



INSTITUTE OF NON-FERROUS METALS

Analytical Chemistry Department

44-101 Gliwice, ul. Sowińskiego 5

CERTIFICATE OF ANALYSIS

Zn-Cu-Ti alloy

The average results of chemical analysis in wt %

No. Element	ZF 1	ZF 2	ZF 3	ZF 4	ZF 5
Cu	0,013	0,46	0,098	0,86	0,011
Ti	(0,0014)	0,11	0,021	0,20	0,013
Pb	0,0012	0,0082	--	0,0091	0,026
Cd	0,0041	0,0055	--	0,00053	0,0088
Fe	0,020	0,011	0,0018	0,00045	0,0081
Sn	0,013	0,0077	0,0022	0,0017	--
Al	0,018	0,011	0,0033	0,0058	--

RMS in the case of Al are not possible to application using OES method

Director of the Institute

Prof. Ph.D. Zbigniew Śmieszek

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

No. Element	ZF 1	ZF 2	ZF 3	ZF 4	ZF 5
Cu	0,00027	0,0061	0,0015	0,015	0,00047
Ti	--	0,010	0,00094	0,016	0,0014
Pb	0,000090	0,00017	--	0,00019	0,00086
Cd	0,00011	0,00022	--	0,000035	0,00010
Fe	0,00054	0,00067	0,00010	0,000080	0,00025
Sn	0,00094	0,00020	0,00020	0,00011	--
Al	0,00082	0,00080	0,00023	0,00029	--

Analytical methods applied:

Cu - AAS directly, ICP AES

Ti - AAS directly and after coprecipitation on $Fe(OH)_3$, 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 alloys 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.

CRMs are stable in time.