

**REFERENČNÍ MATERIÁLY, CERTIFIKOVANÉ Českým  
metrologickým institutem :****C, S, N v ocelích a litinách****OCELI s certifikovanými obsahy C, S, resp. N – balení 250 g \*****Sada nízkolegovaných ocelí CRM CZ 2003 A – 8 A CRM CZ 2025 A, 2026 A****CERTIFIKOVANÉ HODNOTY A JEJICH NEJISTOTY (vyjádřeny v % hm.)**

	2003 A	2004 A	2005 A	2006 A	2007 A	2008 A	2025 A*	2026 A*
<b>C</b>	<b>0.0402</b>	<b>0.079</b>	<b>0.358</b>	<b>0.461</b>	<b>0.684</b>	<b>0.977</b>	<b>0.0020</b>	<b>0.068</b>
	0.0008	0.001	0.004	0.002	0.006	0.003	0.0003	0.001
<b>S</b>	<b>0.0316</b>	<b>0.0464</b>	<b>0.0250</b>	<b>0.0172</b>	<b>0.0106</b>	<b>0.0091</b>	<b>0.0018</b>	<b>0.255</b>
	0.0006	0.0010	0.0005	0.0007	0.0004	0.0004	0.0002	0.005
<b>N</b>	<b>0.0046</b>	<b>0.0038</b>	<b>0.0081</b>	<b>0.0066</b>	<b>0.0128</b>	<b>0.0066</b>		
	0.0002	0.0002	0.0002	0.0004	0.0004	0.0003		

\*CRM CZ 2025 A – čisté železo \* (balení 200 g)

\*CRM CZ 2026 A – automatová ocel

Platnost certifikátu do 1.6.2022

**Litiny s certifikovanými obsahy C, S – balení 100 g****CRM CZ 2015 A - 2024 A****CERTIFIKOVANÉ HODNOTY A JEJICH NEJISTOTY (vyjádřeny v % hm.)**

	2015 A	2016 A	2017 A	2018 A	2023 A	2024 A
<b>C</b>	<b>1.996</b>	<b>2.053</b>	<b>2.463</b>	<b>3.173</b>	<b>4.029</b>	<b>4.512</b>
	0.011	0.016	0.023	0.020	0.016	0.022
<b>S</b>	<b>0.0157</b>	<b>0.0048</b>	<b>0.0755</b>	<b>0.0142</b>	<b>0.0886</b>	<b>0.0264</b>
	0.0004	0.0004	0.0026	0.0005	0.0028	0.0004

Platnost certifikátu do 1.6.2022

# CERTIFIKOVANÉ REFERENČNÍ MATERIÁLY

## CRM CZ 02033 and CRM CZ 20034

**CRM CZ 02033** – certifikované LITINY pro spektrometrickou analýzu, sada 1-8  
 ø 40 mm, h = 18 mm (platnost certifikátu do roku 2027)

Určeny jsou ke kalibraci, validaci a ověření matriční přiměřenosti v analýze litin spektrometrií z plochy pevného vzorku: atomová emisní spektrometrie s buzením jiskrou, doutnavým výbojem a laserem, a rentgenfluorescenční spektrometrie.

Osm CRM 1–8 představuje nejběžnější typy nelegovaných a nízkolegovaných litin, postupně: nelegovanou tvárnou, Ni-Cu legovanou tvárnou, vermikulární litinu, surové železo, temperovanou litinu, Mn-Cr-V a Ni-Mo legované litiny a běžnou šedou litinu

Dodávány jsou jako sada nebo jednotlivé disky 40 mm v průměru a přibližně 18 mm vysoké, s certifikovanými vrstvami 6 mm vysokými po obou stranách. Disky jsou značeny kódem příslušného CRM a hranicemi certifikovaných vrstev. Po dosažení těchto hranic z obou stran se zbytek, který může obsahovat drobnější vady struktury, musí vyřadit

	C	Mn	Si	P	S	Cr	Ni	Cu	Mo	Mg	Ce
<b>5A</b>	<b>2.30</b> 0.04	<b>0.804</b> 0.005	<b>1.26</b> 0.02	<b>0.035</b> 0.001	<b>0.100</b> 0.003	<b>0.054</b> 0.001	<b>0.096</b> 0.002	<b>0.014</b> 0.001	<b>0.100</b> 0.002		
<b>4B</b>	<b>3.95</b> 0.02	<b>0.145</b> 0.002	<b>0.252</b> 0.004	<b>0.041</b> 0.002	<b>0.046</b> 0.002	<b>0.049</b> 0.001	<b>0.023</b> 0.001	<b>0.062</b> 0.002	<b>0.005</b> 0.001		
<b>4C</b>	<b>4.06</b> 0.02	<b>0.250</b> 0.002	<b>0.423</b> 0.005	<b>0.054</b> 0.002	<b>0.038</b> 0.002	<b>0.080</b> 0.002	<b>0.084</b> 0.001	<b>0.085</b> 0.002	<b>0.002</b> 0.001		
<b>5B</b>	<b>2.42</b> 0.04	<b>0.812</b> 0.005	<b>1.32</b> 0.02	<b>0.033</b> 0.001	<b>0.073</b> 0.003	<b>0.061</b> 0.001	<b>0.188</b> 0.003	<b>0.031</b> 0.001	<b>0.089</b> 0.002		
<b>6B</b>	<b>2.95</b> 0.04	<b>1.15</b> 0.01	<b>3.23</b> 0.04	<b>0.095</b> 0.003	<b>0.020</b> 0.002	<b>1.36</b> 0.002	<b>0.026</b> 0.001	<b>0.272</b> 0.003	<b>0.005</b> 0.001		
<b>7B</b>	<b>3.61</b> 0.03	<b>0.304</b> 0.003	<b>1.82</b> 0.02	<b>0.021</b> 0.002	<b>0.020</b> 0.002	<b>0.536</b> 0.005	<b>1.28</b> 0.01	<b>0.036</b> 0.001	<b>0.96</b> 0.01		

	V	Ti	Al	Sn	Sb	Bi	B	Zn	Pb	W	Co
<b>5A</b>	<b>0.005</b> 0.001	<b>0.008</b> 0.001	<b>0.060</b> 0.003								
<b>4B</b>	<b>0.004</b> 0.001	<b>0.006</b> 0.001	<b>0.003</b> 0.001	<b>0.001</b> 0.001	0.001			<b>0.008</b> 0.001	<b>0.004</b> 0.001		<b>0.005</b> 0.001
<b>4C</b>	<b>0.015</b> 0.001	<b>0.010</b> 0.001	<b>0.005</b> 0.001	<b>0.002</b> 0.001	0.001			<b>0.016</b> 0.002	<b>0.003</b> 0.001		<b>0.035</b> 0.002
<b>5B</b>	<b>0.005</b> 0.001	<b>0.007</b> 0.001	<b>0.062</b> 0.001			<b>0.020</b> 0.003	<b>0.014</b> 0.001				
<b>6B</b>	<b>0.083</b> 0.002	<b>0.068</b> 0.003	<b>0.007</b> 0.001	<b>0.140</b> 0.004	<b>0.049</b> 0.003						
<b>7B</b>	<b>0.007</b> 0.001	<b>0.015</b> 0.001	<b>0.022</b> 0.001							<b>0.045</b> 0.004	<b>0.050</b> 0.002

Další necertifikované hodnoty jsou 0.010% As v 4B, 0.008% As v 6B, 0.013% Zr v 1C.

