

2025 Annual Conference - Innovations in Pavement Preservation

Innovations in Pavement Preservation Equipment Technology

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Overview

What we'll cover

Mechanical Machine

- Paver Calibration
- Paver Set up
- Material Readouts

Electronic Machine

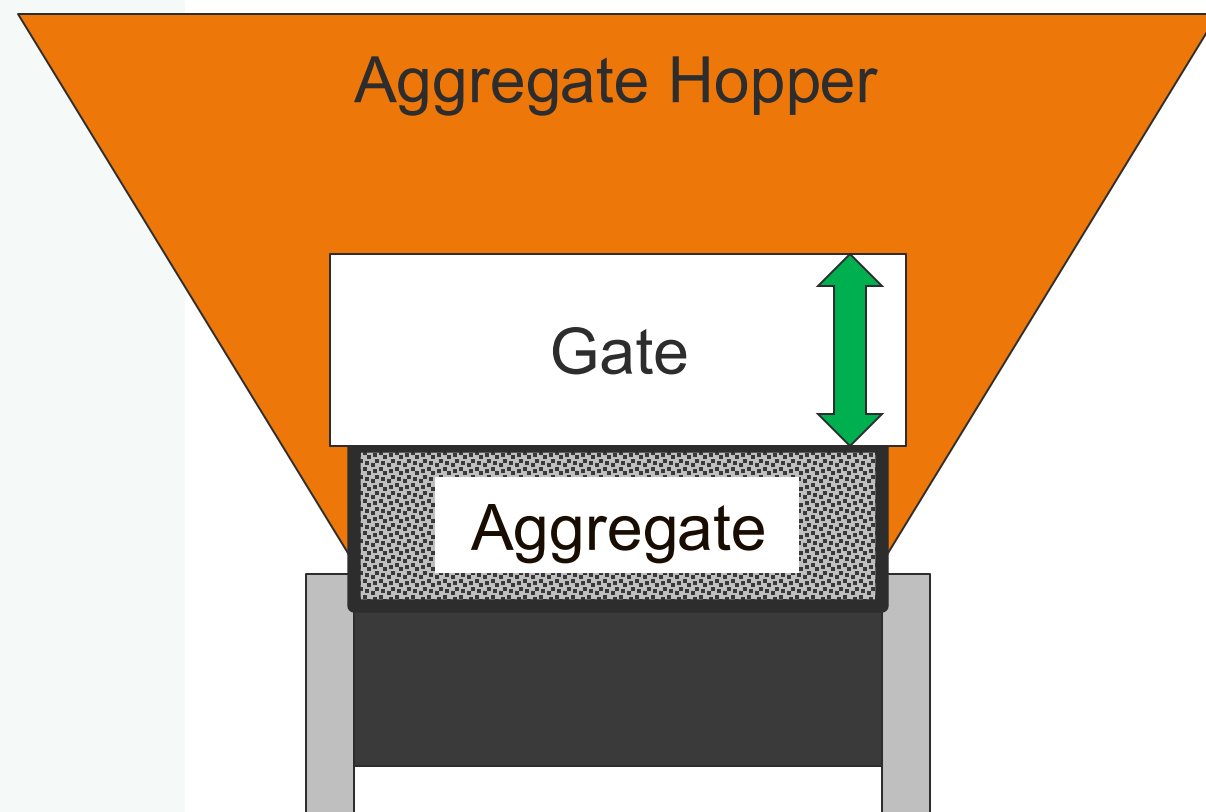
- Paver Calibration
- Paver Set up
- Material Readouts

