

Lime Quality Data Application

TO: Lime Specialties Team DATE: April 23, 2024 SUBJECT: Lime Application Overview



Table of Contents

Overv	iew	3
Loggir	ng into the Lime Data Application	3
Naviga	ation Panel	4
Home	Dashboard	5
1.	Silo Details	6
2.	Daily Moisture	7
3.	Quick Links	7
4.	Composite Certs	7
Kilns [Data Entry	8
Kilns T	ransaction Data	9
Comp	osite Results1	0
Custo	mer Specifications1	1
Bin Ca	lculations1	2
Certs.		3
Repor	ts1	4
Pro	duction Report1	4
Loa	der Report1	5
Ema	ail Report1	6
Admir	11	7
Logou	t1	7
Addin	g Entries to the Application1	8
Gener	ating an Excel Sheet View of Data1	8



Overview

The Lime Data application enables employees to report lab testing information and data for producing Lime specialties products. The application contains all lab testing results for quality purposes to meet each client's unique requirements.

NOTE: The Lime Data application access and appearance will vary depending on the user type to reflect the accesses needed to effectively complete their job responsibilities. All Lime Data application users will be able to see high-level items. All potential options will be covered in the documentation.

Logging into the Lime Data Application

To login to the Lime Data Application:

- 1. Navigate to https://limequalitydata.martinmarietta.com (Opens a new tab)
- 2. Enter login information

NOTE: The login will be the same as the user's standard Martin Marietta sign-on.

3. Click "Submit"

		⑦ Help
Martin Marietta	Lime Quality Data	
	Email *	
2	Password *	
3	Login	



Navigation Panel

The navigation panel enables users to toggle between the different dashboards and tools in the absence of search functionality.

NOTE: The available options will vary depending on the user's access. Not all options displayed in the documentation will be available to all users. All possible options are documented.





Martin Marietta Materials

Lime Data Application Overview Updated: April 17, 2024

Home Dashboard

The Home dashboard is the default landing screen for all users after login. There are four sections of the Home dashboard:

- <u>Silo Details</u>
- Daily Moisture
- Quick Links
- <u>Composite Certs</u>

																				⑦ Help	
	Martin Marietta		Li	me Qu	uality I	Data															
DA	ASHBOARD																				
-	Dashboard																				
m	Kilns Data Entry			Silo D	etails															ß	
₽	Kilns Transaction	n Data		Silo	1	2	3	4	5	6	7	8	9	А	в	с	D	Е	F	Q	
\$	Composite Res	1		Material	PEBBLE	PEBBLE	3/4x1/4	GRANLR	GRANLE	PELLETS	PEBBLE	PEBBLE	PEBBLE	PEBBLE	PEBBLE	PEBBLE	3/4×1/4	PEBBLE	GRANLR	PEBBLE	
Ê	Customer Specifications			Status																	
	Bin Calculations	_										3			In In	Spec	Out of !	5pec 📕	Empty	N/A	
G	Certs	_										$\mathbf{\nabla}$									
Ľ	Reports \lor	_		Daily	Moist	ure			•	Quick	Links				c	ompo	site C	erts -	4/15/2	024 🖸	
۲	Admin \vee														с	ustomer	NSD ELLO	NSD WLLO	CHS	CHS WLLO	
₿	Logout	2			ſ		10			<u>Kilns Do</u> Compos	ita Entry	ts.		4		Sulfur	0.006	0	0.006	0	
Sloar	n Hammer	-			Ľ) 0	.18			2011/202	<u>ne nese</u>					CO2	0.06	0		1.1	
Role: Last 4/15/	: Admin Login: '2024 4:42:20 PM															LOI		-	0.24	0	
		«																			



1. Silo Details

Silo D	etails															Ľ
Silo	1	2	3	4	5	6	7	8	9	А	в	с	D	E	F	Q
Material	PEBBLE	PEBBLE	3/4x1/4	GRANLR	GRANLR	PELLETS	PEBBLE	PEBBLE	PEBBLE	PEBBLE	PEBBLE	PEBBLE	3/4x1/4	PEBBLE	GRANLR	PEBBLE
Status																
											ln	Spec	Out of !	Spec	Empty	N/A

Silo – Designates the silos and the product type in each silo and their status for the silos at the Lime site.