	C	Mn	Si	P	S	Cr	Ni	Cu	Mo	Mg	Ce
1E	3.15 0.03	0.718 0.005	2.72 0.03	0.037 0.002	0.006 0.001	0.037 0.001	0.367 0.003	0.012 0.001	0.185 0.002	0.042 0.002	0.027 0.002
1F	3.23 0.03	0.693 0.005	2.68 0.03	0.043 0.002	0.005 0.001	0.035 0.001	0.373 0.003	0.018 0.001	0.182 0.002	0.070 0.003	0.036 0.003
1G	3.22 0.03	0.701 0.005	2.53 0.03	0.036 0.002	0.007 0.001	0.044 0.001	0.357 0.003	0.027 0.001	0.185 0.002	0.050 0.003	0.023 0.003
2F	3.77 0.03	0.091 0.002	1.23 0.02	0.159 0.004	0.009 0.001	0.022 0.001	0.658 0.005	0.893 0.010	0.002 0.001	0.053 0.002	0.018 0.002
2G	3.78 0.04	0.096 0.002	1.10 0.02	0.125 0.003	0.009 0.001	0.027 0.001	0.650 0.005	0.880 0.010	0.002 0.001	0.036 0.002	0.013 0.002
3C	3.68 0.03	0.333 0.003	2.15 0.02	0.026 0.001	0.007 0.001	0.100 0.002	0.040 0.001	0.421 0.004	0.490 0.006	0.006 0.001	0.013 0.002
3D	3.24 0.03	0.317 0.002	2.12 0.02	0.008 0.001	0.006 0.001	0.236 0.003	0.025 0.001	0.396 0.004	0.453 0.005	0.016 0.002	0.006 0.002
4D	4.19 0.03	0.112 0.002	0.259 0.004	0.050 0.002	0.041 0.002	0.056 0.001	0.063 0.002	0.084 0.002	0.024 0.001		
4E	4.45 0.04	0.034 0.002	0.090 0.005	0.023 0.001	0.006 0.001	0.030 0.001	0.049 0.002	0.005 0.001	0.002 0.001		
5C	2.30 0.02	0.704 0.004	1.40 0.02	0.027 0.001	0.091 0.003	0.085 0.002	0.188 0.003	0.013 0.001	0.104 0.002		
6C	3.11 0.03	1.25 0.01	3.25 0.03	0.097 0.003	0.019 0.002	1.33 0.01	0.021 0.001	0.273 0.003	0.006 0.001		
7C	3.55 0.03	0.389 0.004	1.73 0.02	0.028 0.002	0.026 0.002	0.542 0.004	1.26 0.01	0.016 0.001	0.966 0.010		
	V	Ti	Al	Sn	Sb	Bi	B	Zn	Pb	W	Co
1E	0.015 0.001	0.046 0.001	0.058 0.002	0.032 0.002		0.002 0.001	0.0036 0.0003	0.009 0.001	0.007 0.001	0.021 0.002	0.022 0.001
1F	0.014 0.001	0.041 0.001	0.073 0.003	0.030 0.002		0.001 0.001	0.0043 0.0003	0.004 0.001	0.009 0.001	0.022 0.001	0.024 0.001
1G	0.019 0.001	0.054 0.001	0.062 0.002	0.028 0.002		0.005 0.001	0.0034 0.0003	0.003 0.001	0.016 0.002	0.015 0.001	0.010 0.001
2F	0.010 0.001	0.021 0.001	0.024 0.001	0.014 0.001	0.028 0.002	0.002 0.001	0.0020 0.0002	0.018 0.001	0.005 0.001	0.003 0.001	0.003 0.001
2G	0.017 0.001	0.029 0.001	0.019 0.001	0.015 0.001	0.029 0.002	0.006 0.001	0.0023 0.0002	0.020 0.001	0.008 0.001	0.004 0.001	0.012 0.001
3C	0.016 0.001	0.021 0.001	0.024 0.001	0.009 0.001		0.002 0.001	0.0044 0.0002		0.005 0.001	0.003 0.001	0.026 0.001
3D	0.072 0.002	0.016 0.001	0.055 0.002	0.009 0.001	0.007 0.001	0.002 0.001	0.0071 0.0003		0.005 0.001		0.014 0.001
4D	0.012 0.001	0.009 0.001	0.007 0.001	0.001 0.001		0.002 0.001	0.0001 0.0001	0.009 0.001	0.007 0.001		0.003 0.001
4E	0.015 0.001	0.011 0.001	0.003 0.001	0.001 0.001		0.002 0.001			0.002 0.001		0.033 0.001
5C	0.054 0.002	0.008 0.001	0.103 0.003	0.002 0.001	0.002 0.001	0.007 0.002	0.0078 0.0003				0.013 0.001
6C	0.192 0.002	0.107 0.004	0.024 0.001	0.131 0.003	0.044 0.002		0.0024 0.0002		0.003 0.001	0.007 0.001	0.005 0.001
7C	0.067 0.001	0.026 0.001	0.040 0.002	0.004 0.001		0.002 0.001	0.0008 0.0002			0.037 0.002	0.048 0.001

Další necertifikované hodnoty jsou 0.007% As v 3C, 0.018% As v 3D, 0.012% As v 4D, 0.006% As v 8C, 0.007% Te v 1F, 0.006% Te v 2E, 0.004% Te v 2G, 0.005% Te v 3C, 0.010% Te v 5C, 0.006% Te v 7C, 0.007% Zr v 1E, 0.008% Zr v 1F,

**CRM CZ 20034 – certifikované LITINY pro spektrometrickou analýzu, sada 11-17**  
 ø 40 mm, h = 18 mm (platnost certifikátu do roku 2029)

	<b>C</b>	<b>Mn</b>	<b>Si</b>	<b>P</b>	<b>S</b>	<b>Cr</b>	<b>Ni</b>	<b>Cu</b>
<b>11A</b>	<b>2.37</b> 0.02	<b>0.343</b> 0.007	<b>3.31</b> 0.04	<b>0.271</b> 0.009	<b>0.163</b> 0.007	<b>1.219</b> 0.015	<b>0.084</b> 0.002	<b>0.086</b> 0.003
<b>11B</b>	<b>2.44</b> 0.02	<b>0.382</b> 0.008	<b>3.67</b> 0.04	<b>0.271</b> 0.009	<b>0.140</b> 0.007	<b>1.178</b> 0.016	<b>0.082</b> 0.002	<b>0.130</b> 0.003
<b>12A</b>	<b>2.82</b> 0.02	<b>0.996</b> 0.010	<b>2.57</b> 0.03	<b>0.480</b> 0.011	<b>0.073</b> 0.003	<b>0.640</b> 0.008	<b>0.174</b> 0.002	<b>0.160</b> 0.004
<b>12B</b>	<b>2.92</b> 0.02	<b>1.047</b> 0.011	<b>2.96</b> 0.03	<b>0.484</b> 0.011	<b>0.077</b> 0.003	<b>0.638</b> 0.008	<b>0.174</b> 0.002	<b>0.223</b> 0.005
<b>13A</b>	<b>3.13</b> 0.03	<b>0.691</b> 0.006	<b>2.19</b> 0.02	<b>0.0244</b> 0.0016	<b>0.0046</b> 0.0004	<b>0.122</b> 0.003	<b>1.266</b> 0.016	<b>0.021</b> 0.002
<b>13B</b>	<b>3.12</b> 0.03	<b>0.692</b> 0.006	<b>2.12</b> 0.02	<b>0.0243</b> 0.0017	<b>0.0041</b> 0.0004	<b>0.125</b> 0.003	<b>1.313</b> 0.017	<b>0.021</b> 0.002
<b>13C</b>	<b>3.15</b> 0.03	<b>0.704</b> 0.007	<b>2.23</b> 0.02	<b>0.0261</b> 0.0017	<b>0.0044</b> 0.0004	<b>0.124</b> 0.003	<b>1.299</b> 0.017	<b>0.089</b> 0.003
<b>14B</b>	<b>3.26</b> 0.02	<b>0.240</b> 0.003	<b>2.34</b> 0.02	<b>0.0115</b> 0.0011	<b>0.0096</b> 0.005	<b>0.042</b> 0.002	<b>0.020</b> 0.002	<b>0.640</b> 0.008
<b>14C</b>	<b>3.14</b> 0.02	<b>0.275</b> 0.003	<b>2.49</b> 0.02	<b>0.0162</b> 0.0011	<b>0.0081</b> 0.005	<b>0.045</b> 0.002	<b>0.030</b> 0.002	<b>0.585</b> 0.008
<b>15B</b>	<b>3.52</b> 0.03	<b>0.048</b> 0.002	<b>1.66</b> 0.02	<b>0.054</b> 0.003	<b>0.0031</b> 0.0003	<b>0.067</b> 0.002	<b>0.681</b> 0.008	<b>1.322</b> 0.018
<b>15C</b>	<b>3.47</b> 0.03	<b>0.060</b> 0.002	<b>1.68</b> 0.02	<b>0.054</b> 0.003	<b>0.0028</b> 0.0003	<b>0.078</b> 0.003	<b>0.728</b> 0.009	<b>1.123</b> 0.018
<b>16A</b>	<b>3.80</b> 0.03	<b>1.292</b> 0.012	<b>1.00</b> 0.01	<b>0.171</b> 0.006	<b>0.0266</b> 0.0014	<b>0.374</b> 0.006	<b>0.390</b> 0.004	<b>0.332</b> 0.007
<b>16B</b>	<b>3.78</b> 0.03	<b>1.327</b> 0.013	<b>1.00</b> 0.01	<b>0.170</b> 0.006	<b>0.0236</b> 0.0014	<b>0.378</b> 0.006	<b>0.388</b> 0.005	<b>0.332</b> 0.007
<b>16C</b>	<b>3.87</b> 0.03	<b>1.311</b> 0.013	<b>0.95</b> 0.01	<b>0.173</b> 0.006	<b>0.0243</b> 0.0014	<b>0.332</b> 0.006	<b>0.376</b> 0.005	<b>0.345</b> 0.007
<b>17A</b>	<b>4.30</b> 0.04	<b>0.494</b> 0.005	<b>0.170</b> 0.008	<b>0.115</b> 0.005	<b>0.0034</b> 0.0004	<b>0.200</b> 0.004	<b>2.38</b> 0.03	<b>0.082</b> 0.004
<b>17B</b>	<b>4.38</b> 0.04	<b>0.501</b> 0.005	<b>0.178</b> 0.009	<b>0.089</b> 0.005	<b>0.0040</b> 0.0004	<b>0.200</b> 0.005	<b>2.34</b> 0.03	<b>0.111</b> 0.005
<b>17C</b>	<b>4.08</b> 0.04	<b>0.503</b> 0.005	<b>0.150</b> 0.008	<b>0.104</b> 0.005	<b>0.0033</b> 0.0004	<b>0.178</b> 0.005	<b>2.32</b> 0.03	<b>0.037</b> 0.002