Machine Reporting New Equipment

Mechanical Machine

Paver Calibration

- Adjustable Gate
- Calibration Work Sheet
- Multiple Samples



Mechanical Paver Setup

Aggregate Calibration Worksheet

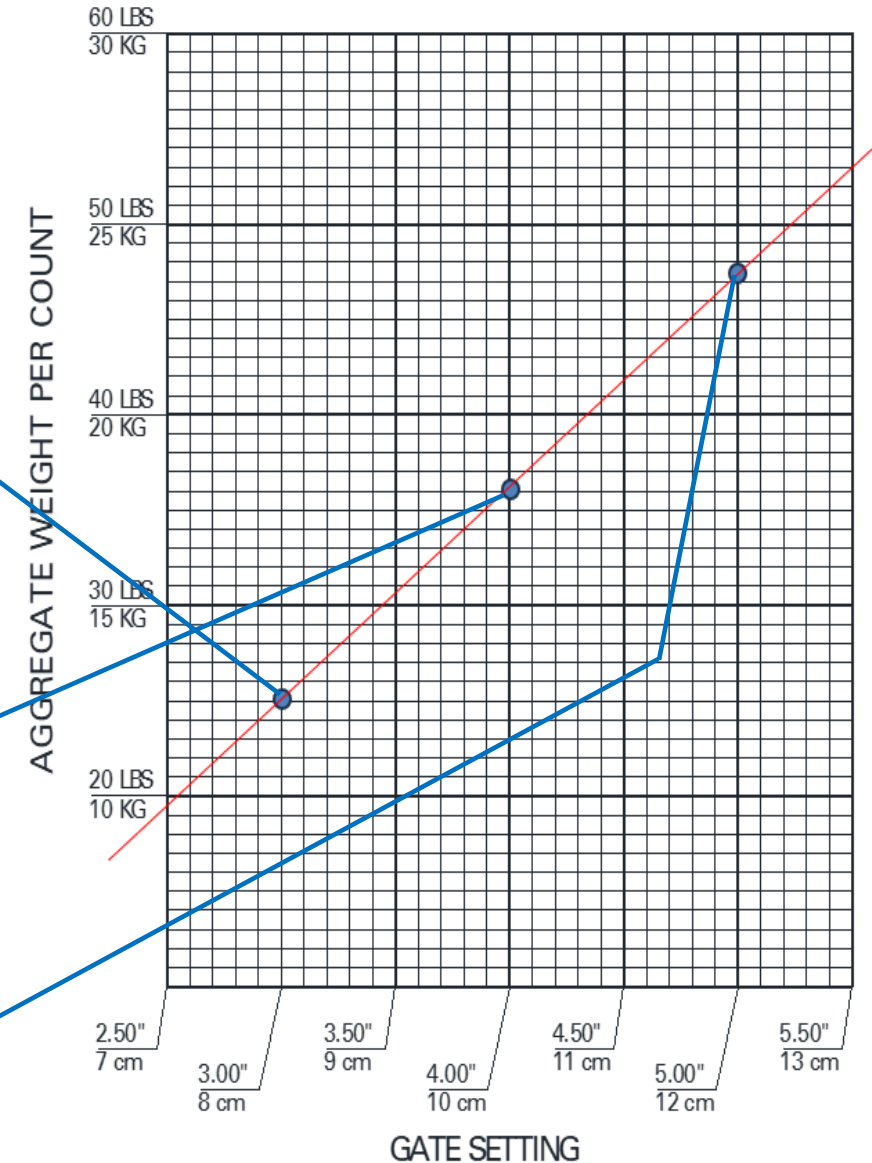
Minimum of 50 counts of the rock/aggregate belt counter per sample

Unit Number: 1

Date: 07/01/20

Gate Setting (inches)	Weight A (Lbs)	Weight B (Lbs)	Net Weight (Lbs) (=A-B)	Number of Counts	Lbs / Count Wet Aggregate (=Net Wt/Counts)
3					
Sample 1	57300	56000	1300	50	26.0
Sample 2	56000	54690	1310	50	26.2
Sample 3	54690	53370	1320	50	26.4
Avg Wet Agg lbs/count	26.2	÷ Moisture Factor	1.05	= Avg Dry Agg lbs/count	25.0
4					
Sample 1	52835	50945	1890	50	37.8
Sample 2	50945	49045	1900	50	38.0
Sample 3	49045	47135	1910	50	38.2
Avg Wet Agg lbs/count	38.0	÷ Moisture Factor	1.05	= Avg Dry Agg lbs/count	36.2
5					
Sample 1	46650	44150	2500	50	50.0
Sample 2	44150	41680	2470	50	49.4
Sample 3	41680	39190	2490	50	49.8
Avg Wet Agg lbs/count	49.7	÷ Moisture Factor	1.05	= Avg Dry Agg lbs/count	47.4

Input data in blue shaded cells. Calculate data in white cells.



