



ALS Scandinavia AB
Hammarvagen 22
SE-943 36, Ojebyn
Phone: +46 911 65 800 Fax: +46 911 60 085
www.alsglobal.com/geochemistry

An INAB accredited testing laboratory Reg. No. 173T. Accredited methods are listed in the Scope of Accreditation available on request.

To: MITTA AB
FE-3060 SCANCLOUD
ÖSTERSUND 83190

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Total # Pages: 3 (A)
Plus Appendix Pages
Finalized Date: 25-FEB-2020
Account: MARAMI

QC CERTIFICATE PI20029198

Project: Norra Länna

P.O. No.: 30000011

This report is for 4 Crushed Rock samples submitted to our lab in Pitea, Sweden on 7-FEB-2020.

The following have access to data associated with this certificate:

FITSUM GIRUM

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
LOG-22	Sample login - Rcd w/o BarCode
CRU-31	Fine crushing - 70% <2mm
SPL-22Y	Split Sample - Boyd Rotary Splitter
PUL-31	Pulverize up to 250g 85% <75 um
CRU-QC	Crushing QC Test
LOG-24	Pulp Login - Rcd w/o Barcode
PUL-QC	Pulverizing QC Test

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
C-IR07	Total Carbon (IR Spectroscopy)	LECO
C-IR06	Organic Carbon (IR Spectroscopy)	LECO
C-CAL04	Inorganic Carbon	LECO
OA-VOL08EU	AP & NP of Sulphidic Waste	
S-IR08	Total Sulphur (IR Spectroscopy)	LECO
S-ICP19	Sulphate Sulphur / By ICP-AES	ICP-AES
S-CAL19	Sulphide Sulphur (Calculated)	LECO

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

***** See Appendix Page for comments regarding this certificate *****

Comments: Samples were received on 07-Feb-2020 and the SSF/Request on 07-Feb-2020.

Signature:

Andrey Tairov, Technical Manager, Ireland



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QC CERTIFICATE OF ANALYSIS PI20029198

Sample Description	Method Analyte Units LOD	S-IR08 S %	S-ICP19 S %	C-IR07 C %	C-IR06 C organi %	C-CAL04 C inorga %	OA-VOL08EU NP tCaCO3/1Kt	OA-VOL08EU AP tCaCO3/1Kt	OA-VOL08EU NPR Unity	OA-VOL08EU NNP tCaCO3/1Kt
		0.01	0.01	0.01	0.01	0.01	1	0.3	0.01	1
STANDARDS										
AmmSO4			25.2							
AmmSO4			24.1							
Target Range - Lower Bound			23.0							
Upper Bound			25.5							
GGC-08					0.46					
Target Range - Lower Bound					0.49					
Upper Bound					0.55					
GS310-7		10.80		4.02						
Target Range - Lower Bound		10.50		4.00						
Upper Bound		11.30		4.32						
GS311-3		1.14		1.05						
Target Range - Lower Bound		1.07		0.96						
Upper Bound		1.17		1.06						
KZK-1							60	24.7	2.42	35
Target Range - Lower Bound							54	22.8	2.21	31
Upper Bound							64	27.0	2.57	38
NBM-1							50	8.1	6.12	42
Target Range - Lower Bound							45	7.8	5.50	38
Upper Bound							54	9.6	6.36	45
SY-4					0.10					
SY-4					0.11					
Target Range - Lower Bound					0.11					
Upper Bound					0.15					
BLANKS										
BLANK					0.01					
BLANK					<0.01					
Target Range - Lower Bound					<0.01					
Upper Bound					0.02					
BLANK								<0.3		
Target Range - Lower Bound							1.000000000	<0.3	0.010000000	1.000000000
Upper Bound							2.000000000	0.6	0.020000000	2.000000000
BLANK			0.02							
Target Range - Lower Bound			<0.01							
Upper Bound			0.02							
BLANK		<0.01		<0.01						
BLANK		<0.01		<0.01						
Target Range - Lower Bound		<0.01		<0.01						
Upper Bound		0.02		0.02						

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DUPLICATES										
ORIGINAL		0.10		0.19						
DUP		0.09		0.20						
Target Range - Lower Bound		0.08		0.18						
Upper Bound		0.11		0.21						
ORIGINAL					3.00	0.21				
DUP					3.01	0.04				
Target Range - Lower Bound					2.92	0.11				
Upper Bound					3.09	0.14				
ORIGINAL		0.02		0.07						
DUP		0.01		0.06						
Target Range - Lower Bound		<0.01		0.05						
Upper Bound		0.02		0.08						
Prov 4B							10	0.3	32.00	10
DUP							10	0.3	32.00	10
Target Range - Lower Bound							9	<0.3	30.39	9
Upper Bound							12	0.6	33.61	12
Prov 6B			0.03							
DUP			0.03							
Target Range - Lower Bound			0.02							
Upper Bound			0.04							
ORIGINAL			0.05							
DUP			0.05							
Target Range - Lower Bound			0.04							
Upper Bound			0.06							
ORIGINAL		0.79		0.59	0.56	0.03				
DUP		0.80		0.64	0.59	0.05				
Target Range - Lower Bound		0.77		0.59	0.55	0.03				
Upper Bound		0.82		0.64	0.60	0.05				

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CERTIFICATE COMMENTS

ANALYTICAL COMMENTS

Applies to Method: OA-VOL08EU Units: tCaCO₃/1Kt = tCaCO₃/1000t ore
OA-VOL08EU

ACCREDITATION COMMENTS

Applies to Method: The methods immediately below this line are ISO 17025:2005 Accredited. INAB Registration No: 173T
C-IR07 S-IR08



LABORATORY ADDRESSES

Applies to Method: Processed at ALS Pitea located at Hammarvagen 22, SE-943 36, Ojebyn, Sweden.
CRU-31 CRU-QC LOG-22
PUL-31 PUL-QC SPL-22Y

LOG-24
WEI-21

Applies to Method: Processed at ALS Loughrea located at Dublin Road, Loughrea, Co. Galway, Ireland.
C-CAL04 C-IR06 C-IR07
S-CAL19 S-ICP19 S-IR08

OA-VOL08EU