	Mo	Mg	Ce	V	Ti	Al	Sn	Sb
<b>11A</b>	<b>1.130</b> 0.019			<b>0.184</b> 0.004	<b>0.028</b> 0.002	<b>0.046</b> 0.002	<b>0.070</b> 0.003	<b>0.013</b> 0.003
<b>11B</b>	<b>1.144</b> 0.020			<b>0.182</b> 0.005	<b>0.041</b> 0.002	<b>0.067</b> 0.003	<b>0.074</b> 0.003	<b>0.011</b> 0.003
<b>12A</b>	<b>0.114</b> 0.002			<b>0.340</b> 0.005	<b>0.085</b> 0.003	<b>0.077</b> 0.003	<b>0.041</b> 0.003	<b>0.046</b> 0.004
<b>12B</b>	<b>0.117</b> 0.002			<b>0.326</b> 0.005	<b>0.071</b> 0.003	<b>0.077</b> 0.003	<b>0.042</b> 0.003	<b>0.046</b> 0.004
<b>13A</b>	<b>0.364</b> 0.006	<b>0.053</b> 0.003	<b>0.011</b> 0.002	<b>0.048</b> 0.002	<b>0.014</b> 0.001	<b>0.017</b> 0.001	<b>0.014</b> 0.001	0.002
<b>13B</b>	<b>0.364</b> 0.007	<b>0.054</b> 0.003	<b>0.011</b> 0.002	<b>0.048</b> 0.002	<b>0.012</b> 0.001	<b>0.019</b> 0.001	<b>0.014</b> 0.001	0.002
<b>13C</b>	<b>0.360</b> 0.007	<b>0.064</b> 0.004	<b>0.011</b> 0.002	<b>0.043</b> 0.002	<b>0.015</b> 0.001	<b>0.022</b> 0.001	<b>0.014</b> 0.001	0.002
<b>14B</b>	<b>0.635</b> 0.009	<b>0.015</b> 0.002	<b>0.012</b> 0.002	<b>0.012</b> 0.001	<b>0.021</b> 0.001	<b>0.012</b> 0.001	<b>0.028</b> 0.002	<b>0.016</b> 0.003
<b>14C</b>	<b>0.646</b> 0.009	<b>0.017</b> 0.002	<b>0.019</b> 0.003	<b>0.013</b> 0.001	<b>0.018</b> 0.001	<b>0.007</b> 0.001	<b>0.025</b> 0.002	<b>0.020</b> 0.003
<b>15B</b>	<b>0.004</b> 0.001	<b>0.037</b> 0.002	<b>0.021</b> 0.003	<b>0.013</b> 0.001	<b>0.025</b> 0.002	<b>0.029</b> 0.002	<b>0.005</b> 0.001	<b>0.058</b> 0.006
<b>15C</b>	<b>0.002</b> 0.001	<b>0.040</b> 0.002	<b>0.030</b> 0.003	<b>0.019</b> 0.001	<b>0.036</b> 0.002	<b>0.010</b> 0.001	<b>0.006</b> 0.001	<b>0.056</b> 0.006
<b>16A</b>	<b>0.203</b> 0.004			<b>0.021</b> 0.001	<b>0.073</b> 0.002	<b>0.007</b> 0.001	<b>0.125</b> 0.006	<b>0.011</b> 0.002
<b>16B</b>	<b>0.202</b> 0.004			<b>0.029</b> 0.001	<b>0.070</b> 0.002	<b>0.007</b> 0.001	<b>0.121</b> 0.006	<b>0.011</b> 0.002
<b>16C</b>	<b>0.195</b> 0.004			<b>0.027</b> 0.001	<b>0.057</b> 0.002	<b>0.004</b> 0.001	<b>0.125</b> 0.006	<b>0.010</b> 0.002
<b>17A</b>	<b>0.030</b> 0.002	<b>0.007</b> 0.001	<b>0.003</b> 0.001	<b>0.086</b> 0.003	<b>0.016</b> 0.001	<b>0.002</b> 0.001	<b>0.002</b> 0.001	
<b>17B</b>	<b>0.030</b> 0.002	<b>0.009</b> 0.001	<b>0.003</b> 0.001	<b>0.086</b> 0.003	<b>0.016</b> 0.001	<b>0.002</b> 0.001	<b>0.002</b> 0.001	
<b>17C</b>	<b>0.030</b> 0.002	<b>0.007</b> 0.001	<b>0.003</b> 0.001	<b>0.076</b> 0.003	<b>0.015</b> 0.001	<b>0.002</b> 0.001	<b>0.002</b> 0.001	

	<b>Bi</b>	<b>B</b>	<b>Zn</b>	<b>Pb</b>	<b>W</b>	<b>Co</b>	<b>Zr</b>	<b>As</b>
<b>11A</b>	<b>0.011</b> 0.001	<b>0.0018</b> 0.0003		<b>0.017</b> 0.003	0.005	<b>0.005</b> 0.001	<b>0.007</b> 0.001	<b>0.005</b> 0.001
<b>11B</b>	<b>0.007</b> 0.001	<b>0.0032</b> 0.0004		<b>0.007</b> 0.001	0.005	<b>0.005</b> 0.001	<b>0.007</b> 0.001	<b>0.005</b> 0.001
<b>12A</b>	<b>0.005</b> 0.001	<b>0.036</b> 0.002	<b>0.003</b> 0.001	<b>0.007</b> 0.001	<b>0.011</b> 0.002	<b>0.004</b> 0.001	0.002	<b>0.022</b> 0.002
<b>12B</b>	<b>0.006</b> 0.001	<b>0.047</b> 0.002	<b>0.004</b> 0.001	<b>0.009</b> 0.001	<b>0.007</b> 0.002	<b>0.008</b> 0.001	0.002	<b>0.024</b> 0.002
<b>13A</b>					0.003	<b>0.024</b> 0.001	<b>0.029</b> 0.003	<b>0.002</b> 0.001
<b>13B</b>					0.003	<b>0.024</b> 0.001	<b>0.023</b> 0.003	<b>0.002</b> 0.001
<b>13C</b>					0.003	<b>0.024</b> 0.001	<i>0.02</i>	<b>0.002</b> 0.001
<b>14B</b>	<b>0.007</b> 0.001	<b>0.0100</b> 0.0006	<b>0.009</b> 0.001	0.005	0.005	<b>0.005</b> 0.001	<b>0.014</b> 0.001	<b>0.034</b> 0.004
<b>14C</b>		<b>0.0123</b> 0.0006	<b>0.010</b> 0.001		0.003	<b>0.009</b> 0.001	<b>0.013</b> 0.001	<b>0.035</b> 0.004
<b>15B</b>	<b>0.010</b> 0.001	<b>0.0033</b> 0.0003			<b>0.007</b> 0.001	<b>0.027</b> 0.001		0.003
<b>15C</b>	<b>0.008</b> 0.001	<b>0.0057</b> 0.0004			<b>0.004</b> 0.001	<b>0.026</b> 0.001		0.003
<b>16A</b>		<b>0.018</b> 0.001	<b>0.019</b> 0.002	<b>0.006</b> 0.001	<b>0.019</b> 0.002	<b>0.010</b> 0.001	0.002	<b>0.005</b> 0.001
<b>16B</b>		<b>0.018</b> 0.001	<b>0.020</b> 0.002	<b>0.007</b> 0.001	<b>0.019</b> 0.002	<b>0.010</b> 0.001	0.002	<b>0.005</b> 0.001
<b>16C</b>		<b>0.020</b> 0.001	<b>0.017</b> 0.002	<b>0.015</b> 0.003	<b>0.015</b> 0.002	<b>0.006</b> 0.001	0.002	<b>0.003</b> 0.001
<b>17A</b>	0.001	0.0002		<b>0.002</b> 0.001	<b>0.004</b> 0.001	<b>0.043</b> 0.002		<b>0.007</b> 0.001
<b>17B</b>	0.001	0.0002		<b>0.002</b> 0.001	<b>0.004</b> 0.001	<b>0.043</b> 0.002		<b>0.008</b> 0.001
<b>17C</b>	0.002	0.0006		<b>0.002</b> 0.001	<b>0.004</b> 0.001	<b>0.043</b> 0.002		<b>0.005</b> 0.001

Další necertifikované hodnoty jsou: Nb: 0.007% v 11A, 0.008% v 12A, 0.01% v 14B, 0.006% v 16A, 0.03% v 16B, Te: 0.005% v 11A, 0.01% v 11B, 0.006% v 16A, 16B a 0.007% v 16C