Mechanical Paver Setup

CALIBRATION SUMMARY

- Emulsion weight per count of Aggregate belt. [page 2] EM W/C 4.0
- Mineral Filler weight per count of mineral filler counter. [page 2] MF W/C 0.200
- Choose the proper calibration procedure (below) based on your mix design.

➤ CALIBRATION BY PERCENT EMULSION

Find the required Dry Aggregate weight per count (DA W/C) based on % Emulsion.

- The following percentages are entered in decimal form. (I.E. 12% = 0.12)

$$\text{EM W/C } \underline{4.0} \div \underline{0.12} \% \text{ Emulsion required} = \underline{33.3} \text{ DA W/C}$$

Example: $5.0 \div 0.12 = 41.67$ DA W/C

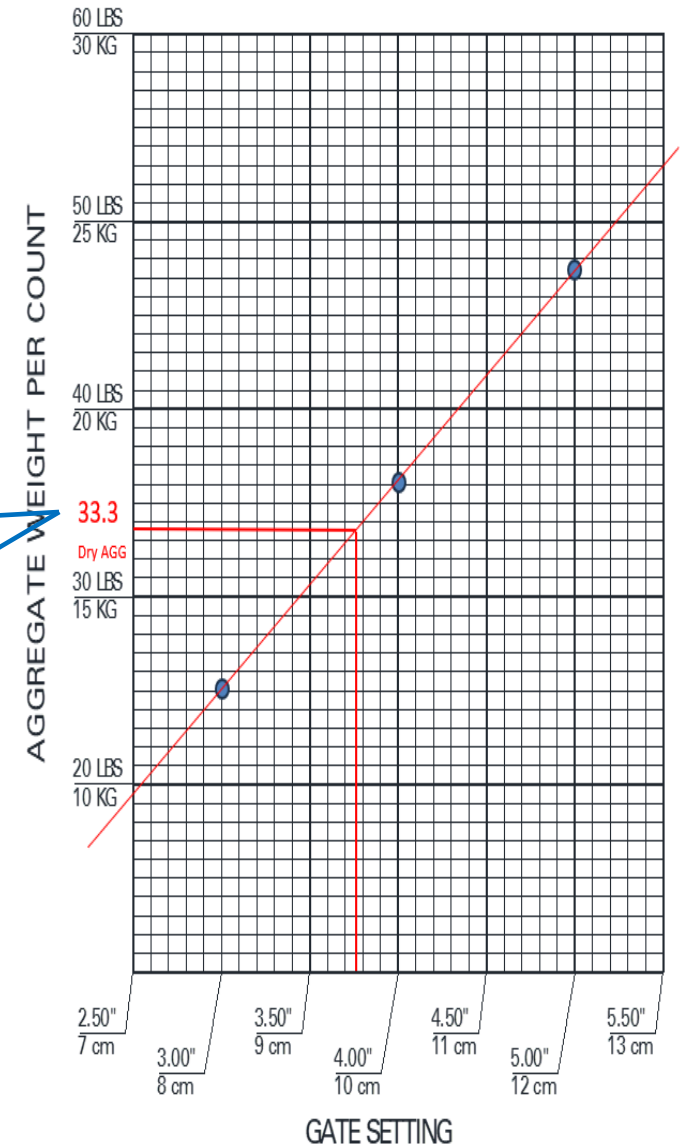
➤ CALIBRATION BY PERCENT RESIDUAL ASPHALT

Find the Dry Aggregate weight per count (DA W/C) based on % Residual Asphalt.