- Silos 1, 2, 3, 4, 5, 6, 7, 8, and 9 are at the **WEST** Lime load out
- Silos A, B, C, D, E, F, and Q are at the EAST Lime load out

Material – For each silo, the material contained must be designated. The options include:

- **Pebble** $-\frac{3}{4}$ " diameter to 2 $\frac{1}{2}$ " diameter pieces.
- ¾ x ¼ ¼" diameter to ¾" diameter pieces.
- **Granular** Anything smaller than a ¼" diameter is granular.
- Pellets Compacted briquettes of granular lime.

Status – To determine if a product is In Spec or if a product is Out of Spec, etc.:

- In Spec If the lab tests surpass the quality thresholds for the strictest clients, the internal specifications will mark the material in the silo as in spec.
- **Out of Spec** If the lab tests **do not meet** the quality thresholds for the strictest clients, the internal specifications will mark the material in the silo as out of spec.
- Empty The silo is currently empty and has no product to measure or test.
- N/A Marker for Silo 6. The material in Silo 5 is used to create pellets to be placed in Silo 6.
- **NOTE**: When a product is noted as being Out of Spec, it is often delegated to customers with less strict standards for the product. Additionally, production will be alerted to make changes to clean up the future product.



2. Daily Moisture

Test done by night shift lab technician. The test includes taking the CO2 result and the LOI result. The LOI result minus the CO2 result is the Daily Moisture number.

The daily moisture is the amount of moisture in the product.

Daily Moisture	2
ß	0.19

3. Quick Links

Displays available links directly to select pages within the application.

The items within the quick links page can also be accessed through the Navigation Panel.

Quick Links	
<u>Kilns Data Entry</u>	
<u>Composite Results</u>	

4. Composite Certs

Displays Sulfur, CO2, and LOI data for a select few customers. The table is a quick view of the lab data that is entered into the truck and rail database.

NOTE: A dash in one of the spaces indicates data not collected for the specific client.

Compos	site C	erts - :	3/31/2	024 🖸
Customer	NSD ELLO	NSD WLLO	CHS ELLO	CHS WLLO
Sulfur	0	0	0	0
CO2	0	0	-	-
LOI	-	-	0	0



Kilns Data Entry

The primary page where lab technicians will enter data during lime testing.

•						12	13 14	🖁 Daily Moi	sture: 0	.21
						+ New	E Save	O Cancel	<u>+</u> Ger	nerate
Date	Time	Technici	Kiln	Silo	Sulfur	Co2	Reactivity	Surface Area	Comm	1
3/28 024	1 5				1,02	2		2		Û
3/24	2	3	4	5	6	- 🕐	8	9	t ¹⁰	1
3/26/2024	20:35	DD	6	-	2.000	2.00	32		11	1
3/26/2024	19:35	DD	5	ŝ	0.001	2.00			-	Û

- 1. **Date** The calendar date of when the test was done.
- 2. Time Time when the testing was completed. Marked in 24-hour time. Set hour and minute.
- 3. Technician First and last initial of the employee who made the entry. Hover over for full name.
- 4. Kiln Indicates which kilns the sample came from (there is no kiln 3, only 1, 2, 4, 5, 6, 7).
- 5. Silo Designates which of the Silos where the product is headed for storage.
- 6. Sulfur Measurement of the Sulfur value from the specific test.
- 7. CO2 Measurement of the CO2 value from the specific test.
- Reactivity Tests how reactive the sample is with water. Done on every other North Kilns run.
 The number is the change in temperature in degrees Celsius.
- 9. Surface Area Only tested on lime for Manistee production to ensure it is Manistee grade lime.
- 10. Comments For noting testing outside of the norm, such as splits, resamples, EPA, etc.
- 11. Delete / Trash Remove a saved lab entry from the entry log.
- 12. New Entry Create a new entry to log lab results.
- 13. Save Changes Saves all the information that has been imputed.
- 14. Cancel Changes Cancels and prevents the unsaved inputs from being saved.
- 15. **Download** Download the entirety of the saved data to an Excel file.
- 16. Generate Updates other tabs and reports in the database when clicked.
- 17. **Daily Moisture** Nightly test of measured LOI minus CO2 to get Daily Moisture. Edited here.