**RM CI-SPL-17 – RM LITIN pro spektrometrickou analýzu**

ø 40 mm, h = 18 mm

	<b>C</b>	<b>Mn</b>	<b>Si</b>	<b>P</b>	<b>S</b>	<b>Cr</b>	<b>Ni</b>	<b>Cu</b>	<b>Mo</b>	<b>Mg</b>	<b>Ce</b>	<b>V</b>
<b>31A</b> (ID-0A)	<b>3.54</b>	<b>0.041</b>	<b>2.10</b>	<b>0.025</b>	<b>0.006</b>	<b>0.019</b>	<b>0.538</b>	<b>0.005</b>	<b>0.004</b>	<b>0.070</b>	<i>0.004</i>	<b>0.008</b>
	0.04	0.002	0.02	0.001	0.001	0.001	0.004	0.001	0.001	0.003		0.001
<b>32A</b> (ID-1B)	<b>3.39</b>	<b>0.288</b>	<b>2.74</b>	<b>0.037</b>	<b>0.007</b>	<b>0.060</b>	<b>0.015</b>	<b>0.306</b>	<b>0.116</b>	<b>0.024</b>	<i>0.004</i>	<b>0.005</b>
	0.02	0.003	0.03	0.002	0.001	0.002	0.001	0.005	0.002	0.002		0.001
<b>33A</b> (ID-3B)	<b>2.75</b>	<b>0.710</b>	<b>3.10</b>	<b>0.060</b>	<b>0.007</b>	<b>0.239</b>	<b>0.389</b>	<b>0.730</b>	<b>0.220</b>	<b>0.021</b>	<b>0.026</b>	<b>0.356</b>
	0.02	0.006	0.03	0.002	0.001	0.002	0.004	0.010	0.003	0.002	0.003	0.004
<b>34A</b> (ID-5B)	<b>3.48</b>	<b>0.980</b>	<b>2.29</b>	<b>0.105</b>	<b>0.008</b>	<b>0.102</b>	<b>0.493</b>	<b>0.230</b>	<b>0.072</b>	<b>0.026</b>	<b>0.008</b>	<b>0.073</b>
	0.03	0.010	0.02	0.003	0.001	0.002	0.004	0.004	0.002	0.002	0.002	0.002
<b>35A</b> (IP-1B)	<b>4.55</b>	<b>0.096</b>	<b>0.078</b>	<b>0.024</b>	<b>0.011</b>	<b>0.022</b>	<b>0.024</b>	<b>0.004</b>	<b>0.003</b>			<b>0.009</b>
	0.04	0.003	0.004	0.001	0.001	0.002	0.002	0.001	0.001			0.001
<b>36A</b> (IG-0A)	<b>3.02</b>	<b>0.057</b>	<b>2.13</b>	<b>0.026</b>	<b>0.010</b>	<b>0.014</b>	<b>0.011</b>	<b>0.007</b>	<b>0.004</b>	<b>0.012</b>	<b>0.007</b>	<b>0.021</b>
	0.02	0.002	0.02	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002
<b>37A</b> (IG-1B)	<b>3.07</b>	<b>0.211</b>	<b>3.30</b>	<b>0.025</b>	<b>0.023</b>	<b>0.328</b>	<b>0.106</b>	<b>0.149</b>	<b>0.325</b>			<b>0.122</b>
	0.02	0.003	0.03	0.001	0.001	0.002	0.002	0.003	0.004			0.003
<b>38A</b> (IG-2B)	<b>3.39</b>	<b>0.401</b>	<b>2.37</b>	<b>0.067</b>	<b>0.036</b>	<b>0.141</b>	<b>0.306</b>	<b>0.510</b>	<b>0.101</b>			<b>0.061</b>
	0.03	0.004	0.02	0.002	0.002	0.002	0.003	0.006	0.002			0.002
<b>39A</b> (IG-3B)	<b>3.70</b>	<b>0.812</b>	<b>1.90</b>	<b>0.160</b>	<b>0.045</b>	<b>0.488</b>	<b>0.032</b>	<b>0.298</b>	<b>0.203</b>			<b>0.232</b>
	0.03	0.011	0.02	0.003	0.002	0.003	0.001	0.005	0.003			0.004
<b>40A</b> (IG-4A)	<b>3.38</b>	<b>0.042</b>	<b>1.98</b>	<b>0.021</b>	<b>0.0035</b>	<b>0.031</b>	<b>0.045</b>	<b>0.010</b>	<b>0.005</b>	<b>0.007</b>	<b>0.012</b>	<b>0.014</b>
	0.02	0.002	0.02	0.002	0.0005	0.001	0.001	0.001	0.001	0.001	0.002	0.001
<b>41A</b> (IG-5B)	<b>3.41</b>	<b>0.512</b>	<b>1.92</b>	<b>0.199</b>	<b>0.068</b>	<b>0.125</b>	<b>0.104</b>	<b>0.151</b>	<b>0.041</b>			<b>0.011</b>
	0.03	0.004	0.02	0.004	0.002	0.002	0.002	0.003	0.003			0.001
<b>42A</b> (ID-2B)	<b>3.94</b>	<b>0.764</b>	<b>1.94</b>	<b>0.294</b>	<b>0.0040</b>	<b>0.145</b>	<b>0.492</b>	<b>0.199</b>	<b>0.021</b>	<i>0.06</i>	<b>0.039</b>	<b>0.093</b>
	0.03	0.010	0.03	0.004	0.0005	0.002	0.004	0.003	0.002		0.003	0.002
<b>43A</b> (ID-4B)	<b>3.98</b>	<b>1.322</b>	<b>1.63</b>	<b>0.190</b>	<b>0.008</b>	<b>0.032</b>	<b>0.411</b>	<b>0.385</b>	<b>0.152</b>	<i>0.04</i>	<b>0.017</b>	<b>0.152</b>
	0.03	0.016	0.02	0.004	0.001	0.002	0.005	0.006	0.003		0.002	0.002

	Ti	Al	Sn	Sb	Bi	B	Zn	Pb	W	Co	Nb	N
<b>31A</b> (ID-0A)	<b>0.007</b>	<b>0.005</b>	<i>0.003</i>			<i>0.0004</i>			<i>0.005</i>	<b>0.022</b>		<b>0.0042</b>
	0.001	0.001								0.001		0.0003
<b>32A</b> (ID-1B)	<b>0.044</b>	<b>0.029</b>	<i>0.012</i>	<b>0.023</b>	<i>0.007</i>	<i>0.0005</i>	<b>0.011</b>	<b>0.022</b>	<i>0.008</i>	<i>0.002</i>		<b>0.0042</b>
	0.001	0.001		0.002			0.001	0.002				0.0003
<b>33A</b> (ID-3B)	<b>0.130</b>	<b>0.054</b>	<b>0.039</b>	<b>0.019</b>	<i>0.002</i>	<b>0.0064</b>	<b>0.009</b>	<b>0.010</b>	<b>0.079</b>	<b>0.015</b>	<b>0.032</b>	<b>0.0043</b>
	0.005	0.002	0.001	0.002		0.0003	0.001	0.001	0.003	0.001	0.002	0.0003
<b>34A</b> (ID-5B)	<b>0.044</b>	<b>0.010</b>	<b>0.051</b>	<b>0.007</b>	<i>0.005</i>	<b>0.0076</b>	<b>0.007</b>	<i>0.006</i>	<b>0.016</b>	<b>0.025</b>	<b>0.014</b>	<b>0.0041</b>
	0.001	0.001	0.002	0.002		0.0003	0.001		0.002	0.001	0.001	0.0003
<b>35A</b> (IP-1B)	<i>0.002</i>	<i>0.002</i>	<i>0.002</i>			<i>0.0002</i>		<i>0.002</i>	<i>0.005</i>	<b>0.023</b>		<b>0.0036</b>
										0.002		0.0003
<b>36A</b> (IG-0A)	<b>0.021</b>	<i>0.003</i>	<i>0.002</i>		<i>0.007</i>	<b>0.022</b>	<i>0.002</i>	<b>0.016</b>		<i>0.004</i>		<b>0.0038</b>
	0.001					0.002		0.002				0.0003
<b>37A</b> (IG-1B)	<b>0.008</b>	<b>0.039</b>	<b>0.073</b>		<i>0.002</i>	<b>0.0124</b>	<i>0.001</i>	<i>0.002</i>	<b>0.026</b>	<b>0.031</b>		<b>0.0089</b>
	0.001	0.002	0.002			0.0005			0.002	0.001		0.0004
<b>38A</b> (IG-2B)	<b>0.012</b>	<b>0.034</b>	<b>0.032</b>	<b>0.018</b>	<i>0.002</i>	<b>0.0027</b>	<b>0.028</b>	<i>0.003</i>	<i>0.005</i>	<b>0.021</b>	<b>0.008</b>	<b>0.0100</b>
	0.001	0.001	0.001	0.002		0.0002	0.002			0.001	0.002	0.0004
<b>39A</b> (IG-3B)	<i>0.074</i>	<b>0.008</b>	<i>0.003</i>	<b>0.037</b>	<b>0.008</b>	<b>0.0195</b>	<b>0.035</b>	<b>0.017</b>		<i>0.002</i>		<b>0.0037</b>
		0.001		0.002	0.002	0.0006	0.003	0.002				0.0003
<b>40A</b> (IG-4A)	<b>0.015</b>	<b>0.096</b>	<i>0.004</i>			<b>0.0008</b>	<i>0.002</i>			<b>0.027</b>		<b>0.0063</b>
	0.001	0.003				0.0002				0.001		0.0004
<b>41A</b> (IG-5B)	<b>0.048</b>	<i>0.003</i>	<b>0.066</b>	<b>0.016</b>	<i>0.007</i>	<i>0.0004</i>	<i>0.001</i>	<b>0.010</b>	<b>0.012</b>	<b>0.031</b>		<b>0.0070</b>
	0.001		0.002	0.002				0.001	0.002	0.001		0.0003
<b>42A</b> (ID-2B)	<b>0.126</b>	<b>0.087</b>	<b>0.027</b>	<b>0.015</b>	<i>0.002</i>	<b>0.0036</b>	<b>0.013</b>	<b>0.020</b>	<b>0.020</b>	<b>0.010</b>	<b>0.045</b>	<b>0.0027</b>
	0.005	0.003	0.001	0.002		0.0003	0.002	0.003	0.002	0.001	0.002	0.0003
<b>43A</b> (ID-4B)	<b>0.065</b>	<b>0.024</b>	<b>0.067</b>	<i>0.004</i>	<i>0.002</i>	<b>0.0014</b>	<b>0.013</b>	<b>0.014</b>	<b>0.038</b>	<b>0.045</b>	<b>0.008</b>	<b>0.0045</b>
	0.002	0.001	0.003			0.0002	0.002	0.002	0.002	0.001	0.002	0.0003

Další necertifikované hodnoty jsou 0.041% As v 37A, 0.025% As v 32A, 0.016% As v 33A, 0.008% As v 41A, 0.008% Te v 33A, 0.007% Te v 37A a 39A.