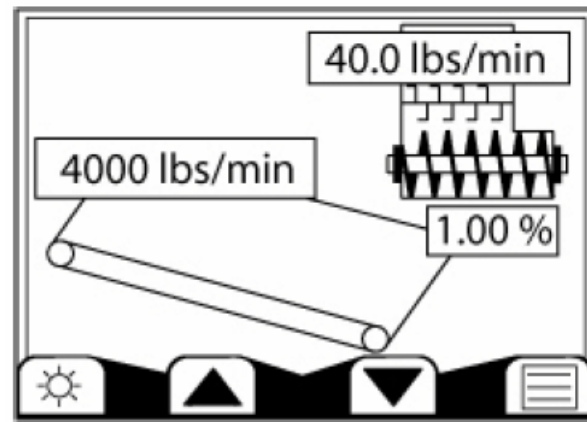
$$\text{EM W/C } \underline{4.0} \times \text{R.A. EM } \underline{.65} \div \% \text{ R.A. Req'd. } \underline{0.078} = \underline{33.3} \text{ DA W/C}$$

Example: $5.0 \times 0.65 \div 0.078 = 41.67$ DA W/C

- To find the corresponding aggregate gate opening from the graph on Page 4, locate the DA W/C calculated in step 3 on the left side of the graph. Follow this value horizontally to the right until it intersects the line drawn through the three points. At the point of intersection, follow this value vertically, down to the bottom scale to determine the gate opening for the paver. Set the gate to this measurement. See the example on page 6.