Kilns Transaction Data

						Date: 3/28/2024	Time: 2:15 PM	Daily Moist
							10 🖻	Save 🛇 Cancel
Silo	Sulfur	CO2	LOI	Reactivity	SA	Material Type	Date Empty	Time Empty
	9					PERLE	3/10 024	2 20
1	2	3	4	b	6	P <mark></mark> E	3, 8 24	9
3	0.032	1.72	1.93	36		3/4 x 1/4	11/15/2023	06:00
4	1.019	1.13	1.34	19		GRANULAR	7/10/2022	14:00

- 1. Silo Lists out all the silos in the east and west lime load outs (East 1-9 and West A-F and Q).
- 2. Sulfur Average of the last four sulfur tests done on the silo's material.
- 3. **CO2** Average of the last four CO2 tests done on the silo's material.
- 4. LOI Sum of the CO2 measurement plus the daily moisture number.
- Reactivity Test of the sample's reactivity. The number is the change in temperature in degrees Celsius.
- SA Only tested on lime for Manistee to ensure it is Manistee grade lime for production. Usually, only Silo 9.
- Material Type Status of the silo (empty or not) and if not, what product is contained. Most silos have a designated type, including pebble, granular, pellets, etc.
- 8. Date Empty Date the silo was last emptied. No set timeframe for when they are emptied.
- 9. Time Empty Time the silo was last emptied. No set timeframe for when they are emptied.
- 10. Save Changes Saves all the information that has been imputed.
- 18. Cancel Changes Cancels and prevents the unsaved inputs from being saved
- 19. Download Download the entirety of the page's saved data to an Excel file.



Composite Results

Device composites of two different timed samples.

>						12 1	3 14 3	Daily Moist	ure:	21
						+ New 🖺 S	ave 🛇 C	Cancel 🛨	Ger	nerate
Date	Technici	Kiln	Sample	Loadout	Sizing	% Sulfur	% Co2	Reactivity	Co	
5/28 024			50, 700			010				Û
3/.1_24	2	3	140	5	6	- 🕐	8	9	10	Û
3/27/2024	DD	5	900-1100	E	P	1.000	1	1	11	Û
		6	500-700	W	G	1.000	1	1	-	ŵ

- 1. Date Calendar date of when the test was done, and the entry was made.
- 2. Technician First and last initial of the employee who made the entry. Hover over for full name.
- 3. Kiln Indicates which of the kilns the sample came from. Only kilns 4, 5, 6, and 7 are used here.
- 4. **Sample** Indicates in 24-hour time when the two mixed-together samples were pulled.
- 5. Loadout Which loadout is the product going to West (W) or East (E)
- 6. Sizing The sizes in the unseparated samples taken directly from the kiln.
- 7. % **Sulfur** Percent sulfur in the composite sample.
- 8. % **CO2** Percent CO2 in the composite sample.
- 9. **Reactivity** Reactivity of the composite sample. Number is temp increase with water in Celsius.
- 10. Comment Place to enter any pertinent comments. Ex. Only 1300 samples were used, etc.
- 11. Delete / Trash Remove a saved Composite Result entry from the entry log.
- 12. New Entry Create a new entry to log composite results.
- 13. Save Changes Saves all the information that has been imputed.
- 14. Cancel Edits Cancels and prevents the unsaved inputs from being saved.
- 15. **Download** Download the entirety of the saved data to an Excel file.
- 16. **Generate** Will update the "Certs" page when clicked.
- 17. Daily Moisture Nightly test of measured LOI minus CO2 to get Daily Moisture. Edited here.



Customer Specifications

Individual customer specifications for their lime.

Some customers have stricter specifications than others.