## Sada RM ocelí pro spektrometrii

**RM LA 0–LA 5**, průměr vzorku 35 až 43mm, výška 25mm nebo dle dohody

RM	C	Mn	Si	P	S	Cu	Cr	Ni
LA-0A	<b>0.006</b> ±0.0015	<b>0.045</b> ±0.005	<b>0.0015</b> ±0.0003	<b>0.005</b> ±0.0005	<b>0.005</b> ±0.0003	<b>0.012</b> ±0.001	<b>0.022</b> ±0.002	<b>0.028</b> ±0.002
LA-0B	<b>0.0036</b> ±0.0011	<b>0.0380</b> ±0.0014	<i>0.0043</i>	<b>0.0037</b> ±0.0007	<b>0.0023</b> ±0.0003	<b>0.0074</b> ±0.0005	<b>0.0091</b> ±0.0016	<b>0.0070</b> ±0.0009
LA-1B	<b>0.005</b> ±0.001	<b>0.13</b> ±0.006	<b>0.020</b> ±0.002	<b>0.004</b> ±0.001	<b>0.017</b> ±0.002	<b>0.01</b> ±0.002	<b>0.042</b> ±0.003	<b>0.014</b> ±0.002
LA-2E	<b>0.081</b> ±0.002	<b>0.111</b> ±0.003	<b>1.725</b> ±0.019	<b>0.060</b> ±0.003	<b>0.044</b> ±0.002	<b>0.577</b> ±0.010	<b>0.149</b> ±0.003	<b>2.015</b> ±0.022
LA-3F	<b>0.467</b> ±0.009	<b>0.782</b> ±0.008	<b>0.88</b> ±0.01	<b>0.036</b> ±0.002	<b>0.031</b> ±0.002	<b>0.218</b> ±0.005	<b>1.024</b> ±0.008	<b>1.017</b> ±0.006
LA-3G	<b>0.626</b> ±0.004	<b>0.687</b> ±0.010	<b>1.296</b> ±0.011	<b>0.0472</b> ±0.0010	<b>0.0351</b> ±0.0011	<b>0.236</b> ±0.004	<b>1.377</b> ±0.007	<b>1.019</b> ±0.010
LA-4C	<b>0.95</b> ±0.012	<b>1.63</b> ±0.025	<b>0.07</b> ±0.01	<b>0.021</b> ±0.003	<b>0.012</b> ±0.001	<b>0.056</b> ±0.002	<b>1.78</b> ±0.03	<b>0.045</b> ±0.004
LA-4D	<b>1.143</b> ±0.005	<b>1.266</b> ±0.009	<b>0.181</b> ±0.005	<b>0.0289</b> ±0.0011	<b>0.0091</b> ±0.0002	<b>0.066</b> ±0.004	<b>1.831</b> ±0.021	<b>0.367</b> ±0.007
LA-5C	<b>0.439</b> ±0.007	<b>1.873</b> ±0.012	<b>0.394</b> ±0.008	<b>0.0179</b> ±0.0011	<b>0.0088</b> ±0.0008	<b>0.138</b> ±0.002	<b>3.815</b> ±0.026	<b>2.591</b> ±0.020

RM	Al	Mo	W	V	Ti	Co	As	Sn
LA-0A	<b>0.0015</b> ±0.0005	<b>0.0044</b> ±0.0010			<b>0.001</b> ±0.0003	<b>0.002</b> ±0.0003	0.0015	0.001
LA-0B	<b>0.0010</b> ±0.0005	0.0016				0.0017	<b>0.0024</b> ±0.0004	0.0013
LA-1B	<b>0.003</b> ±0.001	<b>0.007</b> ±0.001	<b>0.010</b> ±0.002	<b>0.004</b> ±0.001	0.001	0.002	0.002	0.001
LA-2E	<b>0.357</b> ±0.010	<b>0.652</b> ±0.004	<b>0.307</b> ±0.010	<b>0.310</b> ±0.005	<b>0.343</b> 0.010	<b>0.268</b> ±0.009	<b>0.083</b> ±0.005	<b>0.087</b> ±0.002
LA-3F	<b>0.061</b> ±0.002	<b>0.347</b> ±0.004	<b>0.103</b> ±0.004	<b>0.231</b> ±0.003	<b>0.125</b> ±0.004	<b>0.125</b> ±0.003	<b>0.061</b> ±0.005	<b>0.028</b> ±0.001
LA-3G	<b>0.047</b> ±0.002	<b>0.326</b> ±0.005	<b>0.105</b> ±0.004	<b>0.232</b> ±0.002	<b>0.143</b> ±0.004	<b>0.127</b> ±0.003	<b>0.051</b> ±0.004	<b>0.031</b> ±0.001
LA-4C	<b>0.048</b> ±0.003	<b>0.008</b> ±0.001	<b>0.008</b> ±0.001	<b>0.010</b> ±0.002	<b>0.002</b> ±0.001	<b>0.006</b> ±0.002	<b>0.003</b> ±0.001	<b>0.006</b> ±0.001
LA-4D	<b>0.067</b> ±0.002	<b>0.136</b> ±0.004	<b>0.0251</b> ±0.0025	<b>0.103</b> ±0.002	<b>0.0154</b> ±0.0007	<b>0.0370</b> ±0.0013	<b>0.0104</b> ±0.0016	<b>0.0142</b> ±0.0010
LA-5C	<b>0.081</b> ±0.003	<b>0.867</b> ±0.011	<b>0.631</b> ±0.008	<b>0.536</b> ±0.006	<b>0.048</b> ±0.001	<b>0.088</b> ±0.002	<b>0.026</b> ±0.002	<b>0.031</b> ±0.001

RM	B	Nb	Pb	Sb	Zr	Ca	Ta	N
LA-0A			0.001	0.0007				<b>0.0023</b> ±0.0002
LA-0B								<b>0.0027</b> ±0.0005
LA-1B	<b>0.010</b> ±0.001	0.001	0.0007	0.002	0.002	<b>0.0016</b> ±0.0003		<b>0.003</b> ±0.0004
LA-2E	<b>0.0043</b> ±0.0004	<b>0.111</b> ±0.003	<b>0.068</b> ±0.007	<b>0.033</b> ±0.004				<b>0.0071</b> ±0.0006
LA-3F	<b>0.0047</b> ±0.0003	<b>0.033</b> ±0.002	<b>0.009</b> ±0.002	<b>0.026</b> ±0.002	<b>0.106</b> ±0.009	0.0006	Zn 0.010 ±0.002	<b>0.012</b> ±0.001
LA-3G	<b>0.0039</b> ±0.0002	<b>0.0711</b> ±0.0015	<b>0.0098</b> ±0.0005	<b>0.0242</b> ±0.0036	<b>0.068</b> ±0.003	<b>0.0016</b> ±0.0002		<b>0.0115</b> ±0.0010
LA-4C	<b>0.0005</b> ±0.0001	<b>0.053</b> ±0.004						<b>0.012</b> ±0.001
LA-4D		<b>0.0046</b> ±0.0009	<b>0.0401</b> ±0.0035					<b>0.0064</b> ±0.0005
LA-5C		<b>0.057</b> 0.002	<b>0.0156</b> 0.0011	<b>0.018</b> ±0.003			Zn 0.013	<b>0.0248</b> 0.0012