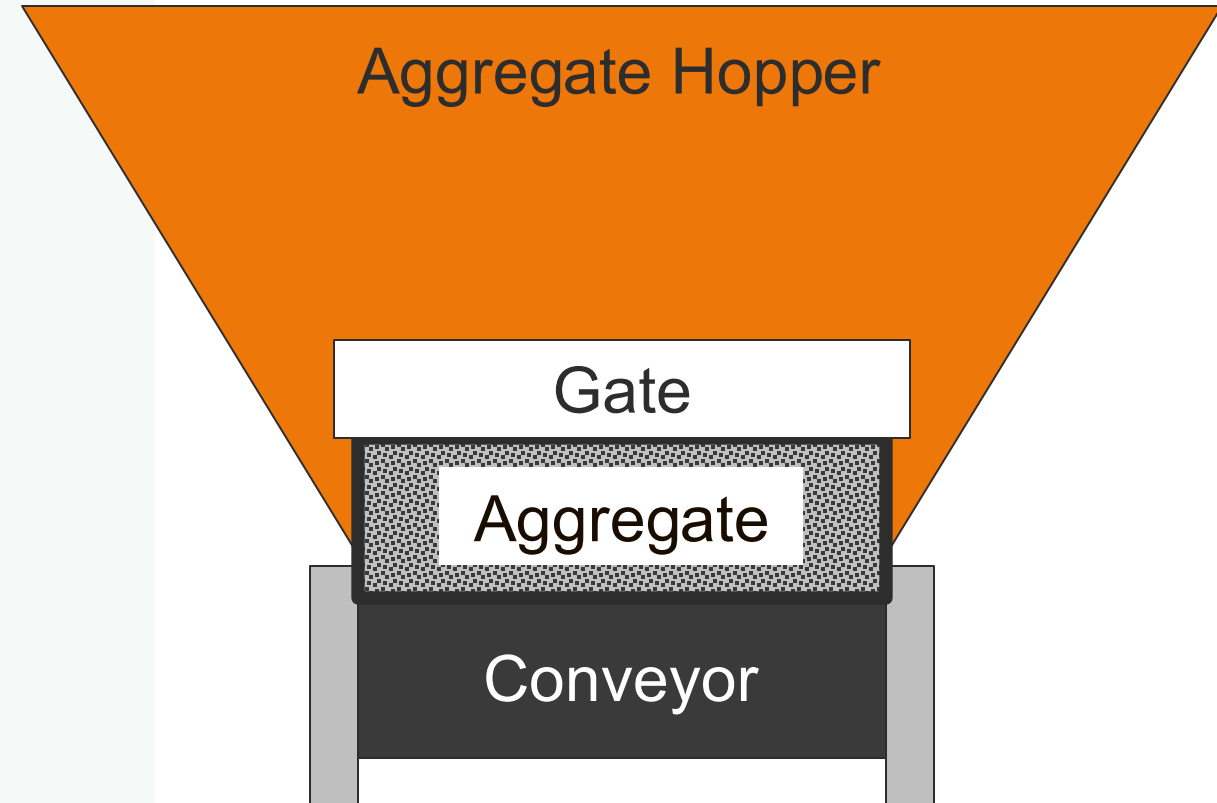


Mechanical Paver Material Readouts



Electronic Paver Calibration

- Fixed Gate
- Computerized calculations
- Store multiple materials



Electronic Paver Calibration

Type 3 Rock-Flintstone Qy AGGREGATE 2 CALIBRATION

	Gross Weight (Lbs)	Tare Weight (Lbs)	Net Weight (Lbs)	Counts	Scale Factor (lbs/count)	Deviation
1	57,860.0	55,960.0	1,900.0	10,969	0.17322	-4.66%
2	55,960.0	54,040.0	1,920.0	10,460	0.18356	1.24%
3	54,040.0	52,060.0	1,980.0	10,744	0.18429	1.63%
4	52,060.0	50,120.0	1,940.0	10,540	0.18406	1.51%
5	0.0	0.0	0.0	0	0.00000	0.00%
6	0.0	0.0	0.0	0	0.00000	0.00%



DELETE
ALL

DELETE

SAVE

DISABLED

? HELP



Production
Command

Conveyor

ON

Average Scale Factor

Aggregate Moisture

Dry Scale Factor

Active Bulking Effect

0.18128 lbs/count

4.60 %

0.16760 lbs/count

No Bulking Effect

BULKING
EFFECT

EXIT

Electronic Paver Setup

Interpretation of Results and Job Mix Formula

	Design	Minimum	Maximum
Mineral Filler	1.0%	0.5%	1.5%
Total Water	10.0%	8.0%	12.0%
Field Control Additive***	0.0%	0.0%	1.0%
CSS-1P Asphalt Emulsion	12.0%	11.4%	12.8%
Residual Content of Emulsion	65.0%	62%	-
Residual Asphalt in Mix	7.8%	7.4%	8.3%

*** Typical field control additive is 35 oz. per ton.

Test data reported herein have been secured by reliable testing procedures. As we have no knowledge of, or control over, the conditions that may affect the use of the materials from which the samples were taken, we assume no responsibility in furnishing these data other than to warrant they represent reliable measurement of the properties of the samples tested.

