



INSTITUTE OF NON-FERROUS METALS

Analytical Chemistry Department
44-101 Gliwice, ul. Sowińskiego 5

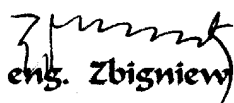
CERTIFICATE OF ANALYSIS

Cupro-nickels MN 25

The average results of chemical analysis in wt %

Element	No.	N 1	N 2	N 3	N 4
Ni		25,38	24,28	22,57	21,39
Zn		0,019	0,16	0,33	0,47
Mn		0,0018	0,21	0,50	0,71
Pb		0,0019	0,011	0,020	0,039
Sn		0,0089	0,012	0,023	0,038
Fe		0,0056	0,35	0,77	1,07
Co		0,0050	0,023	0,055	0,080
Si		0,0070	0,025	0,062	0,13
Cu		the rest	the rest	the rest	the rest

Director of the Institute


Prof. Dr eng. Zbigniew Śmieszek

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

Element	No.	N 1	N 2	N 3	N 4
Ni		0,078	0,149	0,24	0,57
Zn		0,0084	0,0047	0,0060	0,046
Mn		0,00085	0,0090	0,013	0,052
Pb		0,00028	0,00065	0,0010	0,0028
Sn		0,00034	0,0015	0,0015	0,0019
Fe		0,00072	0,015	0,032	0,096
Co		0,00051	0,0038	0,0058	0,0080
Si		0,00097	0,0027	0,0018	0,0075

Analytical methods applied:

Ni - weight method

Zn - atomic absorption

Mn - atomic absorption

Pb - atomic absorption with co-precipitation on $Fe(OH)_3$

Sn - spectrophotometric

*Fe - atomic absorption with co-precipitation on $La(OH)_3$;
atomic absorption directly, spectrophotometric*

Co - atomic absorption

Si - weight method

The chemical analyses have been carried out in three industrial laboratories and in the laboratory of the Institute of Non-Ferrous Metals.

The CRMs were made by melting of all components in the coreless induction furnace and by casting into special iron moulds. Final product of CRMs has been manufactured after extrusion in form of discs 35 mm in diameter and 28 mm height.