**RM CM-1C, 1D, 2B, 3A, 4B, 5C, 6A, 7A, 8B, 9B, 12C, 14A, 15C, 16A, 17A, 18A, 19A, 20A, 22A, SP-1B, 2C, 3C, 3D, 4C, BO-2B)**

průměr vzorku 37 až 40mm, výška 25mm nebo dle dohody

RM	C	Mn	Si	P	S	Cu	Cr	Ni	Al	Mo	W	V
CM-1C	<b>0.72</b>	<b>1.73</b>	<b>0.31</b>	<b>0.023</b>	<b>0.025</b>	<b>0.18</b>	<b>0.47</b>	<b>0.52</b>	<b>0.034</b>	<b>0.084</b>	<b>0.064</b>	<b>0.073</b>
	0.01	0.01	0.01	0.001	0.002	0.01	0.015	0.015	0.001	0.004	0.002	0.002
CM-1D	<b>0.735</b>	<b>1.800</b>	<b>0.341</b>	<b>0.0218</b>	<b>0.0268</b>	<b>0.186</b>	<b>0.456</b>	<b>0.547</b>	<b>0.0245</b>	<b>0.100</b>	<b>0.063</b>	<b>0.089</b>
	0.005	0.015	0.006	0.0004	0.0011	0.003	0.007	0.006	0.0011	0.002	0.002	0.002
CM-2B	<b>0.247</b>	<b>0.894</b>	<b>1.950</b>	<b>0.082</b>	<b>0.0114</b>	<b>0.994</b>	<b>1.538</b>	<b>1.205</b>	<b>0.0464</b>	<b>0.332</b>	<b>0.223</b>	<b>0.109</b>
	0.004	0.007	0.040	0.002	0.0007	0.019	0.015	0.014	0.0011	0.011	0.013	0.005
CM-3A	<b>0.295</b>	<b>0.37</b>	<b>0.27</b>	<b>0.016</b>	<b>0.0013</b>	<b>0.16</b>	<b>1.87</b>	<b>1.82</b>	<b>0.05</b>	<b>0.33</b>	<b>0.015</b>	<b>0.007</b>
	0.013	0.01	0.02	0.002	0.0003	0.005	0.04	0.04	0.002	0.01	0.003	0.002
CM-4B	<b>0.72</b>	<b>0.50</b>	<b>0.80</b>	<b>0.023</b>	<b>0.012</b>	<b>0.40</b>	<b>2.23</b>	<b>1.40</b>	<b>0.025</b>	<b>0.33</b>	<b>0.116</b>	<b>0.18</b>
	0.02	0.01	0.02	0.003	0.002	0.01	0.03	0.03	0.002	0.01	0.005	0.01
CM-5C	<b>1.04</b>	<b>1.17</b>	<b>0.54</b>	<b>0.029</b>	<b>0.021</b>	<b>0.151</b>	<b>2.45</b>	<b>0.42</b>	<b>0.063</b>	<b>0.132</b>	<b>0.034</b>	<b>0.106</b>
	0.02	0.02	0.02	0.002	0.002	0.004	0.05	0.01	0.003	0.003	0.005	0.002
CM-6A	<b>0.52</b>	<b>0.37</b>	<b>0.27</b>	<b>0.016</b>	<b>0.058</b>	<b>0.05</b>	<b>0.37</b>	<b>0.19</b>	<b>0.02</b>	<b>0.04</b>	<b>0.04</b>	<b>0.05</b>
	0.015	0.013	0.014	0.002	0.003	0.003	0.01	0.006	0.002	0.003	0.003	0.003
CM-7A	<b>0.05</b>	<b>1.17</b>	<b>0.56</b>	<b>0.011</b>	<b>0.016</b>	<b>0.09</b>	<b>0.10</b>	<b>0.05</b>	<b>0.13</b>	<b>0.015</b>	<b>0.01</b>	<b>0.012</b>
	0.005	0.02	0.016	0.002	0.002	0.003	0.006	0.003	0.01	0.002	0.002	0.001
CM-8B	<b>0.185</b>	<b>1.95</b>	<b>0.112</b>	<b>0.015</b>	<b>0.014</b>	<b>0.081</b>	<b>1.22</b>	<b>0.032</b>	<b>0.0028</b>	<b>0.011</b>	<i>0.009</i>	<b>0.0078</b>
	0.006	0.02	0.003	0.001	0.001	0.003	0.02	0.002	0.0006	0.001		0.0005
CM-9B	<b>0.17</b>	<b>2.27</b>	<b>0.89</b>	<b>0.008</b>	<b>0.010</b>	<b>0.04</b>	<b>1.36</b>	<b>0.023</b>	<b>0.049</b>	<i>0.002</i>		<b>0.006</b>
	0.01	0.03	0.02	0.002	0.002	0.003	0.01	0.003	0.003			0.001
CM-12C	<b>0.0389</b>	<b>0.275</b>	<b>3.770</b>	<b>0.0103</b>	<b>0.0110</b>	<b>0.175</b>	<b>0.081</b>	<b>0.046</b>	<b>0.145</b>	<b>0.0128</b>	<i>0.004</i>	<b>0.0271</b>
	0.0017	0.003	0.150	0.0006	0.0004	0.004	0.002	0.002	0.005	0.0011		0.0014
CM-14A	<b>0.523</b>	<b>1.58</b>	<b>1.15</b>	<b>0.051</b>	<b>0.028</b>	<b>0.30</b>	<b>1.13</b>	<b>1.14</b>	<b>0.063</b>	<b>0.395</b>	<b>0.021</b>	<b>0.345</b>
	0.012	0.03	0.02	0.003	0.002	0.01	0.02	0.02	0.003	0.010	0.002	0.01
CM-15C	<b>0.075</b>	<b>1.13</b>	<b>0.006</b>	<b>0.063</b>	<b>0.32</b>	<b>0.141</b>	<b>0.052</b>	<b>0.072</b>		<b>0.021</b>		
	0.006	0.04	0.002	0.003	0.01	0.004	0.003	0.004		0.003		
CM-16A	<b>0.355</b>	<b>0.92</b>	<b>0.77</b>	<b>0.043</b>	<b>0.033</b>	<b>0.293</b>	<b>0.70</b>	<b>0.72</b>	<b>0.125</b>	<b>0.405</b>	<b>0.141</b>	<b>0.319</b>
	0.007	0.02	0.01	0.002	0.002	0.003	0.01	0.01	0.004	0.007	0.003	0.006
CM-17A	<b>0.142</b>	<b>0.524</b>	<b>0.612</b>	<b>0.0310</b>	<b>0.0175</b>	<b>0.201</b>	<b>9.58</b>	<b>0.520</b>	<b>0.0089</b>	<b>1.116</b>	<b>0.099</b>	<b>0.247</b>
	0.003	0.006	0.009	0.0010	0.0012	0.004	0.05	0.015	0.0012	0.017	0.004	0.005
CM-18A	<b>0.143</b>	<b>1.792</b>	<b>0.903</b>	<b>0.0182</b>	<b>0.0119</b>	<b>2.393</b>	<b>20.59</b>	<b>20.44</b>	<b>0.0344</b>	<b>2.282</b>	<b>0.097</b>	<b>0.113</b>
	0.003	0.018	0.021	0.0015	0.0009	0.041	0.12	0.09	0.0027	0.037	0.007	0.004
CM-19A	<b>0.361</b>	<b>0.783</b>	<b>1.588</b>	<b>0.0440</b>	<b>0.0182</b>	<b>0.986</b>	<b>13.12</b>	<b>15.27</b>	<b>0.0788</b>	<b>1.023</b>	<b>0.311</b>	<b>1.235</b>
	0.008	0.010	0.015	0.0020	0.0008	0.031	0.11	0.16	0.0045	0.018	0.022	0.055
CM-20A	<b>0.63</b>	<b>0.594</b>	<b>1.74</b>	<b>0.0383</b>	<b>0.020</b>	<b>0.237</b>	<b>0.97</b>	<b>1.007</b>	<b>0.076</b>	<b>0.365</b>	<b>0.104</b>	<b>0.225</b>
	0.01	0.005	0.02	0.0015	0.001	0.008	0.01	0.015	0.002	0.007	0.007	0.004
CM-22A	<b>0.154</b>	<b>1.443</b>	<b>0.248</b>	<b>0.086</b>	<b>0.084</b>	<b>0.419</b>	<b>0.167</b>	<b>3.106</b>	<b>0.0049</b>	<b>0.132</b>	<b>0.599</b>	<b>0.653</b>
	0.002	0.009	0.008	0.004	0.003	0.006	0.004	0.041	0.0017	0.006	0.010	0.008
SP-1B	<b>0.050</b>	<b>1.67</b>	<b>0.505</b>	<b>0.039</b>	<b>0.30</b>	<b>0.47</b>	<b>17.42</b>	<b>8.32</b>	<i>0.003</i>	<b>0.40</b>	<b>0.032</b>	<b>0.060</b>
	0.002	0.03	0.017	0.003	0.02	0.01	0.12	0.16		0.01	0.003	0.004
SP-2C	<b>1.40</b>	<b>14.50</b>	<b>0.29</b>	<b>0.037</b>	<b>0.016</b>	<b>0.35</b>	<b>1.56</b>	<b>0.050</b>	<b>0.030</b>	<b>0.050</b>	<b>0.033</b>	<b>0.051</b>
	0.03	0.21	0.02	0.003	0.002	0.03	0.03	0.003	0.002	0.002	0.005	0.003
SP-3C	<b>0.30</b>	<b>0.43</b>	<b>0.84</b>	<b>0.026</b>	<b>0.011</b>	<b>0.185</b>	<b>16.42</b>	<b>5.31</b>	<b>0.095</b>	<b>0.26</b>	<b>0.12</b>	<b>0.19</b>
	0.02	0.03	0.04	0.003	0.003	0.011	0.11	0.07	0.010	0.01	0.01	0.01
SP-3D	<b>0.171</b>	<b>0.34</b>	<b>0.71</b>	<b>0.021</b>	<b>0.015</b>	<b>0.73</b>	<b>16.44</b>	<b>5.36</b>	<b>0.037</b>	<b>0.25</b>	<b>0.12</b>	<b>0.11</b>
	0.007	0.02	0.03	0.003	0.003	0.04	0.23	0.15	0.003	0.01	0.01	0.01
SP-4C	<b>0.34</b>	<b>1.66</b>	<b>1.75</b>	<b>0.020</b>	<b>0.010</b>	<b>0.056</b>	<b>22.1</b>	<b>37.1</b>	<b>0.011</b>	<b>0.105</b>	<i>0.01</i>	<b>0.059</b>
	0.02	0.04	0.04	0.004	0.002	0.007	0.1	0.2	0.003	0.008		0.005
BO-2B	<b>0.515</b>	<b>0.745</b>	<b>0.309</b>	<b>0.0093</b>	<b>0.0016</b>	<b>0.100</b>	<b>0.212</b>	<b>0.057</b>	<b>0.0196</b>	<b>0.006</b>	<i>0.005</i>	<i>0.001</i>
	0.010	0.011	0.007	0.0007	0.0003	0.005	0.004	0.002	0.0008	0.001		