>						- 11	12	13	14
						+ New	E Save	O Cancel	+
Code	Customer	Location	Material	Shipment Mode	Sulfur	Co2	LOI Max	Reactivity	
	Akteel	Ashled, KY		<u> </u>	900		2		
	A ² el	Asi 3, KY	P <mark>4</mark> E	<u> </u>	6		ి	9	۵
	Allegheny Ludium	Brackenri	3/4 x 1/4	Dump	0.080		2.50	10	Û

- 1. **Code** Letter code designation for each customer.
- 2. **Customer** Name of the customer.
- 3. Location The customer location to have the product shipped to.
- 4. Material What materials does the client purchase (can be more than one)
- 5. Shipment Mode What method is used to deliver the product: Dump, Rail, etc.
- 6. **Sulfur** Sulfur threshold for the specific customer. Some are stricter than others.
- 7. **CO2** CO2 threshold for the specific customer.
- 8. LOI Max LOI threshold for the specific customer.
- 9. **Reactivity** Reactivity threshold for the specific customer.
- 10. **Delete / Trash** Remove a customer from the list.
- 11. New Entry Add a new customer to the customer list.
- 12. Save Changes Save a new customer that has been imputed.
- 13. Cancel Edits Cancel new changes before they have been saved.
- 14. Download Download the entirety of the page's saved data to an Excel file.



Bin Calculations

Daily samples are taken and measured from what is loaded for customers. Averages the last 3 or 4 samples before 7 am, depending on the silo, to devise averages for the Sulfur, CO2, and Surface Area. A representative sample is taken on the day shift from a truck shipment.

BIN CALCULATION Date: 16 April 2024 Bin Calculation Data Location Sulfur CO2 Surface Area IST N CALC North Bin (last 3) South Bin (last 3) 2.00 IST S CALC 0.005 0 Silo 10 (last 4) 0.007 0.79 Silo 11 (last 4) 0.026 0.06 0.59 **Calculated Values** Location Sulfur CO2 Surface Area North Bin + Silo 10 0.005 1.81 0.08 North Bin + Silo 11 0.007 1.81 0.06 2ND N CALC N Bin + S10 + S11 0.006 1.81 0.07 South Bin + Silo 10 0.005 1.81 0.08 2ND S CALC South Bin + Silo 11 0.007 1.81 0.06 S Bin + S10 + S11 0.006 1.81 0.07

NOTE: 10 and 11 are generally extra storage that is worked into the bins over time.

- 1. Date Click the calendar icon to select a date and click calculate to see that date's results.
- 2. Location Which silo are the samples coming from, and how many samples are averaged.
- 3. Sulfur Average amount of sulfur across the 3-4 samples.
- 4. **CO2** Average amount of sulfur across the 3-4 samples.
- 5. Surface Area Average surface area across the 3-4 samples.
- 6. Extra Testing If multiple samples are taken, specific numbers, indicated here, are used.



<u>Certs</u>

The Certs page is populated from the composite results page. Gives values to the customers requesting the Certificate of Analysis. It is a daily average of the composite testing results.

The Certificates of Analysis are updated in Word with the data from the "Certs" entry page.

ELLO Date:	& WLLO Certi 4/15/2024	ificat 2	3	4	5	🖁 Dail	y Moisture: 0.18
ELLO		Sulfur	CO2	C (CO2/3.67)	LOI	R	
CAR	Pebble	0.006	0.06	0.016	0.24*	36	B24 w/o
	Midsize	0.006	0.06	0.016	0.24*	36 6	B24 w/o
	Granular	0.006	0.06	0.016	0.24	36	
снѕ	Midsize	0.006	0.06*	0.016*	0.24	36*	B24 w/o
NSD	Midsize	0.006	0.06	0.016*	0.24*	36*	
WLLO		Sulfur	CO2	C (CO2/3.67)	LOI	R	
CAR	Pebble	0.020	0.30	0.082	0.48*	34	B24 w/o
	Midsize	0.020	0.30	0.082	0.48*	34	B24 w/o
	Granular	0.020	0.30	0.082	0.48	34	
снѕ	Midsize	0.020	0.30*	0.082*	0.48	34*	B23 w/
NSD	Midsize	0.020	0.30	0.082*	0.48*	34*	B23 w/o

