$, ICP AES

Al - AAS directly and after coprecipitation on $Fe(OH)_3$, ICP AES

The chemical analyses have been carried out in three laboratories including laboratory of the Institute of Non-Ferrous Metals. Zinc CRMs were made by melting all components in the coreless induction furnace and by casting into special cast iron moulds. Final product of CRMs has been obtained in form of discs 44 mm in diameter and 26 mm in height.