SETPOINTS

Job Name **CALIBRATION TRAINING and SETUP**

Emulsion Ratio **12.00** % Aggregate Moisture **4.60** %

Mineral Filler Ratio **1.00** % Mixer Speed **225** rpm

Fiber Ratio **0.20** % Spreader Box Width **144.000** inches

Max Production **4,000** lbs/minute **? HELP**

750 - 4000

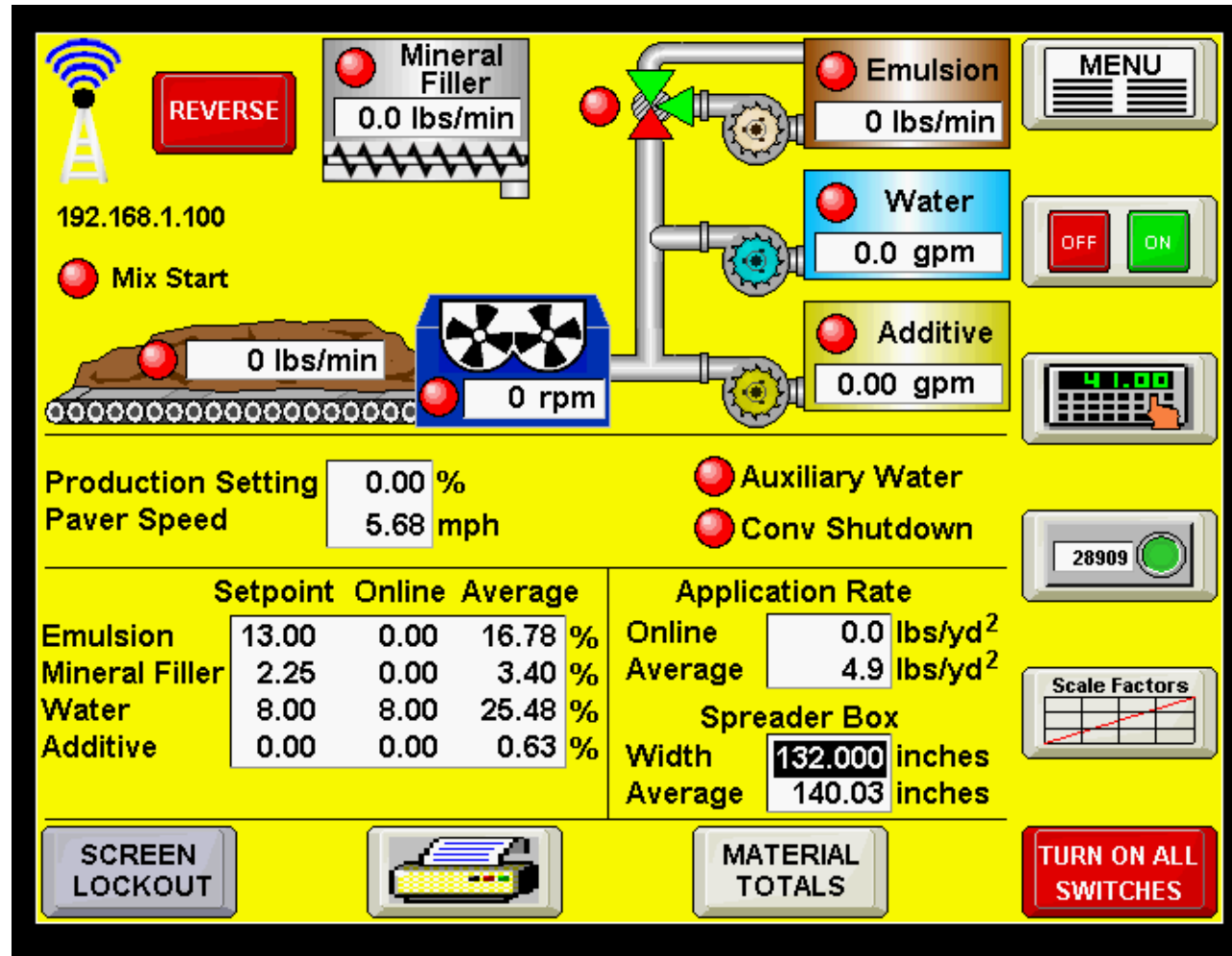
Box Width **Operator Entry**

EMULSION SETPOINT **BOX WIDTH SELECTION**

EMULSION DELAYS **HIDE**

Aggregate Moisture is the daily change of moisture in the rock, if it differs from the calibration %.

Electronic Paver Material Readout



Electronic Paver Material Printouts

Production Totals and Ratios

Date: 03/13/23
Time: 04:31:44 PM

Job: Jason i an controlling you
Unit: 04-49531

Materials Used

Aggregate: VULCAN TYPE 2 TX 2022
Emulsion: LITTLE ROCK AR 2022
Mineral Filler: LITTLE RK AR 22
Additive:

Aggregate	17.89 tons
Emulsion	4,348 lbs
Mineral Filler	357 lbs
Water	0 gals
Additive	0.0 gals
Distance	470 yds
Square Yards	1,880

Emulsion	12.04 %
Mineral Filler	0.99 %
Water	3.00 %
Additive	0.00 %

Application Rate 19.2 lbs/yd

Emulsion Setpoint	12.00 %
Mineral Filler Setpoint	1.00 %
Aggregate Moisture	3.00 %

Box Width	144.000 inches
Average Box Width	144.00 inches

The ratio of emulsion, water, additive and application rate calculations are derived from the dry material.