- 1. ELLO / WLLO East Lime Load Out (ELLO) and West Lime Load Out (WLLO)
 - Column One Customer code.
 - Column Two Material Type / Material Size.
- 2. Sulfur Average of the prior days Sulfur composite results.
- 3. **CO2** Average of the prior days CO2 composite results.
- 4. **C(CO2/3.67)** Carbon calculation by dividing CO2 calculation by 3.67.
- 5. LOI The CO2 average plus the daily moisture count.
- 6. **R** Number pulled from the reactivity from the composite results.
- 7. Screen Setting The desired screen setting for the customer.



Reports

Three reports are generated to be distributed to the site loaders and production. The reports include:

- <u>Production Report</u> Printed and used for Train and Rail shipment information.
- Loader Report Printed to the loadouts.
- <u>Email Report</u> Emails to two distribution lists for updates and end-of-shift status.

Production Report



- 1. Silo Lists out all the silos in the east and west lime load outs (East 1-9 and West A-F and Q).
- 2. Sulfur Average of the last four sulfur tests done on the silo's material.
- 3. CO2 Average of the last four CO2 tests done on the silo's material.
- 4. LOI Sum of the CO2 measurement plus the daily moisture number.
- 5. **React** Test of the sample's reactivity. Number is the change in temperature in degrees Celsius.
- SA Only tested on lime for Manistee to ensure it is Manistee grade lime for production. Usually, only Silo 9.
- 7. **Material** Status of the silo (empty or not) and, if not, what product is contained. Most silos have a designated type, including pebble, granular, pellets, etc.
- 8. Preferred Silo What customers are preferred to load through the designated silo.
- 9. Customers Not to Load What customers not to load from the designated silo.
- 10. Silo Averages Lab averages when the product in two or more silos is mixed together.
- 11. Sulfur Sulfur average between two or more silos products mixed together.
- 12. **CO2** CO2 average between two or more silos products mixed together.
- 13. LOI LOI average between two or more silos products mixed together.
- 14. **Reactivity** Reactivity of the sample when two or more silos product is mixed together.



Loader Report

LOADE	R REPORT					
LIME LOA DATE: 3/2	ADER SILO QUALITY 28/2024 TIME: 2:15	REPORT PM			0	
Silo	Preferred Silo	Material	Customers to Not Load	Code	CUSTOMER	LOCATION
1		PEBBLE	CAR	ALB	Allegheny Ludlum	Brackenridge
2		PEBBLE		ALB	U. S. Steel	Granite City, IL
Q		PEBBLE			Dove	Thus -
				ІКТ	Tenaris Koppel	Koppel, PA
COMMEN	ITS			MOV	Mid-Ohio	Gibsonburg, OH
				NSD	North Star	Delta, OH
	3			NUC	Nucor	Cofield
				РМА	Prime Metals Acquisition	Homer City, PA
				RPC	Rep - Canton	Canton, OH
				SPI	SPI Pharma	n/a
\square				TFC	Timken	Faircrest
				THC	Timken	Harrison
				USB	U.S. Steel	Braddock, PA
				USE	U. S. Steel, Ecorse	Ecorse, MI

- 1. Cluster One:
 - Silo Lists out all the silos in the east and west lime load outs (East 1-9 and West A-F and Q).
 - **Preferred Silo** What customers are preferred to load through the designated silo.
 - **Material** Status of the silo (empty or not) and, if not, what product is contained. Most silos have a designated type, including pebble, granular, pellets, etc.
 - **Customers to Not Load** What customers not to load from the designated silo.

2. Cluster Two:

- **Code** Letter code designation for each customer.
- **Customer** Name of the customer.
- Location Where is the customer's location to have the product shipped to
- 3. Comments Add additional comments for loaders as needed, such as kiln going into silo, etc.



Email Report

Contains a series of high-level information.