RM	Ti	Co	As	Sn	B	Nb	Pb	Sb	Zr	Ca	Ta	N
CM-1C	<b>0.066</b>	<b>0.026</b>		<b>0.012</b>	<b>0.0020</b>	<b>0.054</b>	<b>0.005</b>	<b>0.01</b>		<b>0.0007</b>		<b>0.009</b>
	0.002	0.001		0.001	0.0002	0.002	0.002	0.002		0.0002		0.001
CM-1D	<b>0.054</b>	<b>0.029</b>		<b>0.0144</b>	<b>0.0017</b>	<b>0.050</b>		<b>0.0112</b>				<b>0.0124</b>
	0.004	0.001		0.0009	0.0002	0.004		0.0008				0.0005
CM-2B	<b>0.342</b>	<b>0.454</b>	<b>0.120</b>	<b>0.091</b>	<b>0.0010</b>	<i>0.58</i>	<b>0.087</b>	<b>0.020</b>	<b>0.013</b>			<b>0.0062</b>
	0.008	0.022	0.017	0.003	0.0001		0.008	0.004	0.002			0.0007
CM-3A	<b>0.006</b>	<b>0.012</b>	<b>0.005</b>	<b>0.007</b>	<b>0.0002</b>	<b>0.006</b>						<b>0.007</b>
	0.0003	0.002	0.002	0.002	0.0001	0.001						0.001
CM-4B	<b>0.12</b>	<b>0.115</b>	<b>0.015</b>	<b>0.028</b>	<b>0.017</b>	<b>0.071</b>	<b>0.022</b>	<b>0.052</b>		Zn 0.007		<b>0.013</b>
	0.01	0.004	0.001	0.002	0.001	0.002	0.003	0.002		0.001		0.001
CM-5C	<b>0.031</b>	<b>0.022</b>	<b>0.020</b>	<b>0.018</b>	<b>0.0012</b>	<b>0.014</b>	<b>0.009</b>	<b>0.005</b>	<i>0.07</i>	<i>0.0006</i>		<b>0.014</b>
	0.002	0.002	0.003	0.003	0.0002	0.001	0.002	0.002				0.001
CM-6A	<b>0.03</b>	<b>0.03</b>	<b>0.025</b>	<b>0.017</b>	<b>0.015</b>	<b>0.028</b>	<b>0.017</b>	<b>0.03</b>	<b>0.04</b>			<b>0.009</b>
	0.003	0.005	0.002	0.002	0.001	0.002	0.001	0.003	0.003			0.001
CM-7A	<b>0.14</b>	<b>0.007</b>	<b>0.005</b>	<b>0.008</b>	<b>0.0003</b>	<b>0.004</b>	0.0014	0.0003	<b>0.042</b>			<b>0.01</b>
	0.005	0.001	0.001	0.002	0.0001	0.001			0.003			0.002
CM-8B	<b>0.0008</b>	<b>0.007</b>	<b>0.0035</b>	<b>0.0126</b>	<b>0.0023</b>	<i>0.002</i>	<i>0.003</i>	<i>0.004</i>	<i>0.002</i>			<b>0.0075</b>
	0.0002	0.001	0.0003	0.0007	0.0003							0.0004
CM-9B	<b>0.002</b>	<b>0.004</b>	0.002	<b>0.003</b>	<b>0.004</b>	<b>0.06</b>	<b>0.002</b>	<b>0.003</b>	<b>0.003</b>			
	0.001	0.001		0.001	0.001	0.01	0.001	0.001	0.001			
CM-12C	<b>0.0128</b>	<b>0.0044</b>	<b>0.0030</b>	<b>0.0055</b>	<b>0.0033</b>	<b>0.0066</b>				<b>0.0010</b>		<b>0.0056</b>
	0.0004	0.0006	0.0007	0.0010	0.0002	0.0005				0.0002		0.0005
CM-14A	<b>0.40</b>	<b>0.015</b>	<b>0.016</b>	<b>0.027</b>	<b>0.0062</b>	<b>0.115</b>	<b>0.013</b>	<b>0.006</b>	<b>0.044</b>	0.004	<b>0.015</b>	<b>0.0095</b>
	0.01	0.002	0.001	0.002	0.0005	0.005	0.001	0.001	0.003		0.002	0.0010
CM-15C		<i>0.01</i>					<b>0.29</b>					
							0.01					
CM-16A	<b>0.099</b>	<b>0.056</b>	<b>0.058</b>	<b>0.025</b>	<b>0.012</b>	<b>0.066</b>	<b>0.053</b>	<b>0.027</b>	<b>0.062</b>	<b>0.0006</b>		<b>0.015</b>
	0.002	0.003	0.003	0.001	0.001	0.002	0.006	0.001	0.003	0.0001		0.001
CM-17A	<b>0.0236</b>	<b>0.0329</b>	<b>0.0105</b>	<b>0.0109</b>	<b>0.0060</b>		<b>0.0177</b>					<b>0.0743</b>
	0.0016	0.0022	0.0014	0.0011	0.0005		0.0032					0.0040
CM-18A		<b>0.097</b>										<b>0.0848</b>
		0.005										0.0029
CM-19A	<b>0.254</b>	<b>0.222</b>		<b>0.0283</b>	<i>0.091</i>	<b>0.091</b>				<i>0.0036</i>		<i>0.021</i>
	0.009	0.007		0.0030		0.004						
CM-20A	<b>0.175</b>	<b>0.124</b>	<b>0.073</b>	<b>0.033</b>	<b>0.0071</b>	<b>0.074</b>	<b>0.015</b>	<b>0.025</b>	<b>0.083</b>		Zn 0.007	<b>0.0086</b>
	0.008	0.002	0.005	0.001	0.0004	0.003	0.002	0.001	0.004		0.001	0.0012
CM-22A	<b>0.0038</b>	<b>0.130</b>	<b>0.057</b>	<b>0.069</b>		<b>0.0195</b>						<b>0.0065</b>
	0.0004	0.002	0.006	0.002		0.0022						0.0002
SP-1B	<i>0.002</i>	<b>0.161</b>	<i>0.003</i>	<b>0.013</b>	<b>0.0007</b>	<b>0.012</b>						<b>0.063</b>
		0.003		0.001	0.0002	0.002						0.005
SP-2C	<b>0.014</b>	<b>0.044</b>	<i>0.005</i>	<b>0.037</b>	<i>0.003</i>							<b>0.027</b>
	0.001	0.003		0.003								0.001
SP-3C	<i>0.17</i>	<b>0.041</b>	0.03	0.02	<b>1.67</b>	<i>0.04</i>						
		0.004			0.03							
SP-3D	<b>0.088</b>	<b>0.033</b>	<i>0.03</i>	<i>0.04</i>	<b>2.45</b>	<i>0.04</i>						
	0.008	0.004			0.03							
SP-4C	<b>0.031</b>	<b>0.065</b>				<b>0.022</b>				<i>Fe 36.6</i>		<i>0.04</i>
	0.003	0.007				0.002						
BO-2B	<b>0.0017</b>	<b>0.0055</b>	<b>0.0057</b>	<b>0.0062</b>						<i>0.0008</i>		<b>0.004</b>
	0.0003	0.0005	0.0005	0.0005								0.001

## RM křemíkové oceli SST – (1A, 2A, 3A, 4A)

průměr vzorku 37, výška 25mm nebo dle dohody

	<b>C</b>	<b>Mn</b>	<b>Si</b>	<b>P</b>	<b>S</b>	<b>Cu</b>	<b>Cr</b>	<b>Ni</b>
<b>SST-1A</b>	<b>0.072</b> 0.003	<b>0.062</b> 0.004	<b>2.57</b> 0.04	<b>0.041</b> 0.002	<b>0.0043</b> 0.0004	<b>0.654</b> 0.013	<b>0.209</b> 0.005	<b>0.155</b> 0.004
<b>SST-2A</b>	<b>0.083</b> 0.003	<b>0.160</b> 0.004	<b>3.07</b> 0.04	<b>0.026</b> 0.002	<b>0.0089</b> 0.0008	<b>0.205</b> 0.006	<b>0.138</b> 0.004	<b>0.066</b> 0.002
<b>SST-3A</b>	<b>0.035</b> 0.003	<b>0.221</b> 0.005	<b>3.27</b> 0.05	<b>0.007</b> 0.002	<b>0.0093</b> 0.001	<b>0.096</b> 0.004	<b>0.043</b> 0.002	<b>0.061</b> 0.002
<b>SST-4A</b>	<b>0.062</b> 0.004	<b>0.376</b> 0.010	<b>4.73</b> 0.05	<b>0.031</b> 0.003	<b>0.020</b> 0.002	<b>0.111</b> 0.004	<b>0.105</b> 0.005	<b>0.082</b> 0.002

