

ANALYTICAL LABORATORY  
IN THE CHEMICAL PLANT „RUDNIKI” S.A.  
Rudniki near Częstochowa POLAND

ISO 45001:2018  
ISO 9001:2015  
ISO 14001:2015



## QUALITY CERTIFICATE No. 415/06/2021/S

GOODS: SODIUM SILICATE solid in lumps  
BUYER: BIM NORWAY AS Drammen NORWAY



### ANALYSIS

No.	Subject of analysis	Demands spec. no 13/14	Result*
1.	Mole ratio $\pm 0.1$	3.3	3.35
2.	Content of $\text{Na}_2\text{O} + \text{SiO}_2$ min %	99	99.8
3.	Content of $\text{Na}_2\text{O}$ %	23.0 – 24.5	23.5
4.	Content of $\text{SiO}_2$ %	75.1 – 76.8	76.3
5.	Content of $\text{Fe}_2\text{O}_3$ max %	0.018	0.012
6.	Water insoluble substances max %	0.1	0.1

\* The analysis was made in acc. d/TP/10

### TRACE ELEMENTS

No.		WARRANT ED ppm ( max )	TYPICAL* ppm	Method
1	Content of $\text{Fe}_2\text{O}_3$	200	170	ICP-AES
2	Content of $\text{Al}_2\text{O}_3$	1100	900	ICP-AES
3	Content of $\text{CaO}$	140	100	ICP-AES
4	Content of $\text{TiO}_2$	400	300	ICP-AES
5	Content of $\text{Cr}_2\text{O}_3$	4	3	ICP-AES
6	Content of $\text{CdO}$	0.1	0.05	ICP-AES
7	Content of $\text{NiO}$	1	0.3	ICP-AES
8	Content of $\text{BaO}$	50	40	ICP-AES
9	Content of $\text{ZrO}_2$	90	70	ICP-AES
10	Content of $\text{CuO}$	1	0.5	ICP-AES
11	Content of $\text{MnO}$	5	4	ICP-AES
12	Content of $\text{PbO}$	2	1	ICP-AES
13	Content of $\text{SrO}$	6	5	ICP-AES
14	Content of $\text{ZnO}$	6	5	ICP-AES
15	Content of $\text{MgO}$	30	12	ICP-AES
16	Content of $\text{CoO}$	0.5	0.3	ICP-AES
17	Content of $\text{As}_2\text{O}_3$	1	0.4	HG-ICP-AES
18	Content of $\text{Cl}$	400	300	Mercurimetric
19	Content of $\text{SO}_3$	200	200	Reduction and titrimetry
20	Content of $\text{K}_2\text{O}$	120	90	ICP-AES
21	Content of $\text{HgO}$	0.05	< 0.05	CV-AAS

Analysis of sodium silicate was made by Urszula Jabłońska  
Rudniki, 07.06.2021



CARGO : SODIUM SILICATE LUMPS  
VESSEL : m/v "LISA D"  
PORT : SZCZECIN  
TERMINAL : DB PORT  
BERTH : SŁOWACKIE  
CLIENT : RHENUS PORT LOGISTIC Sp. z o.o.  
REF. No. : 106/21

## HOLDS CLEANLINESS CERTIFICATE

VESSEL: "LISA D"

This is to certify, that before the commencement of loading we have carried out the inspection of the a/m. Vessel's hold(s):

Nos.: 1

The hold(s) was (were) found to be empty, clean, dry and therefore suitable for loading of u/m commodity.


SODIUM SILICATE LUMPS

Last cargo: Split

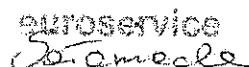
Hold(s)'s closing system : STEEL COVERS

Date: 06th June, 2021 Hrs: 22:00

Master / Chief Mate

  
MV "LISA D"

Surveyor

  
Surveyor

Euroservice Sp. z o.o.  
Dominik Salamacha

THE ABOVE MENTIONED INSPECTION WAS PERFORMED ACCORDING TO OUR BEST KNOWLEDGE AS FAR AS VISIBLE AND ACCESSIBLE AT TIME AND PLACE OF CONTROL / INSPECTION.