



**SPL-LABMAT s.r.o.**

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**CERTIFICATE OF CHEMICAL ANALYSIS No 10 – 25**

**FERROSILICON INOCULANT WITH ADDITION OF BARIUM for X-Ray  
Fluorescence spectrometries, wet-way and combustion analysis**

**SPL S-5A (PT 33/9A)**

**CERTIFIED VALUES – Mass content in %wt.**

<b>Element</b>	<b>Value [%wt.]</b>	<b>Uncertainty [%wt.]</b>
<b>Si</b>	<b>65.9</b>	1.2
<b>C</b>	<i>0.107</i>	
<b>Al</b>	<b>1.423</b>	0.119
<b>Mn</b>	<b>0.424</b>	0.027
<b>P</b>	<i>0.0188</i>	
<b>Cr</b>	<b>0.053</b>	0.007
<b>Ti</b>	<i>0.067</i>	
<b>Ca</b>	<i>1.20</i>	
<b>Sr</b>	<i>0.041</i>	
<b>Ba</b>	<b>2.24</b>	0.13

**PARTICIPATING LABORATORIES:**

BAS RUDICE, Czech Republic  
COGNOR S.A. - Ferrostal Łabędy, Poland  
ENVIFORM, Czech Republic  
ESAB CZ, Czech Republic  
HILGER, Czech Republic

SIJ METAL RAVNE, Slovenia  
U. S. STEEL Košice, Slovakia  
VÍTKOVICE TESTING CENTER, Czech Republic  
VOESTALPINE STAHL, Austria  
ZPS - SLÉVÁRNA, Czech Republic



## Comments:

**Value** – reference value,  $s_M$  – standard deviation of intralaboratory means (\* - result excluded as outlier)

**U** – Uncertainty of the reference value  $U \geq \pm \frac{t_{5;0,05}}{\sqrt{n}} \cdot s_M$  in the sense of the ISO Guide to the Expression of the Uncertainty of Measurement (1993), dependent on the standard deviation of the laboratory results.

**Certified** fully compliant with the ISO 17034 definition of Reference Material – with the characterization for determining the property values and their associated uncertainties.

**Intended** for calibration, matrix-match verification and statistical process control of analysis. They may not substitute CRM in a statement of metrological traceability, method validation. They may be used for combustion and wet-way methods too.

**Manufactured** by crushing, sieving, and homogenizing the input material.

**Supplied** as 100g bottle.

**Homogeneity** (random and trend, within- and between- samples) was tested by various analytical techniques of adequate repeatability. Its uncertainty contribution, when statistically significant, was combined to the ultimate uncertainty statement. The RM are stable by a nature of material.

**Characterised** by results from SPL proficiency test **PT 33/9A** – X-Ray Fluorescence spectrometries and wet-way analysis, S on combustion analysers by IR absorption with measurements metrological traceable to adequate CRM. Identity of PT participating laboratories is confidential.

**Certified values** in % m/m, tabulated below in bold, are robust means of a minimum five accepted laboratory means. They are rounded to the same digit as their uncertainty statement.

**Uncertainty** is expressed as a  $\pm$  half width interval combined from the standard uncertainty, expanded by the coverage factor  $k = 2$  (corresponding to 95% level of confidence). It does not exceed 1,5 multiple of the typical uncertainty of the matching CRM.

**Non-certified values** in regular without the uncertainty statement do not meet the requirements for certification and are intended for the matrix information.

**User instruction:** the surface of the specimens and RM should be prepared in a similar manner in accordance with manufacturer's instructions of spectrometers.

**Produced by:** SPL-LABMAT s.r.o.

**Responsible person:** Martin Bogumský

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