	<b>Al</b>	<b>Mo</b>	<b>W</b>	<b>V</b>	<b>Ti</b>	<b>Co</b>	<b>As</b>	<b>Sn</b>
<b>SST-1A</b>	<b>0.061</b> 0.003	<i>0.002</i>	-	<b>0.006</b> 0.002	<b>0.004</b> 0.001	<b>0.005</b> 0.001	<b>0.002</b> 0.001	<b>0.110</b> 0.006
<b>SST-2A</b>	<b>0.010</b> 0.002	<b>0.054</b> 0.002	<b>0.019</b> 0.002	<b>0.024</b> 0.002	<b>0.016</b> 0.002	<b>0.022</b> 0.002	-	<b>0.055</b> 0.004
<b>SST-3A</b>	<b>0.009</b> 0.002	<b>0.036</b> 0.002	<b>0.016</b> 0.002	<b>0.041</b> 0.002	<b>0.009</b> 0.001	<b>0.038</b> 0.003	<b>0.003</b> 0.001	<b>0.015</b> 0.002
<b>SST-4A</b>	<b>0.514</b> 0.018	<b>0.019</b> 0.002	<b>0.026</b> 0.003	<b>0.031</b> 0.002	<b>0.035</b> 0.002	<b>0.012</b> 0.002	<b>0.004</b> 0.001	<b>0.025</b> 0.003

	<b>B</b>	<b>Pb</b>	<b>Sb</b>	<b>Zr</b>	<b>Zn</b>	<b>N</b>
<b>SST-1A</b>	<b>0.0003</b> 0.0001	<i>0.002</i>	<i>0.002</i>			<b>0.0059</b> 0.0005
<b>SST-2A</b>	<b>0.0089</b> 0.0006	<b>0.015</b> 0.003	<b>0.008</b> 0.002	<b>0.017</b> 0.002	<b>0.011</b> 0.003	<b>0.0078</b> 0.0007
<b>SST-3A</b>	<b>0.0019</b> 0.0004	<b>0.013</b> 0.002			<b>0.011</b> 0.003	<b>0.0088</b> 0.0012
<b>SST-4A</b>	<b>0.0006</b> 0.0002	<b>0.008</b> 0.002	<i>0.003</i>	<i>0.003</i>	<i>0.002</i>	<b>0.0058</b> 0.0007

## QCM:

Univerzální sada QCM ocelí pro spektrometrii, viz. tabulky složení

### QCM SL 1 – SL – 6, HS 1 – HS 2

průměr vzorku 35 až 43mm, 25mm nebo dle dohody

QCM	C	Mn	Si	P	S	Cu	Cr	Ni	Al	Mo
SL-1A	0.078	0.46	1.39	0.024	0.011	0.09	13.4	0.23	0.86	0.03
SL-2A	0.015	1.84	0.64	0.025	0.027	0.50	16.9	11.0	0.005	2.03
SL-3A	0.043	1.73	0.53	0.024	0.002	0.22	24.6	19.6	0.007	0.38
SL-4A	1.38	2.85	2.28	0.038	0.017	0.75	26.3	2.04	0.12	0.92
SL-5A	0.37	5.8	0.36	0.021	0.014	2.90	11.7	4.94	0.035	4.12
HS-1A	0.72	0.28	0.28	0.023	0.011	0.08	4.15	0.14	0.03	0.06
HS-2A	1.24	0.27	0.24	0.024	0.017	0.08	4.15	0.21	0.035	3.75
QCM	W	V	Ti	Co	As	Sn	Nb	N	B	Ta
SL-1A	0.1	0.017	0.004	0.02		0.01		0.025		
SL-2A	0.03	0.075	0.06	0.09	0.008	0.01		0.04	0.002	
SL-3A	0.03	0.066	0.003	0.06		0.006	0.013	0.065	0.002	
SL-4A	0.35	0.54	0.8	0.11		0.02	1.11		0.0013	
SL-5A	0.78	0.21	0.004	0.26	0.005	0.004	0.20			0.07
HS-1A	17.5	1.33	0.003	4.7		0.02				
HS-2A	9.3	3.4	0.003	9.9		0.01				

### QCM SP-3B, 5B, 6A, 7A, 8B

průměr vzorku 35 až 43mm, 25mm nebo dle dohody

QCM	C	Mn	Si	P	S	Cu	Cr	Ni	Al	Mo
SP-3B	0.27	0.29	0.72	0.023	0.008	0.62	15.1	5.65	0.08	0.24
SP-5B	0.20	1.86	3.07	0.108	0.023	0.15	0.38	3.00	0.18	0.13
SP-7A	0.006	0.08	0.036	0.007	0.010	0.08	0.01	47.3	0.003	0.01
SP-8B	2.37	0.86	1.40	0.022	0.012	0.075	37.6	2.72	0.13	0.10
QCM	W	V	Ti	Co	As	Sn	B	Nb	Pb	Sb
SP-3B	0.12	0.10	0.13	0.02		0.01	0.88			
SP-5B	0.62	0.71	0.35	0.135	0.19	0.08	0.14	0.09	0.09	0.07
SP-7A		0.001	0.004	0.003						
SP-8B	0.05	0.13	0.13	0.075	0.05	0.06	0.03	0.04		

## QCM CM (5B, 10A, 12A)

průměr vzorku 35 až 43mm, 25mm nebo dle dohody

QCM	C	Mn	Si	P	S	Cu	Cr	Ni
CM-5B	1.09	1.28	0.39	0.021	0.012	0.13	2.07	0.23
CM-10A	0.694	1.00	0.817	0.040	0.022	0.31	5.48	2.38
QCM	Al	Mo	W	V	Ti	Co	As	Sn
CM-5B	0.083	0.10	0.03	0.06	0.02	0.022	0.018	0.012
CM-10A	0.086	1.234	0.96	0.908	0.0189	0.114	0.03	0.062
QCM	B	Nb	Pb	Sb	N	Zr	Ta	Zn
CM-5B	0.002	0.015	0.01	0.006	0.0135	0.09		
CM-10A	0.05							

## REFERENČNÍ MATERIÁLY PEVNÉ PALIVO A POPEL

Sada je určena pro zkoušení základních chemických a technologických vlastností pevných paliv. Referenční materiály SF a SFA vznikly v souladu s ISO Guide 34 a 35. Jsou určeny pro kontrolu a validaci metod pro měření spalného tepla, elementární analýzy pro prvky C, N, H, S a stanovení obsahu těkavých látek a popela. Všechny členy sady jsou dodávány v 50 g balení.

SF-2014								
Parametr	Spalné teplo		Elementární analýza				Prchavá hořlavina	Popel
			C	H	N	S		
označení	kJ/kg	BTU/Lb	[ %hm. ]				[ %hm. ]	
<b>SF-01-14</b> hnědé uhlí Uc	<b>14617</b>	6284	<b>36.40</b>	<b>3.31</b>	<b>0.60</b>	<b>1.33</b>	<b>31.72</b>	<b>44.90</b>
	±49	±21	±0.30	±0.07	±0.04	±0.03	±0.17	±0.14
<b>SF-02-14</b> černé uhlí Uc	<b>33090</b>	14226	<b>91.84</b>	<b>2.09</b>	<b>0.65</b>	<b>0.16</b>	<b>13.10</b>	<b>2.80</b>
	±58	±25	±0.46	±0.10	±0.04	±0.01	±0.18	±0.06
<b>SF-03-14</b> černé uhlí Uc	<b>32060</b>	13783	<b>96.30</b>	<b>0.21</b>	<b>0.32</b>	<b>0.14</b>	<b>1.15</b>	<b>2.98</b>
	±115	±49	±0.50	±0.06	±0.04	±0.01	±0.15	±0.03
<b>SF-04-14</b> černé uhlí Uc	<b>34618</b>	14883	<b>85.53</b>	<b>4.59</b>	<b>1.35</b>	<b>0.48</b>	<b>23.67</b>	<b>4.43</b>
	±80	±34	±0.45	±0.10	±0.04	±0.01	±0.22	±0.06
<b>SF-05-14</b> koks Uc	<b>30410</b>	13074	<b>90.40</b>	<b>0.20</b>	<b>0.98</b>	<b>0.45</b>	<b>1.28</b>	<b>7.84</b>
	±110	±47	±0.44	±0.06	±0.03	±0.01	±0.12	±0.04
<b>SF-06-14</b> černé uhlí Uc	<b>23990</b>	10314	<b>58.28</b>	<b>3.51</b>	<b>3.80</b>	<b>3.13</b>	<b>27.36</b>	<b>27.21</b>
	±93	±40	±0.36	±0.05	±0.05	±0.05	±0.22	±0.11
<b>SF-07-14</b> hnědé uhlí Uc	<b>21337</b>	9173	<b>50.97</b>	<b>4.26</b>	<b>1.05</b>	<b>2.52</b>	<b>38.80</b>	<b>28.73</b>
	±86	±37	±0.28	±0.08	±0.04	±0.04	±0.20	±0.05
<b>SFA-01-14</b> popel Uc			<b>3.10</b>			<b>0.029</b>		<b>96.60</b>
			±0.19			±0.008		±0.17