Dry Material = Aggregate + Mineral Filler

Material Scale Factors

Date: 03/13/23
Time: 04:32:45 PM

Unit: 04-49531

Materials Used

Aggregate: VULCAN TYPE 2 TX 2022
Emulsion: LITTLE ROCK AR 2022
Mineral Filler: LITTLE RK AR 22
Additive:

Aggregate	0.21165 lbs/count
Emulsion	0.03760 lbs/count
Mineral Filler	0.00878 lbs/count
Water	0.00241 lbs/count
Additive	0.00363 lbs/count
Distance	0.40881 in/count

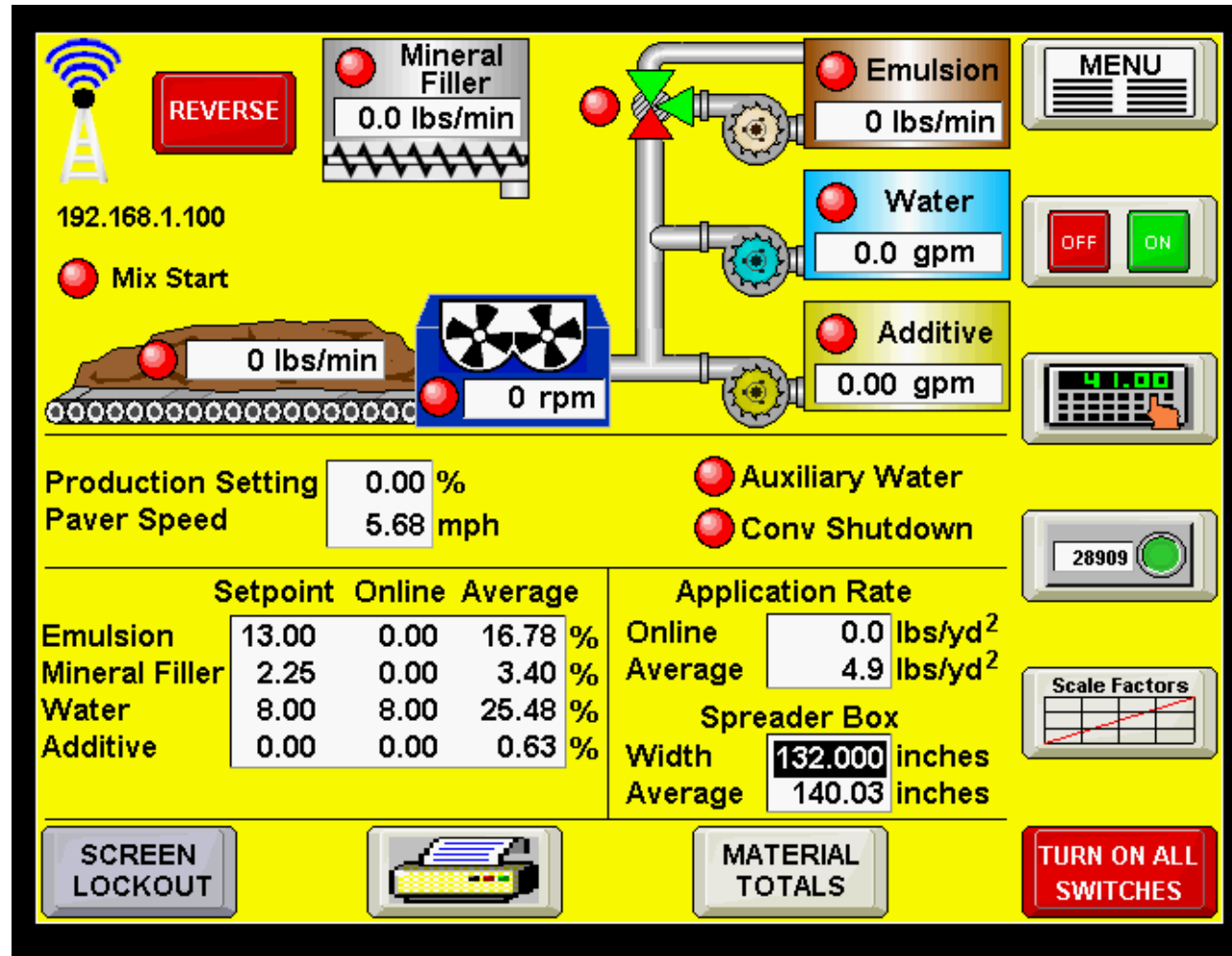
Machine Counters

Date: 03/13/23
Time: 04:33:27 PM