E: 3/28/	2024 TIME:	2:15 PM						
Silo	Sulfur	CO2	LOI	React	SA	Material	Preferred Silo	Customers Not to Load
	0 21	1	1/3			PETTLE		<u>^</u>
1	2	3	4	5	6	Р 7 Е	8	9
3	0.032	1.72	1.93	36	$\overline{}$	3/4 x 1/4		-
4	1.019	1.13	1.34	19		GRANULAR	COV	CAR-AKB, CAR-SDI
5	0.032	1.72	1.93	36		GRANULAR		CAR-AKB
6	N/A	N/A	NL/A	N/A		PELLETS		
E	0.uz	J.50	0.71	36		PEBBLE		
F	0.024	0.50	0.71	36		GRANULAR		
UAD	0.031	0.58	0.79	36		PEBBLE		

- 1. Silo Lists out all the silos in the east and west lime load outs (East 1-9 and West A-F and Q).
- 2. Sulfur Average of the last four sulfur tests done on the silo's material.
- 3. **CO2** Average of the last four CO2 tests done on the silo's material.
- 4. LOI Sum of the CO2 measurement plus the daily moisture number.
- 5. **React** Test of the sample's reactivity. Number is the change in temperature in degrees Celsius.
- SA Only tested on lime for Manistee to ensure it is Manistee grade lime for production.
 Usually, only Silo 9.
- 7. **Material** Status of the silo (empty or not) and, if not, what product is contained. Most silos have a designated type, including pebble, granular, pellets, etc.
- 8. **Preferred Silo** What customers are preferred to load through the designated silo.
- 9. Customers Not to Load What customers not to load from the designated silo.
- 10. **Special Instructions** Any special instructions needed for production on pertinent items.
- 11. Print Print the displayed report or print to save as a PDF.
- 12. **Email** Email to one of two distribution lists. The popup allows anyone to be added and to add additional comments before sending.



<u>Admin</u>

Overview of employees' access to the Lime Data application and their role and activity.

	1							
First Name	Last Name	Initial	liser Name	Pole	+ New	Save S) Canc	
- not nume	H	SH	martinmari	Agin	T	4/1 24	ť	
	D	ND	2 rtinmariet	3	4	5	1	
	R	RS	@martinmari	Admin	True	4/1/2024	ť	
	0	NO	@martinmar	Admin	True			
	D	ND	@martinmarietta	Admin	True	6		
	B	LB	@martinmari	Admin	True	4/1/2024	t	
	D	DD	@	Admin	True	4/1/2024	t	
	В	SB		Admin	True	4/1/2024	t	

- 1. Naming First and Last name and first and last initial.
- 2. Username Martin Marietta email address.
- 3. **Role** There are three roles: Admin, Operator, and Lab Tech.
- 4. Is Active Is the user active (True) or inactive (False).
- 5. Last Login When the user last login to the Lime Data application
- 6. Delete / Trash Remove a user from the portal.
- 7. **New Entry** Add a new user to the portal.
- 8. Save Entry Save an unsaved new user.
- 9. Cancel Edits Cancel unsaved changes.

Logout

Log out after adding entries and saving changes to the Lime Data application.

To log out of the application:

- 1. Locate "Logout" in the navigation panel
- 2. Click "Logout"
- 3. Wait for the application to logout



Adding Entries to the Application

The functionality for adding entries is the same across the entirety of the application. To add a new entry in the Lime Data application:

- 1. Navigate to the desired entry screen
- 2. Click "New"
- 3. Enter lab results and other relevant data into the fields
- 4. Click "Save" to save changes

NOTE: Other functionality includes:

- Cancel the entry to stop and delete additions.
- Delete/trash a saved entry to remove from the log.

Generating an Excel Sheet View of the Data

Users can generate an Excel Sheet view of the content for records on several pages. The pages where users can generate an Excel Sheet include:

- Kilns Data Entry
- Kilns Transaction Data
- Composite Results
- Customer Specifications

To download the Excel Sheet view:

- 1. Navigate to one of the pages with the download icon
- 2. Click the download icon represented by a downward-pointing arrow
- 3. Wait for the download to finish
- 4. Click the file to view
- 5. Follow standard save procedures to save the file for records