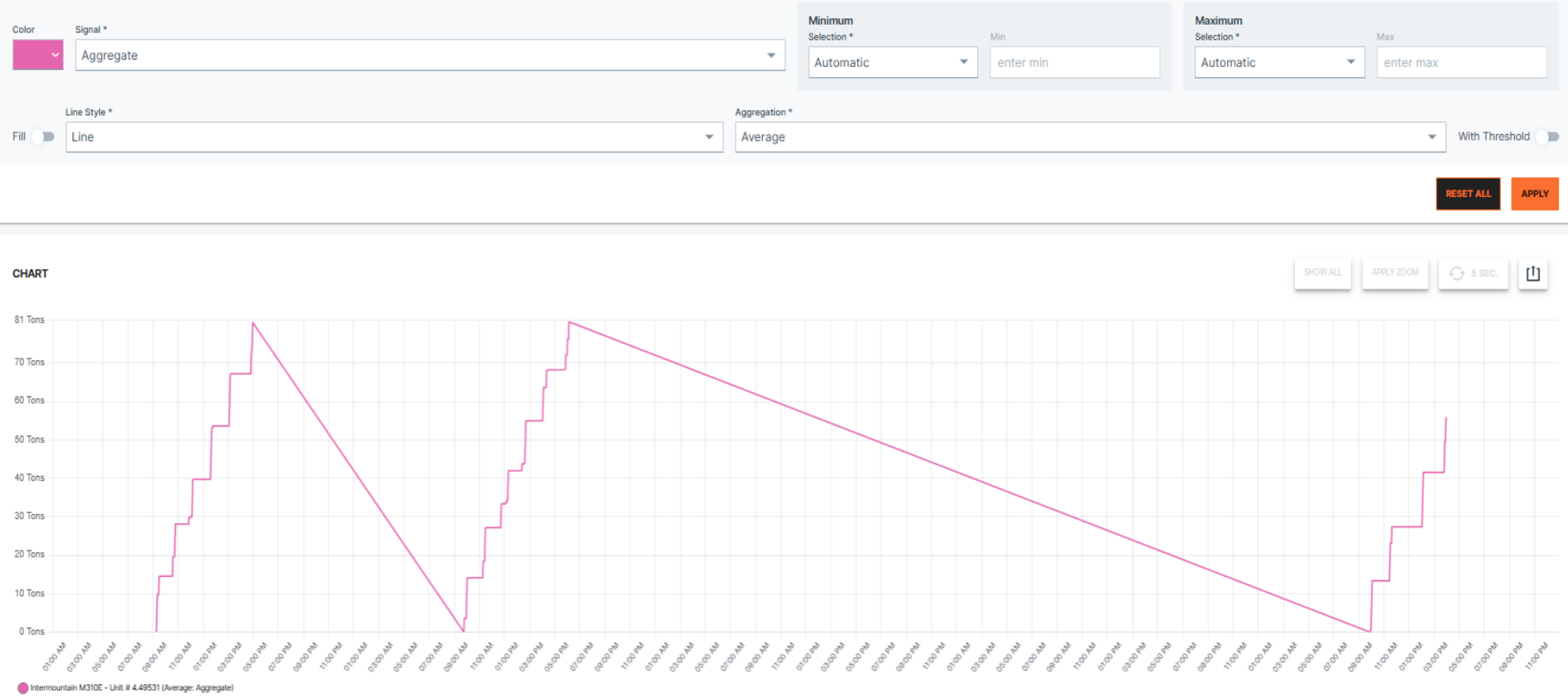
Unit: 04-49531

Conveyor	169,008
Emulsion	115,651
Mineral Filler	40,653
Water	0
Additive	0
Distance	41,392

Electronic Paver Remote View



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Journeyman Plant





Thank you

Zach Jensen
Product Manager



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PAAMA Processes Keep Good Roads in Good Condition



2024 Annual Conference

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